Soil and Groundwater Investigation Report

Bailer Hill Technical Support
Friday Harbor, Washington

for
Washington State Department of Ecology
Toxics Cleanup Program

June 25, 2025

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Bailer Hill Technical Support
3189 Bailer Hill Road
Friday Harbor, Washington

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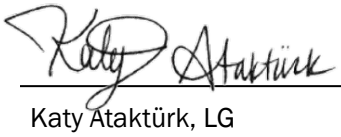

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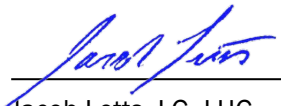

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List of Abbreviations and Acronyms

6:2 FTS	6:2 fluorotelomer sulfonic acid
8:2 FTS	8:2 fluorotelomer sulfonic acid
AFFF	aqueous film-forming foam
ASTM	ASTM International
bgs	below ground surface
CLARC	Cleanup Levels and Risk Calculation database
COC	chain-of-custody
CSM	conceptual site model
CUL	cleanup level
DOH	Washington State Department of Health
DOT	Washington State Department of Transportation
Ecology	Washington State Department of Ecology
EIM	Environmental Information Management
EPA	U.S. Environmental Protection Agency
FT	fluorotelomerization
FTOH	fluorotelomer alcohol
GPR	ground penetrating radar
HDPE	high density polyethylene
HFPO-DA (GenX)	hexafluoropropylene oxide dimer acid, or ammonium (2,3,3,3-tetrafluoro-2-(heptafluoropropoxy) propanoate
HHOA	Hannah Heights Homeowners Association
IDW	investigation-derived waste
IIFR	Initial Investigation Field Report
LDPE	low-density polyethylene
µg/kg	micrograms per kilogram
MCL	Maximum Contaminant Level
MTCA	Model Toxics Control Act
NAVD88	North American Vertical Datum of 1988
ng/L	nanograms per liter
NMR	nuclear magnetic resonance
NPDWR	National Primary Drinking Water Regulation
NTU	nephelometric turbidity units
PCULs	preliminary cleanup levels
PFAA	perfluoroalkyl acids
PFAS	per- and polyfluoroalkyl substances

PFBA	perfluorobutanoic acid, or perfluorobutanoate
PFBS	perfluorobutanesulfonic acid, or perfluorobutane sulfonate
PFC	perfluorinated compounds
PFCA	perfluoroalkyl carboxylic acid
PFDA	perfluorodecanoic acid, or perfluorodecanoate
PFHxA	perfluorohexanoic acid, or perfluorohexanoate
PFHxS	perfluorohexane sulfonic acid, or perfluorohexane sulfonate
PFNA	perfluorononanoic acid, or perfluorononanoate
PFOA	perfluorooctanoic acid, or perfluorooctanoate
PFOS	perfluorooctane sulfonic acid, or perfluorooctane sulfonate
PFPeA	perfluoropentanoic acid
PFSA	perfluoroalkyl sulfonic acid
PID	photoionizing detector
ppm	parts per million
PTFE	polytetrafluoroethylene
PVC	polyvinyl chloride
QAPP	quality assurance project plan
QC	quality control
ROW	right-of-way
SAL	State Action Level
SAP	Sampling and Analysis Plan
SGS	SGS Laboratories
Site	Little Mountain Fire Station No. 33 and surrounding properties
SOP	standard operating procedure
SPLP	Synthetic Precipitation Leaching Procedure
TOP	Total Oxidizable Precursor
USCS	United Soil Classification System

1.0 Introduction

This Soil and Groundwater Investigation Report (Report) summarizes the results of environmental drilling and sampling conducted between August and October 2024 at the Little Mountain Fire Station No. 33 (San Juan County Tax Parcel 353050029000; subject property) located at the intersection of Bailer Hill Road and Straits View Drive near the town of Friday Harbor on San Juan Island, Washington. The subject property is owned by Hannah Heights Homeowners Association (HHOA) and includes the Fire Station and a Group A water supply well (Well No. 2) that supplies drinking water to homes within the HHOA service area. The subject property is being investigated by the Washington State Department of Ecology (Ecology) as a potential source of per- and polyfluoroalkyl substances (PFAS) based on the detection of PFAS in a water sample collected from Well No. 2 in April 2023. The subject property is listed in Ecology's database as the Bailer Hill PFAS Site (Site; Facility Site ID: 100000405/Cleanup Site ID: 16911).

GeoEngineers, Inc. (GeoEngineers) completed a review of available information for the subject property and surrounding properties in 2024 prior to completion of the subsurface investigation described in this Report. The information reviewed included groundwater data received from Ecology for the HHOA Group A water supply system and groundwater analytical data received from private well owners in the subject property vicinity. The results of our data review were presented in our Data Review Memorandum, Little Mountain Fire Station No. 33, dated November 25, 2024 (GeoEngineers 2024a), and relevant data are included in this Report.

Throughout this Report the term "subject property" is used to describe San Juan County Tax Parcel 353050029000, which includes Little Mountain Fire Station No. 33, and the term "Site" is used to describe the areas where PFAS have been detected in groundwater at concentrations greater than applicable cleanup standards.

1.1 OBJECTIVES

The purpose of the work described in this Report was to conduct a soil and groundwater investigation at the subject property to assist Ecology in identifying the potential source(s) of PFAS detected in the on-property water supply well, Well No. 2. The subsurface investigations summarized in this report were conducted as an Ecology-supervised action through an on-call contract between GeoEngineers and Ecology.

1.2 REGULATORY FRAMEWORK

Ecology issued an Initial Investigation Field Report (IIFR), dated June 2, 2023, which cited the April 2023 analytical results of drinking water from Well No. 2 as part of the findings to warrant further investigation. The subject property was added to Ecology's database as the Bailer Hill PFAS Site, Facility Site ID: 100000405/Cleanup Site ID: 16911.

Federal and state level regulations on PFAS continue to evolve, and the content of this report reflects the current regulations at the time of document publication. The cleanup levels (CULs) presented in Ecology's Cleanup Levels and Risk Calculation (CLARC) database (Ecology 2025), updated in February 2025, are used to assess and document the extent of PFAS impacts, and to identify data gaps.

2.0 Subject Property Background and Conditions

This section outlines the subject property's location, current and historical land use, nearby drinking water wells, physical setting, and previous investigations.

2.1 LOCATION AND CURRENT LAND USE

The subject property is located at 3189 Bailer Hill Road, Friday Harbor, Washington, in the southeastern quadrant of Section 30, Township 35N, Range 03W of the Willamette Meridian. It lies within the southwestern portion of San Juan Island, part of the San Juan archipelago in the Salish Sea, between the Strait of Juan de Fuca and the Strait of Georgia (Vicinity Map, Figure 1). The approximately 0.97-acre property, identified as San Juan County Parcel No. 35305002900, is owned by the HHOA and currently occupied by Little Mountain Fire Station No. 33 (Site Plan, Figure 2). It is bordered by Bailer Hill Road to the north, Straits View Drive to the east, and residential properties to the west and south, beyond which are Clipper Way and Brower Lane, respectively.

2.2 HISTORICAL LAND USE

Historical records, including topographic maps, aerial photographs, and city directory reports, indicate that the subject property remained undeveloped until the 1970s. In the early 1900s, the parcel was used as an orchard. Between 1972 and 1981, the subject property was developed alongside adjacent properties to the south and east. The original Little Mountain Fire Station building occupied approximately 480 square feet and likely utilized an underground heating oil tank for heating. In 1975, Martel Well Drilling Inc. (Martel) installed a water supply well about 100 feet south-southeast of the station, as described below. The station underwent renovations in 1983, adding a 720-square-foot single-story extension. Anecdotal reports suggest that Class B aqueous film-forming foam (AFFF), a firefighting foam potentially containing PFAS, was historically stored and used at the station for specific fire suppression needs on the island.

2.3 ON-PROPERTY DRINKING WATER WELL

A drinking water well (HHOA Well No. 2) was installed on the subject property on August 1, 1975, by Martel using air rotary drilling methods. The well was installed approximately 100 feet southeast of the existing Fire Station building and is accessible by dirt path on the southern boundary of the subject property (Figure 2). The unique well tag number in the Ecology Well Database is AFL-658.

The well consists of a 6-inch-diameter cement casing extending from the surface to a depth of 18.5 feet below ground surface (bgs) and the uncased portion of the well was completed to a depth of 183 feet bgs. The static water level was initially recorded at 40 feet bgs on July 15, 1975. During an endoscope evaluation of the well conducted by the HHOA in May 2023, groundwater was observed seeping into the uncased portion of the well at approximately 38 feet bgs through fractured bedrock.

The initial well pumping test conducted on July 21, 1975, demonstrated static water levels with a minimum pump rate of 33 gallons per minute sustained over an 8-hour period. The shut-in test showed a water column recovery of approximately 20 feet within one hour. A copy of the scanned Well No. 2 exploration log, installation records, and initial pumping tests are presented in Appendix A.

2.4 PHYSICAL SETTING

The location and setting of the subject property are described in the Data Review Memorandum for Little Mountain Fire Station No. 33 dated November 25, 2024 (GeoEngineers 2024a). Key information is summarized below.

- San Juan County Parcel No. 35305002900
- Approximate parcel size is 0.97 acres.
- Surface elevations range between 198 and 213 feet North American Vertical Datum of 1988 (NAVD88).
- Shallow groundwater flow through the overburden is inferred to the south-southeast based on surface topography.
- The nearest surface water body is Haro Strait (Salish Sea), approximately 0.35 miles south.

2.5 PREVIOUS INVESTIGATIONS

No prior environmental investigations were conducted at the subject property prior to the initial discovery of impacted drinking water in 2023. Group A community water systems were required by the Washington State Department of Health (DOH) to monitor drinking water for PFAS beginning in January 2023, which initiated the testing of Well No. 2 on the subject property on April 3, 2023 (DOH 2022). One drinking water sample was collected from the entry point to the drinking water distribution system and submitted for laboratory analysis of PFAS by U.S. Environmental Protection Agency (EPA) Method 533 by Antek Labs, Inc. (Antek), an Ecology-accredited laboratory. The analytical results at Well No. 2 indicated PFAS concentrations in drinking water significantly exceeded the Maximum Contaminant Levels (MCLs) for drinking water for four out of the five regulated PFAS compounds established at the time of testing. At the time of the publication of this Report, there are six PFAS compounds with federally established MCLs[1] for drinking water. The initial analytical results prompted follow-up engagement from the San Juan County Department of Health.

Additional groundwater sampling at Well No. 2 was conducted on May 3, 2023, to evaluate vertical concentration variations across the groundwater column. The HHOA performed an endoscopic survey of the well to identify possible discrete entry points of shallow groundwater infiltration and identified a shallow fracture seep at approximately 38 feet below the top of the well casing. One discrete groundwater sample was collected from the shallow fracture seep and one sample was collected from the pump positioned near the base of the well at a depth of approximately 183 feet. Groundwater samples were analyzed by EPA Method 533 which identified concentrations of 26 PFAS compounds. The six PFAS compounds with MCLs were all detected above their respective MCLs with Hazard Indices ranging from 312 to 834 in the three groundwater samples from Well No. 2. Analytical results for the three samples from Well No. 2 are presented in Table 1. Laboratory analytical reports are presented in the Data Review Memorandum (GeoEngineers 2024a).

[1] As of April 2024, EPA has finalized MCLs of 4 parts per trillion (ppt) for PFOA and PFOS; 10 ppt for PFHxS, PFNA, and GenX (HFPO-DA); and a Hazard Index approach for mixtures containing two or more PFNA, PFHxS, GenX (HFPO-DA), and PFBS.

3.0 Field Investigation

The following section describes the field investigation conducted in August and October 2024 to evaluate soil and groundwater conditions at the subject property. The field program was designed to evaluate soil and groundwater conditions on the subject property in accordance with GeoEngineers' Sampling and Analysis Plans (SAPs) (GeoEngineers 2024a and 2024b). The first phase of the investigation was completed August 12 through 15, 2024, and consisted of shallow soil and grab groundwater sampling using direct-push drilling equipment. Laboratory analytical results from the first phase of work were evaluated in September 2024 to select locations for the installation of permanent monitoring wells. The second phase of the investigation was completed October 14 to 17 and October 28 to 30, 2024, and consisted of installing four permanent groundwater monitoring wells using sonic and air-rotary drilling equipment and groundwater sampling. Exploration locations are shown in Boring and Monitoring Wells, Figure 3. Laboratory analytical reports are included in Appendix B.

GeoEngineers also requested available drinking water analytical data from nearby private well owners; the results were summarized in GeoEngineers' November 2024 Data Review Memorandum (GeoEngineers 2024a). Off-property private water well data received after the publication of the memorandum is discussed in this section and presented in Table 1. The exploration depths, water level measurements, and monitoring well design information are presented in Table 2. Exploration logs with monitoring well completions are presented in Appendix A. Copies of the additional laboratory reports provided by property owners are included in Appendix C with redactions of personally identifiable information.

3.1 SHALLOW SOIL AND GROUNDWATER INVESTIGATION – AUGUST 2024

Twelve soil borings and two shallow soil samples were collected with a shovel to assess the extent of PFAS in soil and groundwater at the subject property. Soil borings (designated BH-1 through BH-12) were completed using a Geoprobe direct-push drill rig operated by Cascade Environmental, LLC of Bothell, Washington, an Ecology-licensed driller. Direct-push borings were completed to depths ranging from 8 to 20.5 feet bgs where refusal was met. Up to three samples were collected at each boring, including at 1-2 feet bgs, 5–6 feet bgs or the top of the groundwater table, and at the base of the boring. In addition to the direct-push borings, two shallow composite soil samples were collected by shovel from depths of 0 to 6 inches in the northwest corner of the subject property (designated SS-1-0-0.5 and BH-1-0-0.5). Exploration locations are shown in Figure 3.

Prior to drilling, proposed borings were marked in white paint and cleared for utilities by public and subcontracted private utility locators. The direct-push soil borings were advanced to depths of up to 22 feet bgs, with refusal at bedrock or a competent glacial till layer. Soil was logged using United Soil Classification System (USCS) methods and field screened for evidence of petroleum contamination using a sheen test and measuring headspace vapors with a photoionizing detector (PID). Soil cuttings generated during drilling were monitored by a state-licensed archaeologist for signs of historical activity. A memorandum summarizing the findings of the archaeological monitoring program is included in Appendix D. Soil samples were collected in accordance with the Ecology-approved SAP targeting shallow soil, soil at the soil-groundwater interface, and soil at the base of the borings. A total of 26 soil samples (24 plus two duplicates) were submitted to SGS Laboratories (SGS) in Orlando, Florida, for analysis of PFAS compounds by EPA Method 1633. Soil analytical results are summarized and compared to Ecology preliminary cleanup levels (PCULs) in Table 3.

Localized perched groundwater was observed at various depths in six of the 12 shallow soil borings (BH-1, BH-4, BH-5, BH-6, BH-10 and BH-12). Temporary well points were installed at each of these locations and grab groundwater samples were collected using low-flow sampling methods with a peristaltic pump. Groundwater samples were submitted to SGS for analysis of PFAS by EPA Method 1633. All groundwater samples were observed to be turbid (greater than 1,000 nephelometric turbidity units [NTU]) and did not exhibit any sheen. Analytical results for the grab groundwater samples are summarized and compared to Ecology PCULs in Table 4.

A total of eight quality control (QC) samples, including field duplicates, field blanks and equipment rinsate blanks, were collected in the field according to Ecology guidance (Ecology 2023) and the approved, project-specific SAP. There were no detections of PFAS compounds in the field blanks or the equipment rinsate blanks. Laboratory analytical results are included in Appendix C and copies of the Environmental Information Management (EIM) database submittal receipts are provided in Appendix E.

3.2 WELL INSTALLATION AND GROUNDWATER INVESTIGATION – OCTOBER 2024

Permanent groundwater monitoring wells were installed on the subject property to assess the extent of PFAS impacts in groundwater.

3.2.1 Well Installation

Four groundwater monitoring wells were installed at the subject property in October 2024. Monitoring wells BH-MW1, BH-MW3 and BH-MW4 were screened in the fractured bedrock. Groundwater was observed in the shallow soil during drilling for monitoring well BH-MW2, located east of the Little Mountain Fire Station building, and the well was screened in the shallow water-bearing zone situated above the bedrock. Monitoring wells BH-MW1 through BH-MW3 were installed by Mauldin's Well Service of Friday Harbor, Washington, under the supervision of a Washington-licensed Professional Engineer using air-rotary drilling methods. Monitoring well BH-MW4 was installed by Cascade Environmental, LLC of Bothell, Washington, using sonic drilling methods via a track-mounted sonic drill rig. Exploration locations are shown in Figure 3.

The monitoring wells were constructed with 2-inch-diameter polyvinyl chloride (PVC) casing and completed with flush-mount monuments. The monitoring wells were installed to depths between 19 to 55 feet bgs with a 10- or 15-foot-long 0.010-slot screen. The wells were screened at depths corresponding with the elevation of the fracture seep identified in Well No. 2 that was sampled by HHOA on May 3, 2023 (i.e., to span approximately 38 feet bgs). Monitoring well construction details are shown in Table 2 and on the soil boring and monitoring well construction logs presented in Appendix A.

The casing rim elevation of each new monitoring well and the ground surface elevation of each soil boring were surveyed relative to the North American Vertical Datum of 1988 (NAVD88) by a licensed surveyor. Depth to groundwater was measured prior to sampling the newly installed monitoring wells. Measured depths to groundwater and groundwater elevations are presented in Table 2.

3.2.2 Monitoring Well Groundwater Sampling

Groundwater samples were collected for laboratory analysis from three of the newly installed monitoring wells (BH-MW1, BH-MW2, and BH-MW4) on October 30, 2024, as part of the investigation; groundwater monitoring well BH-MW3 was dry at the time of sampling. Monitoring wells with groundwater present were initially developed and purged using a decontaminated steel bailer and bladder pump. Due to limited

hydraulic head and slow aquifer recharge rates, samples were collected with single-use, PFAS-free bailers at least 24 hours after initial well development. Groundwater samples collected with bailers exhibited high turbidity (greater than 1,000 NTU) and Ecology was notified of deviation from the SAP (adjusted sampling method via bailer instead of low-flow pump) during groundwater sampling on October 30, 2024.

Four groundwater samples (three samples and one duplicate) were submitted to SGS for analysis of PFAS by EPA Method 1633. The analytical results are summarized and compared to Ecology PCULs in Table 4. A discussion of applicable cleanup standards is presented in Section 4.0.

3.3 NEIGHBORHOOD WELL INVENTORY

After the Data Review Memorandum was published on November 25, 2024, additional data was reported voluntarily by property owners in the vicinity of the subject property. The tabulation of neighborhood analytical data is presented in Table 1 including the analytical results from Well No. 2. Additional analytical reports obtained since publication of the Data Review Memorandum are presented in Appendix C with personally identifiable information redacted at the request of the property owners.

One additional groundwater grab sample was collected by GeoEngineers on August 14, 2024, at the east-adjacent property (P-1; see Figure 3) in coordination with the property owners and Ecology. Laboratory-provided bottleware was lowered into the parcel's abandoned drinking water well to approximately 38 feet bgs and a grab groundwater sample was collected for laboratory analysis. The P-1 groundwater data are presented in Table 1.

3.4 INVESTIGATION-DERIVED WASTE

Investigation-derived waste (IDW), including soil and water generated during the drilling and sampling activities, was containerized in Washington State Department of Transportation (DOT)-approved 55-gallon steel drums and temporarily stored at the subject property pending characterization and disposal. Soil and purge water IDW were characterized using the soil and groundwater sample data presented in Tables 3 and 4 and disposed at an appropriately licensed off-site facility. The transportation manifest and disposal receipt are provided in Appendix F.

4.0 Preliminary Cleanup Standards

The cleanup standards presented in this report are based on the currently available regulatory guidance with the understanding that regulations for an emerging contaminant group such as PFAS can create a challenge for evaluating data over the course of a project lifetime. In 2021, Ecology concluded that PFAS are hazardous substances under the Model Toxics Control Act (MTCA). The DOH issued drinking water State Action Levels (SALs) for the following five PFAS compounds, which became effective on January 1, 2022 (DOH 2022): PFOA, PFOS, PFNA, PFHxS, and PFBS (see report acronym list for full compound name). Ecology adopted the SALs for these five PFAS compounds as the appropriate groundwater and surface water cleanup levels and also calculated PCULs for PFBA, PFHxA, and HFPO-DA (GenX). Recommended soil cleanup levels protective of groundwater (vadose and saturated zone soil) and of direct contact were also calculated by Ecology for the eight PFAS compounds listed above using the SALs, the MTCA procedures for deriving soil concentrations for groundwater protection, and the default soil characteristics in the MTCA

Cleanup Rule. In June 2023, Ecology published guidance for investigating and remediating PFAS contamination that included recommended cleanup levels for these eight compounds (Ecology 2023).

On April 10, 2024, the EPA announced the final National Primary Drinking Water Regulation (NPDWR), which established MCLs for drinking water for the following five PFAS: PFOA, PFOS, PFHxS, PFNA, and HFPO-DA. Additionally, a Hazard Index MCL was established for mixtures containing two or more of PFHxS, PFNA, HFPO-DA, and PFBS. Ecology revised the June 2023 groundwater PCULs to match the new EPA MCLs. Ecology has made subsequent revisions to the PCULs to include 6:2 FTS and PFDA, and update toxicity values for PFHxS. The revised soil and groundwater PCULs were published in Ecology's CLARC data tables in February 2025. As of May 2025, the federal MCLs are in the process of revision, though it is anticipated that any future revisions to the federal MCLs are unlikely to affect the MCL-derived cleanup levels established by Ecology.

The PCULs for the ten PFAS compounds listed above are used to evaluate the impacts at the subject property in this report. The Hazard Index is used to assess the cumulative non-cancer health risk from multiple PFAS compounds with a value of 1.0 commonly used as a threshold for potential concern. While individual PFAS compounds are compared to their respective PCULs, the Hazard Index provides an additional risk-based evaluation to determine whether additive risks from multiple chemicals is of concern. Recommended cleanup levels have not been established for other PFAS compounds at the time of publication of this report. The PCULs for soil are shown in Table 3, and the PCULs for groundwater are shown in Tables 1 and 4.

5.0 Results

The following section describes the results of PFAS analysis in soil and groundwater at the subject property, based on the results of the 2024 investigation. As discussed in Section 4.0, Ecology has established PCULs for the following ten PFAS compounds: PFOA, PFOS, PFNA, PFHxS, HFPO-DA, PFHxA, PFBS, PFBA, PFDA, and 6:2 FTS, and a threshold of 1.0 for the Hazard Index. The PFAS impacts in soil and groundwater on the subject property discussed in this section are based on the PCULs for these ten compounds. Additionally, the results for PFAS that do not have established PCULs are discussed in this section, where appropriate, to support evaluation of the data and discussion of findings presented in this report. Analytical data for soil and groundwater samples collected during the 2024 investigation are presented in Tables 3 and 4.

5.1 DATA EVALUATION APPROACH

AFFF is commonly used during fire-fighting activities and is known to be stored in bulk quantities at Fire Station properties. AFFF commonly contains PFAS, and the potential storage and use of PFAS-containing AFFF at the Little Mountain Firs Station is considered a potential source for PFAS detected in environmental media at the subject property. The PFAS chemical composition of AFFF products varies depending on the generation (i.e., production date) and manufacturing process. Legacy AFFF formulations, which predate 2002, are typically associated with high concentrations of stable, terminal perfluoroalkyl sulfonic acids (PFSAs), such as PFOS and PFHxS. In contrast, modern AFFF formulations rely more heavily on fluorotelomer chemistry and contain a broader array of PFAS, including fluorotelomer precursors (FTs) and perfluoroalkyl carboxylic acids (PFCAs), either as intentional ingredients or degradation products. Grouping PFAS into subgroups—PFSAs, PFCAs, and FTs—enables a more nuanced evaluation of data, supporting the

identification of potential sources (e.g., evaluating the PFAS signature) and source areas by distinguishing compound-specific characteristics that influence their fate and transport in the environment.

PFAS are often heterogeneously distributed in the environment due to localized AFFF applications or releases, as well as variations in compound mobility and persistence. Differences or similarities in subgroup ratios and compound concentrations can help evaluate potential migration pathways, distinguish between multiple sources, and inform the development of future conceptual site models (CSMs).

A comparison of PFAS subgroup ratios is presented in Figures 4 through 9 of this report as follows.

- Figures 4 and 5 present the relative concentrations of PFAS in soil by PFAS subgroups (perfluorocarboxylic acids [PFCAs; e.g., PFOA], perfluorosulfonic acids [PFSAs; e.g., PFOS], and fluorotelomerization [FT]-derived compounds [e.g., 8:2 FTS]), with pie charts scaled in size based on the summed concentration of all detected PFAS compounds. The shallow soil (less than 5 feet bgs) PFAS analytical results are depicted with pie charts in Figure 4 and deeper soil results are presented in Figure 5.
- Figure 6 presents the relative concentrations of PFAS in groundwater by PFAS subgroups (PFCAs, PFSAs and FT-derived compounds), with pie charts scaled in size based on the summed concentration of all detected PFAS compounds.
- Figures 7 and 8 present PFAS concentrations in soil and groundwater, respectively, as isoconcentration maps depicting the sum of the two most prevalent compounds, PFOS and PFHxS. PFOS and PFHxS represent the primary components of legacy AFFF.
- Figure 9 is a geologic cross section depicting geologic soil units, approximate minimum depth to bedrock, boring and well completion depths, and the laboratory analytical results for soil and groundwater samples collected from the subject property.
- Figure 10 is a schematic north to south cross section, depicting neighborhood analytical results obtained for the Data Review Memorandum.

5.2 SUBJECT PROPERTY GEOLOGY AND HYDROGEOLOGY

Soil encountered at the subject property generally consists of silty sand with gravel extending to depths between 10 and 21 feet bgs, underlain by gray, aphanitic fractured bedrock. The thickness of soil ranges from approximately 11 feet on the northern boundary of the subject property to approximately 21.5 feet on the southwestern boundary of the subject property.

Groundwater at the subject property occurs in two water-bearing zones: a shallow zone perched in the soil overlying the bedrock and a deeper zone within the fractured bedrock. Limited groundwater was observed in the shallow zone in August 2024 during direct-push drilling activities in borings BH-1, BH-4, BH-5, BH-6 and BH-8 through BH-12. In October 2024, groundwater was observed in monitoring well BH-MW2, which was installed in the shallow water-bearing zone near the septic tank system. Monitoring wells BH-MW1, BH-MW3 and BH-MW4 were screened in the bedrock, but monitoring well BH-MW3 was dry at the time of sampling in October 2024.

Based on surface topography, the orientation of the local drainage basin, surface stream flows, and groundwater levels observed while drilling, groundwater flow is interpreted from northwest to southeast

across the subject property. Groundwater elevations from permanently installed monitoring wells that were completed in both the glacial soil and bedrock aquifer are presented in Table 2. Insufficient data was available to generate reliable groundwater elevation contours from three wells completed in different water-bearing units.

5.3 ANALYTICAL RESULTS

Presented in this section are the laboratory analytical results for each media, followed by the corresponding technical analysis of those results including the evaluation of PFAS subgroups presented as pie charts in Figures 4, 5 and 6, and the evaluation of isoconcentration contour maps in Figures 7 and 8. The tabulated laboratory analytical results for soil are presented in Table 3 and groundwater results are presented in Table 4. Laboratory analytical reports are presented in Appendix C.

The highest PFAS concentrations in soil and groundwater are generally located immediately downgradient of the Little Mountain Fire Station No. 33 building. As shown on Figure 8, the PFAS groundwater plume is elongated across the surface gradient towards the southeast. Groundwater is interpreted to flow generally from northwest to southeast across the property, with Well No. 2 situated downgradient from the areas of highest concentration of PFAS in soil.

5.3.1 Soil Analytical Results

During the 2024 investigation, PFHxS, PFDA, PFOA, PFOS, PFNA, and PFBS were detected in soil at concentrations exceeding their respective PCULs in analyzed samples across the subject property. PFOS was present at the highest concentrations in soil. Exceedances in soil samples were observed at depths ranging from 0.5 to 21 feet bgs, and the depth of PFAS exceeding PCULs on the subject property likely extends to the bedrock interface.

The sum of the detected concentrations of the 40 PFAS compounds reported using EPA Method 1633 was greatest in shallow soil at 1 to 2 feet bgs at BH-5, approximately 40 feet east of the Little Mountain Fire Station building (Figure 4). Greater concentrations of PFAS were also found in shallow (1 to 2 feet bgs) soil samples from BH-6 and BH-9. Lowest concentrations of PFAS were found at depths of 5 feet to 21 feet along the eastern, northern, and western perimeters of the subject property, in borings BH-1, BH-3, BH-7, BH-8, BH-12 and SS-1 (Figure 5).

The summaries of detected soil analytical results for 26 samples are presented below in descending order based on the maximum concentration detected across all samples:

- **PFOS** was detected in 22 soil samples[2], exceeding the PCUL in all samples with detections. The maximum concentration detected was 359 micrograms per kilogram (µg/kg) from sample BH-5-1-2.
- **PFNA** was detected in 23 soil samples, exceeding the PCUL in all samples with detections. The maximum concentration detected was 80.1 µg/kg from sample BH-11-1-2.

[2] Samples with an estimated value that were assigned a "J" flag in the laboratory report were included in the count of detections summarized in this list.

- **PFHxS** was detected in 18 soil samples, exceeding the PCUL in all samples with detections. The maximum concentration detected was 24.0 µg/kg from sample BH-11-1-2.
- **PFBS** was detected in 11 soil samples, none of which exceeded the vadose or saturated PCULs. The maximum concentration detected was 2.9 µg/kg from sample BH-11-1-2.
- **PFDA** was detected in 7 soil samples, exceeding the PCUL in all samples with detections. The maximum concentration detected was 2.3 µg/kg from sample BH-5-1-2.
- **PFHxA** was detected in 15 soil samples, with no samples exceeding the PCUL. The maximum concentration detected was 2.0 µg/kg from sample BH-11-1-2.
- **PFOA** was detected in 15 soil samples, exceeding the PCUL in all samples with detections. The maximum concentration detected was 1.3 µg/kg from sample BH-11-1-2.

6:2 FTS, HFPO-DA (GenX), and PFBA were not detected at concentrations greater than laboratory reporting limits in the soil samples analyzed. Twelve additional PFAS compounds, not regulated by Ecology or EPA, were detected in soil (see Table 3). Only one soil sample (BH-1 at 10–11 feet bgs) reported non-detect for all PFAS compounds; however, reporting limits for six compounds exceeded PCULs for saturated soil, limiting the interpretation of clean extent of soil samples.

Additional technical analysis was conducted through examining the distribution of PFAS subgroups in soil samples at varying depths and evaluating the summation of the highest concentration compounds (PFOS and PFHxS) among sample analytical results within the subject property. The results are presented in the following section.

5.3.2 Soil Technical Analysis

The exploration locations having the highest concentrations of total PFAS (40 compounds analyzed in EPA Method 1633) in soil at the subject property are characterized by greater proportions and concentrations of PFSAs (see blue sections of pie charts in Figures 4 and 5). PFSAs typically readily sorb to organics in soil, indicating these exploration locations are close to possible source areas since their transport is retarded. The exploration locations having the greatest PFCA concentrations (red portions of pie charts) are positioned upgradient near the northwest corner of the property (BH-1), cross gradient at the north edge of the drain field (BH-3) and are furthest downgradient to the southeast (BH-11 and BH-12). The presence of PFCAs in soil at these locations may indicate precursor transformation and transport from source areas, as PFCAs are common terminal breakdown products of polyfluorinated compounds and can persist and migrate in the subsurface environment. Additionally, higher concentrations of short-chain PFCAs (e.g., PFBA, PFPeA) at downgradient locations compared to longer-chain compounds is consistent with their greater mobility in groundwater, further supporting observed migration patterns across the site.

At each exploration location with two or more soil samples analyzed, total detected PFAS concentrations in soil decrease with depth, often by an order of magnitude at the locations with the highest concentrations (BH-1, BH-4 through BH-6, and BH8 through BH12; see Figures 4 and 5).

The isoconcentration contour map presented as Figure 7 shows the sum of PFOS and PFHxS in shallow soil (less than 5 feet bgs) and highlights a distinct area, referred to as the shallow soil source area (shaded in orange), where the total PFOS and PFHxS concentrations exceed 300 µg/kg. PFOS and PFHxS are primary components of legacy AFFF and are considered terminal end products, thus are reliable compounds to

evaluate to assess potential source areas. This shallow soil source area is defined by soil samples BH-5 and BH-6, which had the highest total PFAS concentrations and a high ratio of PFSAs. The co-occurrence of elevated PFSA ratios and high PFOS and PFHxS concentrations in shallow soil in this area is consistent with a localized release of legacy AFFF at the ground surface.

5.3.3 Groundwater Analytical Results

Groundwater samples were collected from nine boring locations on the subject property during the 2024 investigation; a total of 11 groundwater samples (nine parent samples and two duplicates) were analyzed for PFAS compounds by EPA Method 1633. Twenty-two PFAS compounds were detected; six compounds (PFHxS, PFDA, PFOA, PFOS, PFNA, and PFBS) and the Hazard Index exceeded Ecology PCULs.

The greatest concentrations of total PFAS in groundwater at the subject property were detected in the grab groundwater sample collected from boring location BH-10, which was completed approximately 50 feet upgradient of Well No. 2. The lowest PFAS concentrations were detected in the grab groundwater sample collected from boring BH-1 and the monitoring well sample from BH-MW1, both located upgradient of the Fire Station building in the northwestern corner of the subject property.

The summaries of groundwater analytical results for nine sample locations are presented below in descending order based on the maximum concentration detected across all samples:

- **PFOS** was detected in eight of nine samples, exceeding the PCUL (4 nanograms per liter [ng/L]) with all detections. The maximum concentration detected was 48,100 ng/L in the sample from BH-10.
- **PFHxS** was detected in all nine groundwater samples at concentrations exceeding the PCUL (0.0064 ng/L). The maximum concentration detected was 45,500 ng/L from the sample location BH-10.
- **PFNA** was detected in all samples, exceeding the PCUL (10 ng/L) in all samples except BH-MW1. The maximum concentration detected was 13,500 ng/L from the sample location BH-10.
- **PFBS** was detected in all samples, exceeding the PCUL (4,800 ng/L) in the sample from BH-10. The maximum concentration detected was 12,300 ng/L from the sample location BH-10.
- **PFHxA** was detected in all samples, but did not exceed the PCUL (8,000 ng/L) in any sample. The maximum concentration detected was 4,410 ng/L from the sample location BH-10.
- **PFOA** was detected in all samples, exceeding the PCUL (4.0 ng/L) in all samples except BH-MW1. The maximum concentration detected was 3,470 ng/L from the sample location BH-10.
- **PFBA** was detected in all samples, but did not exceed the PCUL of 8,000 ng/L in any sample. The maximum concentration detected was 1,530 ng/L from the sample location BH-12.
- **6:2 FTS** was detected in samples from six of the nine locations, but did not exceed the PCUL (3,200 ng/L) in any sample. The maximum concentration detected was 804 ng/L from the sample location BH-12.
- **PFDA** was detected in groundwater samples from 4 locations, and all detections exceed the PCUL of 0.032 ng/L. The maximum concentration detected was 47.1 ng/L from the sample location BH-5.
- **Hazard Index** threshold of 1 was exceeded in all groundwater samples except the sample from BH-MW1. The maximum Hazard Index value was 5,908 for the sample from BH-10.

HFPO-DA (GenX) was not detected at concentrations greater than laboratory reporting limits in the groundwater samples analyzed. Twelve additional PFAS compounds, not regulated by Ecology or EPA, were detected in groundwater (see Table 4). All groundwater samples collected from the subject property contained one or more PFAS compounds above established PCULs, and the extent of contamination remains undefined.

Additional technical analysis was conducted through examining the distribution of PFAS subgroups in groundwater samples and evaluating the summation of the highest concentration compounds (PFOS and PFHxS) among sample analytical results within the subject property. The results are presented in the following section.

5.3.4 Groundwater Technical Analysis

The groundwater sample with the highest concentration of total PFAS (40 compounds analyzed in EPA Method 1633) was BH-10, located southeast of the Little Mountain Fire Station. Groundwater sample BH-10 also had the highest PFOS and PFHxS concentrations, potentially indicating proximity to a suspected source area or PFAS impact area. The remaining groundwater samples collected from the central and southeastern portions of the subject property generally had similar total PFAS concentrations (Figure 6) and were comprised of high PFSA ratios (blue sections of pie charts; see Figure 6).

Groundwater samples exhibiting greater PFCA ratios (red sections in pie charts) were collected from locations near the northwest, upgradient corner of the property (BH-1 and BH-MW1), cross gradient along Straits View Drive (BH-4) and furthest downgradient within the bedrock aquifer zone (BH-12 and BH-MW4). These observations are consistent with the mobility characteristics of PFCAs which are more mobile in groundwater and can indicate differential transport or migration pathways.

Six groundwater samples contained less than 5 percent of FT-derived compounds (BH-6, BH-10, BH-12, BH-MW2, BH-MW4 and Well No. 2). FT-derived compounds may be attributed to residual modern AFFF input areas associated with typical equipment use at firefighting stations (i.e., hose/equipment/truck washing, residual spills washed down the drain into the septic tank, etc.).

The isoconcentration contour map of PFOS and PFHxS in groundwater (Figure 8) highlights an area of elevated concentrations downgradient of the inferred shallow soil source zone shown on Figure 7. The orientation of the contours aligns with the general surface topography and likely direction of shallow groundwater flow, indicating PFAS migration in a southeasterly direction. Groundwater samples having elevated PFOS and PFHxS concentrations also contained the greatest total PFAS concentrations and were dominated by PFSAs. The co-occurrence of high PFSA proportions and elevated PFOS and PFHxS concentrations in groundwater in the southeast portion of the subject property supports the interpretation of a historical release of legacy AFFF in the upgradient shallow soil source area, as shown on Figure 8.

To further evaluate the vertical distribution and potential migration of PFAS from soil to groundwater, a geologic cross section is presented in the following section with PFAS concentrations from both media posted by depth. This visualization supports interpretation of the source zone extent and transport pathways.

5.3.5 Cross Section A-A' Results

Subsurface conditions at the subject property generally consist of silty sand with gravel extending to depths between approximately 10 and 21.5 feet bgs, underlain by gray, aphanitic fractured bedrock. The thickness of this soil unit varies from approximately 11 feet along the northern boundary to over 21 feet along the southwestern boundary. Fill material, present across the site, is underlain in most locations by Quaternary glaciomarine deposits composed of interbedded sand and silt layers of variable thickness.

Groundwater occurs in two zones within a single aquifer system: a shallow, perched zone within the overlying soil, and a deeper zone within the fractured bedrock. The shallow zone was observed in borings BH-1, BH-4, BH-5, BH-6, and BH-8 through BH-12 during the August 2024 investigation. Groundwater monitoring wells BH-MW1 through BH-MW4 were installed with screened intervals in the bedrock. In October 2024, groundwater was observed and sampled from wells BH-MW1, BH-MW2, and BH-MW4; BH-MW3 was dry at the time of sampling.

The geologic cross section presented in Figure 9 (oriented northwest to southeast, as shown in Figure 3) illustrates the distribution of subsurface units, inferred stratigraphic contacts, boring depths, PFAS sample locations, and the interpreted direction of shallow groundwater flow. This flow direction, generally from northwest to southeast, is supported by surface topography, drainage patterns, and observed groundwater levels during drilling activities. The highest concentrations of total PFAS in both soil and groundwater were observed in the fill and glaciomarine units downgradient (southeast) of the Fire Station building. Notably, the glaciomarine deposits, which contain heterogeneous sand and silt layers, hosted the highest observed PFAS concentrations in groundwater samples.

Depth to bedrock was established during sonic and air rotary drilling; where direct-push methods were used, refusal depth was used to estimate bedrock depth and is considered approximate. The transition zone between the shallow, perched groundwater and the deeper fractured bedrock aquifer is not well-defined and is likely influenced by localized variations in bedrock fracturing. These uncertainties, along with other site-specific data gaps, are discussed in Section 7.

5.4 NEIGHBORHOOD INVENTORY RESULTS

The analytical results voluntarily shared with Ecology by property owners in the vicinity of the subject property are presented in Table 1. The focus of this investigation was to characterize the subject property and identify a potential source(s) for impacted groundwater identified in Well No. 2; the neighborhood inventory was completed to support future analysis of the fate and transport of PFAS beyond the subject property.

PFAS results from neighborhood groundwater samples are illustrated with pie charts on the schematic cross section in Figure 10. Limited information was provided regarding sample depth when data was volunteered to Ecology; data are presented at the surface of the topographic elevation cross section in Figure 10 for simplicity. To maintain confidentiality for property owners who voluntarily contributed data, sample locations are projected onto cross section B–B′ from varying lateral distances. Each pie chart displays the relative proportions of PFAS subgroups (PFCAs, PFSAs and FT-derived compounds) and is scaled according to the total concentration of PFAS reported by EPA Method 1633. The distribution of PFAS subgroups in these off-property wells generally mirrors that of the subject property, with PFSAs dominating

the highest concentration samples. Less than one percent of FT-derived compounds, potentially indicative of modern AFFF formulations, was detected in only one off-site sample.

5.5 EXPOSURE PATHWAYS AND CONTAMINANT TRANSPORT MECHANISMS

Preliminary exposure pathways and primary contaminant transport mechanisms were identified as part of the analysis during this investigation. During the investigation of data gaps outlined in the following section, additional exposure pathways and transport mechanisms may be identified.

5.5.1 Exposure Pathways

The primary human exposure pathways include direct contact and ingestion of impacted soil and groundwater.

Indoor air was not evaluated as part of this investigation. AFFF-related PFAS compounds are not generally considered volatile. Most PFAS, including PFOA and PFOS, have very low vapor pressures and do not readily volatilize under environmental conditions. Some fluorotelomer-based PFAS, such as fluorotelomer alcohols (FTOHs), can exhibit some volatility and may undergo atmospheric transport before degrading into more persistent PFAS compounds (Titaley 2024). However, uncertainties remain regarding the volatility of certain PFAS and their potential to contribute to vapor intrusion, particularly in indoor environments near known source areas.

5.5.2 Contaminant Transport Mechanisms

Primary contaminant transport mechanisms include transport from soil to groundwater, and from groundwater to surface water and sediment. Surface water results were either not volunteered from nearby property owners or not analyzed; an off-property surface water evaluation was not within the scope of this investigation.

Analytical results suggest that the shallow soil aquifer and the deeper, fractured bedrock aquifer are connected. The shallow soil aquifer consists of silty sand with gravel, and extends to the bedrock-soil interface, without a confining layer separating the two aquifers. Based on bedrock observed while drilling and nearby surface exposures, there is a network of intersecting fractures that extend from the bedrock-soil interface to at least 38 feet bgs.

The two groundwater samples from Well No. 2, collected at 38 feet bgs and from the pitless adaptor at 183 feet bgs, provide evidence for connection between these two zones with the aquifer. This connection between the two aquifers on the subject property is consistent with the established hydrogeologic setting for San Juan Island, in which groundwater percolates from glacial-derived soil into the fractured bedrock aquifer. In this simplified multi-aquifer system, dilution would theoretically increase with depth as perched water infiltrates fractured bedrock and recharges the fractured bedrock aquifer.

The open (unsealed) borehole design of drinking water wells permits rapid vertical distribution of water from the shallow soil (perched) aquifer to significant depths. Further interpretation of the connectivity of groundwater system is limited due to the incomplete characterization of the physical properties of the bedrock aquifer.

6.0 Data Gaps

Data gaps identified during this investigation are outlined in this section, with suggestions for potential future evaluations. Data gaps include delineation of PFAS impacts in soil and groundwater beyond the subject property, further characterization of the contaminant fate and migration mechanics in the aquifer systems, supplementary analyses to understand PFAS leachability potential, and the impact to nearby surface water within the drainage basin containing the subject property.

- **Extent of soil and groundwater impacts –** One or more PFAS were detected in soil and groundwater at concentrations greater than the PCULs in all 2024 exploration locations. Additional investigation is suggested to delineate the lateral and vertical distribution of PFAS-impacted groundwater and soil beyond the extent of the subject property boundaries. To address this data gap, additional explorations are proposed on the south adjacent property and in the public right-of-way (ROW) to identify the lateral extent of impacted soil. Additional groundwater monitoring well locations, downgradient from the subject property, would be required to delineate the plume of PFAS impacted groundwater between the subject property and Haro Strait. Proposed soil borings and monitoring well locations positioned within the ROW are included in Figure 11.
- **Advanced PFAS analysis –** Soil and groundwater from the subject property were analyzed using EPA Method 1633. Alternative analytical techniques allow for additional evaluation of the source characteristics and quantification of leaching potential under controlled conditions. While PFAS are present in groundwater, this does not necessarily indicate that leaching from soil is the only or primary transport mechanism. Historical AFFF discharges may have reached the groundwater table directly, particularly if large volumes of liquid were released to permeable ground surfaces. Synthetic Precipitation Leaching Procedure (SPLP) conducted on a soil sample from the shallow soil within the potential source area could help evaluate the relative mobility of specific PFAS compounds and support the assessment of whether soil continues to contribute to groundwater concentrations under precipitation-driven leaching.

  In addition, a Total Oxidizable Precursor (TOP) assay on samples could be used to help identify the presence of precursor PFAS compounds in soil and groundwater, thereby revealing PFAS compounds that may not be detected through standard analytical methods. TOP assay results can be used to estimate the potential for transformation of PFAS compounds into terminal PFAS compounds over time, which may impact long-term groundwater quality and risk profiles. This procedure simulates environmental oxidation processes, converting precursors into measurable perfluoroalkyl acids (PFAAs), providing a quantification of the potential long-term PFAS burden at the site. Understanding the full extent of PFAS impacts, including precursor transformation, supports development of more accurate conceptual site models, informs long-term monitoring needs and aids in selecting appropriate remedial strategies, providing a more comprehensive approach to site management.
- **Fate and Transport Mechanisms** - Additional investigation is proposed to better understand PFAS migration at the Site, including flow pathways and potential transport mechanisms. A tracer test would help refine conceptual site models by identifying preferential flow paths and assist with understanding bedrock flow. Further understanding of the reservoir characteristics would assist in drilling fewer dry holes and reduce future drilling costs by investing in informed analysis and decision making. Measuring aquifer properties through well drawdown analysis, slug tests, and nuclear magnetic resonance (NMR) logging would provide valuable data on permeability and groundwater mobility. These methods would improve predictions of PFAS distribution and inform remediation strategies.

- **Aquifer Geophysical Surveys** - Further assessment is suggested to evaluate the structure and connectivity of the bedrock aquifer to make more informed decisions about placing future monitoring wells and may save costs of drilling dry wells that do not connect to the bedrock aquifer system. Conducting geophysical surveys in existing or new monitoring wells could provide insights into fracture networks and groundwater flow pathways. Understanding these characteristics is critical for understanding PFAS migration potential and refining the Site's hydrogeologic model. Possible geophysical survey methods for new or existing wells include optical and acoustic televiewer logging for high-resolution fracture imaging, caliper logging for detecting fracture apertures, flow meter logging to assess active groundwater movement, resistivity logging to differentiate rock matrix from fracture zones, and fluid temperature and conductivity logging to identify potential PFAS transport pathways.
- **Surface Water Investigation** - Additional assessment is proposed to evaluate the potential for PFAS impacts to nearby downgradient surface water bodies, including streams, inlets to Haro Strait, and ponds. Surface water sampling and analysis will help assess the extent of PFAS migration and potential exposure risks to aquatic environments. Understanding PFAS concentrations in these water bodies would assist in the identification of ecological risks, exposure pathways, contaminant transport mechanisms, and regulatory compliance.

7.0 Summary and Conclusions

This Soil and Groundwater Investigation Report summarizes the results of a limited subsurface investigation conducted between August and October 2024 to evaluate the presence of PFAS in soil and groundwater at the Little Mountain Fire Station No. 33, San Juan Island, Washington. The findings of this investigation confirmed the presence of PFAS contamination in both soil and groundwater with concentrations exceeding applicable regulatory limits on the subject property. The highest levels of PFAS were identified in shallow soil samples collected from the property south of the Fire Station building, indicating contamination was likely introduced by a surface release. Groundwater samples from both the shallow unconfined aquifer zone and deeper bedrock wells also contained PFAS compounds, particularly PFOS and PFHxS, at concentrations exceeding PCULs. The distribution and magnitude of these impacts support the conclusion that legacy AFFF use at the station is the primary source of PFAS contamination to both soil and groundwater.

Advanced spatial analyses, including pie charts and contour mapping, were used to illustrate PFAS distributions in soil and groundwater. The soil pie charts revealed distinct, PFOS-dominated PFAS signatures near the suspected release area, which is consistent with legacy formulations of AFFF. Soil contour maps show elevated PFAS concentrations in shallow soil in the area south of the Fire Station building, with attenuation observed outward from this likely source area. Groundwater contour maps indicate a shallow PFAS plume extends downgradient to the south and southeast of the Fire Station, following the inferred shallow groundwater flow direction. These analytical tools were useful to characterize suspected source areas and inform likely migration patterns of PFAS in the subsurface.

The fate and transport evaluation indicates that PFAS migration is primarily driven by infiltration of surface-applied AFFF in the yard area south of the Fire Station building and migration in groundwater. The subject property's sandy soils and shallow, perched groundwater table facilitate both vertical and lateral migration in shallow perched groundwater. Groundwater flow direction and groundwater analytical data suggest that PFAS is moving south-southeast within the shallow perched groundwater and migrating into the deeper

fractured bedrock aquifer. The fracture mechanics of bedrock beneath the subject property are poorly understood, though PFAS concentrations in groundwater at the subject property are generally lower in groundwater within the fractured bedrock, indicating that the vadose zone and shallow groundwater system at the subject property are the primary source for PFAS in the bedrock aquifer.

Sampling of nearby residential drinking water wells identified PFAS in off-property groundwater at concentrations greater than state cleanup levels in multiple locations, demonstrating that offsite migration has likely occurred. These findings underscore the need for further action, including expanded sampling of off-property wells and continued collaboration with nearby property owners.

Despite the progress made during this initial source characterization investigation, several data gaps remain. Additional monitoring wells are needed to better delineate the lateral and vertical extent of PFAS contamination, particularly in the southern and eastern portions of the subject property and in offsite areas where PFAS were identified in drinking water wells. Additional hydrogeologic data are needed to assess the potential for continued PFAS migration in groundwater and to inform future investigation and remediation strategies.

8.0 Limitations

We have prepared this report for the exclusive use of the Washington State Department of Ecology and their authorized agents and any additional regulatory agencies. Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted environmental science practices in this area at the time this report was prepared. The conclusions and opinions presented in this report are based on our professional knowledge, judgment, and experience. No warranty or other conditions, express or implied, should be understood.

Any electronic form, facsimile, or hard copy of the original document (email, text, table and/or figure), if provided, and any attachments should be considered a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

Please refer to Appendix G, Report Limitations and Guidelines for Use, for additional information pertaining to use of this report.

9.0 References

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Tables

Table 1

Previous Groundwater Analytical Results[1]
Per- and Polyfluoroalkyl Substances (PFAS)
Bailer Hill Area
Friday Harbor, Washington

Analyte Name	Sample Location[2]	Well No. 2 (Subject Property)			Well No. 3	P-1	P-2		P-3	P-4		Preliminary Cleanup Level for Groundwater (ng/L)[5]
	Sample Identification	Well No. 2 Spigot_230403w	Well No. 2 Fracture_230503w	Well No. 2 PitlessAdapter_230503w	Well No. 3_230403w	P-1_240814w	P-2_230502w	P-2_240922w	P-3_230503w	P-4_230420w	P-4_230504w	
	Laboratory Method	EPA 533	EPA 533	EPA 533	EPA 533	EPA 1633	EPA 533	EPA 533	EPA 533	EPA 537.1	EPA 537.1	
	Sample Date	4/3/2023	5/3/2023	5/3/2023	4/3/2023	8/14/2024	5/2/2023	9/22/2024	5/3/2023	4/20/2023	5/4/2023	
PFAS Compounds with Washington PCUL (ng/L)												
Perfluorohexanesulfonic acid	PFHxS	**2,900**	**7,550**	**6,800**	*2.00 U*	*0.89 U*	**48.6**	**990**	*2.00 U*	**10.4**	**12**	0.0064
Perfluorodecanoic acid	PFDA	*2.00 U*	**13.1**	**4.02**	*2.00 U*	*0.45 U*	*2.00 U*	*2.00 U*	*2.00 U*	*1.8 U*	*0.84 U*	0.032
Perfluorooctanoic acid	PFOA	**146**	**373**	**306**	2.00 U	0.45 U	**10.7**	**79.2**	2.00 U	**0.86 J**	**1.2**	4
Perfluorooctanesulfonic acid	PFOS	**2,460**	**9,400**	**6,750**	2.00 U	0.89 U	**9.64**	**229**	2.00 U	1.8 U	**2.6**	4
Perfluorononanoic acid	PFNA	**221**	**785**	**423**	2.00 U	0.54 U	**42.1**	**121**	2.00 U	1.8 U	**1.1**	10
Hexafluoropropylene oxide dimer acid	HFPO-DA (GenX)	2.00 U	2.00 U	2.00 U	2.00 U	0.89 U	2.00 U	2.00 U	2.00 U	1.8 U	0.84 U	10
6:2 Fluorotelomer sulfonate	6:2FTS	**57.1**	--	**112**	2.00 U	3.6 U	2.00 U	2.00 U	2.00 U	--	--	3,200
Perfluorobutanesulfonic acid	PFBS	**572**	**1,110**	**1,030**	2.00 U	**0.91 J**	**22.5**	**342**	2.00 U	**4.6**	**4.3**	4,800
Perfluorobutanoic acid	PFBA	**59.9**	**138**	**105**	2.00 U	3.6 U	**19.3**	2.00 U	2.00 U	--	--	8,000
Perfluorohexanoic acid	PFHxA	**296**	**660**	**530**	2.00 U	0.45 U	**42.8**	**276**	2.00 U	**2.0**	**2.4**	8,000
Hazard Index	HI	**312**	**834**	**723**	**0.3**	**0.1**	**9**	**111**	**0.3**	**1.2**	**1.4**	**1**
Perfluoroalkyl Carboxylic Acids (ng/L)												
Perfluoropentanoic acid	PFPeA	**143**	**323**	**278**	2.00 U	0.89 U	**60.4**	**213**	2.00 U	--	--	NE
Perfluoroheptanoic acid	PFHpA	**78.4**	**189**	**141**	2.00 U	0.45 U	**18.3**	**107**	2.00 U	1.8 U	**0.84**	NE
Perfluoroundecanoic acid	PFUnA	2.00 U	2.00 U	2.00 U	2.00 U	0.54 U	2.00 U	2.00 U	2.00 U	1.8 U	0.84 U	NE
Perfluorododecanoic acid	PFDoDA	2.00 U	2.00 U	2.00 U	2.00 U	0.54 U	2.00 U	2.00 U	2.00 U	1.8 U	0.84 U	NE
Perfluorotridecanoic acid	PFTrDA	--	--	--	--	0.75 U	--	--	--	1.8 U	0.84 U	NE
Perfluorotetradecanoic acid	PFTeDA	--	--	--	--	0.45 U	--	--	--	1.8 U	0.84 U	NE
Fluorotelomer Carboxylic Acids (ng/L)												
3:3 Fluorotelomer carboxylate	3:3FTCA	--	--	--	--	4.5 U	--	--	--	--	--	NE
5:3 Fluorotelomer carboxylate	5:3FTCA	--	--	--	--	8.9 U	--	--	--	--	--	NE
7:3 Fluorotelomer carboxylate	7:3FTCA	--	--	--	--	8.9 U	--	--	--	--	--	NE
Per- and Polyfluoroether Carboxylic Acids (ng/L)												
4,8-Dioxa-3H-perfluorononanoic acid	ADONA	2.00 U	2.00 U	2.00 U	2.00 U	1.8 U	2.00 U	2.00 U	2.00 U	1.8 U	0.84 U	NE
Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	2.00 U	2.00 U	2.00 U	2.00 U	1.1 U	2.00 U	2.00 U	2.00 U	--	--	NE
Perfluoro-3-methoxypropanoic acid	PFMPA	2.00 U	2.00 U	2.00 U	2.00 U	0.89 U	2.00 U	2.00 U	2.00 U	--	--	NE
Perfluoro-4-methoxybutanoic acid	PFMBA	2.00 U	2.00 U	2.00 U	2.00 U	1.0 U	2.00 U	2.00 U	2.00 U	--	--	NE
Perfluoroalkyl Sulfonic Acids (ng/L)												
Perfluoropentanesulfonic acid	PFPeS	**576**	**1,180**	**1,020**	2.00 U	1.0 U	**13.2**	**324**	2.00 U	--	--	NE
Perfluoroheptanesulfonic acid	PFHpS	**126**	**293**	**245**	2.00 U	0.89 U	2.00 U	**15.7**	2.00 U	--	--	NE
Perfluorononanesulfonic acid	PFNS	--	--	--	--	0.89 U	--	--	--	--	--	NE
Perfluorodecanesulfonic acid	PFDS	--	--	--	--	0.89 U	--	--	--	--	--	NE
Perfluorododecanesulfonic acid	PFDoDS	--	--	--	--	1.0 U	--	--	--	--	--	NE
Fluorotelomer Sulfonic Acids (ng/L)												
4:2 Fluorotelomer sulfonate	4:2FTS	2.00 U	**2.23**	2.00 U	2.00 U	3.6 U	2.00 U	2.00 U	2.00 U	--	--	NE
8:2 Fluorotelomer sulfonate	8:2FTS	**2.08**	**21.2**	**7.05**	2.00 U	3.7 U	2.00 U	2.00 U	2.00 U	--	--	NE
Per- and Polyfluoroether Sulfonic Acids (ng/L)												
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acd	Major)	2.00 U	2.00 U	2.00 U	2.00 U	1.8 U	2.00 U	2.00 U	2.00 U	1.8 U	0.84 U	NE
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic ac	Minor)	2.00 U	2.00 U	2.00 U	2.00 U	1.8 U	2.00 U	2.00 U	2.00 U	1.8 U	0.84 U	NE
Perfluoro(2-ethoxyethane)sulfonic acid	PFEESA	2.00 U	2.00 U	2.00 U	2.00 U	0.89 U	2.00 U	2.00 U	2.00 U	--	--	NE
Perfluorooctane Sulfonamides/Amidoacetic Acids/Sulfonamido Ethanols (ng/L)												
Perfluorooctanesulfonamide	PFOSA	--	--	--	--	0.89 U	--	--	--	--	--	NE
N-Methylperfluorooctanesulfonamide	MeFOSA	--	--	--	--	0.89 U	--	--	--	--	--	NE
N-Methyl perfluorooctane sulfonamidoacitic acid	MeFOSAA	--	--	--	--	0.89 U	--	--	--	1.8 U	0.84 U	NE
N-Methylperfluorooctanesulfonamidothanol	MeFOSE	--	--	--	--	8.9 U	--	--	--	--	--	NE
N-Ethylperfluorooctanesulfonamide	EtFOSA	--	--	--	--	0.89 U	--	--	--	--	--	NE
N-Ethyl perfluorooctane sulonamidoacetic acid	EtFOSAA	--	--	--	--	1.2 U	--	--	--	1.8 U	0.84 U	NE
N-Ethylperfluorooctanesulfonamidothanol	EtFOSE	--	--	--	--	8.9 U	--	--	--	--	--	NE

Analyte Name		P-4		P-5	P-6	P-7	P-8	P-9	P-10	P-11	P-12	Preliminary Cleanup Level for Groundwater (ng/L)[3]
		P-4_231003w	P-4_240305w	P-5_230502w	P-6_230503w	P-7_240617w	P-8_230508w	P-9_230503w	P-10_230502w	P-11_241023w	P-12_240922w	
		EPA 537.1	EPA 537.1	EPA 533	EPA 533	EPA 537.1	EPA 533	EPA 533	EPA 533	EPA 533	EPA 533	
		10/3/2023	3/5/2024	5/2/2023	5/3/2023	6/17/2024	5/8/2023	5/3/2023	5/2/2023	10/23/2024	9/22/2024	
PFAS Compounds with Washington PCUL (ng/L)												
Perfluorohexanesulfonic acid	PFHxS	**5.9**	**11**	*2.00 U*	*2.00 U*	**29**	**48**	*2.00 U*	*2.00 U*	**1,030**	**2.58**	0.0064
Perfluorodecanoic acid	PFDA	*0.89 U*	*0.84 U*	*2.00 U*	*2.00 U*	*2.0 U*	*0.91 U*	*2.00 U*	*2.00 U*	*2.00 U*	*2.00 U*	0.032
Perfluorooctanoic acid	PFOA	0.89 U	**1.3**	2.00 U	2.00 U	**3.0**	**0.92**	2.00 U	2.00 U	**97.0**	2.00 U	4.0
Perfluorooctanesulfonic acid	PFOS	**1.4**	**2.5**	2.00 U	2.00 U	**1.8 J**	**1.7**	2.00 U	2.00 U	**363**	2.00 U	4.0
Perfluorononanoic acid	PFNA	0.89 U	**0.96**	2.00 U	2.00 U	2.0 U	0.91 U	2.00 U	2.00 U	**67.1**	2.00 U	10
Hexafluoropropylene oxide dimer acid	HFPO-DA (GenX)	0.89 U	0.84 U	2.00 U	2.00 U	2.0 U	0.91 U	2.00 U	2.00 U	2.00 U	2.00 U	10
6:2 Fluorotelomer sulfonate	6:2FTS	--	--	2.00 U	2.00 U	--	--	2.00 U	2.00 U	**27.9**	2.00 U	3,200
Perfluorobutanesulfonic acid	PFBS	**2.5**	**4.0**	2.00 U	2.00 U	**18**	**30**	2.00 U	2.00 U	**278**	2.00 U	4,800
Perfluorobutanoic acid	PFBA	--	--	2.00 U	2.00 U	--	--	2.00 U	2.00 U	**56.7**	2.00 U	8,000
Perfluorohexanoic acid	PFHxA	**1.5**	**2.4**	2.00 U	2.00 U	**7.2**	**2.0**	2.00 U	2.00 U	**206**	2.00 U	8,000
Hazard Index	**HI**	**0.7**	**1.2**	**0.3**	**0.3**	**3**	**5**	**0.3**	**0.3**	**110**	**0.5**	1
Perfluoroalkyl Carboxylic Acids (ng/L)												
Perfluoropentanoic acid	PFPeA	--	--	2.00 U	2.00 U	--	--	2.00 U	2.00 U	**150**	2.00 U	NE
Perfluoroheptanoic acid	PFHpA	0.89 U	0.84 U	2.00 U	2.00 U	1.8 J	0.91 U	2.00 U	2.00 U	**45.5**	2.00 U	NE
Perfluoroundecanoic acid	PFUnA	0.89 U	0.84 U	2.00 U	2.00 U	2.0 U	0.91 U	2.00 U	2.00 U	2.00 U	2.00 U	NE
Perfluorododecanoic acid	PFDoDA	0.89 U	0.84 U	2.00 U	2.00 U	2.0 U	0.91 U	2.00 U	2.00 U	2.00 U	2.00 U	NE
Perfluorotridecanoic acid	PFTrDA	0.89 U	0.84 U	--	--	2.0 U	0.91 U	--	--	--	--	NE
Perfluorotetradecanoic acid	PFTeDA	0.89 U	0.84 U	--	--	2.0 U	0.91 U	--	--	--	--	NE
Fluorotelomer Carboxylic Acids (ng/L)												
3:3 Fluorotelomer carboxylate	3:3FTCA	--	--	--	--	--	--	--	--	--	--	NE
5:3 Fluorotelomer carboxylate	5:3FTCA	--	--	--	--	--	--	--	--	--	--	NE
7:3 Fluorotelomer carboxylate	7:3FTCA	--	--	--	--	--	--	--	--	--	--	NE
Per- and Polyfluoroether Carboxylic Acids (ng/L)												
4,8-Dioxa-3H-perfluorononanoic acid	ADONA	0.89 U	0.84 U	2.00 U	2.00 U	2.0 U	0.91 U	2.00 U	2.00 U	2.00 U	2.00 U	NE
Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	--	--	2.00 U	2.00 U	--	--	2.00 U	2.00 U	2.00 U	2.00 U	NE
Perfluoro-3-methoxypropanoic acid	PFMPA	--	--	2.00 U	2.00 U	--	--	2.00 U	2.00 U	2.00 U	2.00 U	NE
Perfluoro-4-methoxybutanoic acid	PFMBA	--	--	2.00 U	2.00 U	--	--	2.00 U	2.00 U	2.00 U	2.00 U	NE
Perfluoroalkyl Sulfonic Acids (ng/L)												
Perfluoropentanesulfonic acid	PFPeS	--	--	2.00 U	2.00 U	--	--	2.00 U	2.00 U	**283**	2.00 U	NE
Perfluoroheptanesulfonic acid	PFHpS	--	--	2.00 U	2.00 U	--	--	2.00 U	2.00 U	**22.0**	2.00 U	NE
Perfluorononanesulfonic acid	PFNS	--	--	--	--	--	--	--	--	--	--	NE
Perfluorodecanesulfonic acid	PFDS	--	--	--	--	--	--	--	--	--	--	NE
Perfluorododecanesulfonic acid	PFDoDS	--	--	--	--	--	--	--	--	--	--	NE
Fluorotelomer Sulfonic Acids (ng/L)												
4:2 Fluorotelomer sulfonate	4:2FTS	--	--	2.00 U	2.00 U	--	--	2.00 U	2.00 U	2.00 U	2.00 U	NE
8:2 Fluorotelomer sulfonate	8:2FTS	--	--	2.00 U	2.00 U	--	--	2.00 U	2.00 U	2.00 U	2.00 U	NE
Per- and Polyfluoroether Sulfonic Acids (ng/L)												
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acd	53B Major)	0.89 U	0.84 U	2.00 U	2.00 U	2.0 U	0.91 U	2.00 U	2.00 U	2.00 U	2.00 U	NE
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	53B Minor)	0.89 U	0.84 U	2.00 U	2.00 U	2.0 U	0.91 U	2.00 U	2.00 U	2.00 U	2.00 U	NE
Perfluoro(2-ethoxyethane)sulfonic acid	PFEESA	--	--	2.00 U	2.00 U	--	--	2.00 U	2.00 U	2.00 U	2.00 U	NE
Perfluorooctane Sulfonamides/Amidoacetic Acids/Sulfonamido Ethanols (ng/L)												
Perfluorooctanesulfonamide	PFOSA	--	--	--	--	--	--	--	--	--	--	NE
N-Methylperfluorooctanesulfonamide	MeFOSA	--	--	--	--	--	--	--	--	--	--	NE
N-Methyl perfluorooctane sulfonamidoacitic acid	MeFOSAA	0.89 U	0.84 U	--	--	2.0 U	0.91 U	--	--	--	--	NE
N-Methylperfluorooctanesulfonamidothanol	MeFOSE	--	--	--	--	--	--	--	--	--	--	NE
N-Ethylperfluorooctanesulfonamide	EtFOSA	--	--	--	--	--	--	--	--	--	--	NE
N-Ethyl perfluorooctane sulonamidoacetic acid	EtFOSAA	0.89 U	0.84 U	--	--	2.0 U	0.91 U	--	--	--	--	NE
N-Ethylperfluorooctanesulfonamidothanol	EtFOSE	--	--	--	--	--	--	--	--	--	--	NE

Notes:

[1] Chemical analyses performed by various labs for property owners; see chemical analytical laboratory reports included in Appendix B. PFAS compounds were analyzed by the EPA method listed in the table.

[2] Sample locations are not provided, consistent with neighborhood confidentiality agreement.

[3] Preliminary cleanup levels were established by the Washington State Department of Ecology (revised February 2025).

bgs = below ground surface

ng/L = nanograms per liter

U = Analyte not detected at a concentration greater than the listed reporting limit.

J = Analyte detected at less than reporting level but greater than or equal to the method detection limit and the concentration is an approximate value.

Flag applied by the laboratory.

NE = Not established

Bolded value indicates analyte detected at the concentration shown.

Gray shaded value indicates the detected concentration is greater than the Preliminary Cleanup Level.

Italicized value indicates the analyte was not detected but the reporting limit is greater than the Preliminary Cleanup Level.

Table 2

Monitoring Well Construction Details and Groundwater Elevations

Bailer Hill PFAS Project

Friday Harbor, Washington

Well Identification[1]	Total Depth (ft BTOC)	Ground Surface Elevation[2]	Depth to Bedrock[3]	Top of Bedrock Elevation[4]	Top of Casing Elevation	Screened Interval (ft bgs)	Top of Screen Elevation (ft NAVD88)	Base of Screen Elevation (ft NAVD88)	Date Installed	Date Measured	Groundwater Depth[5] (ft BTOC)	Groundwater Elevation (ft NAVD88)	Ecology Well Identification	Driller
BH-MW1	55	213.90	12	201.90	213.59	40 - 55	173.59	158.59	10/28/2024	10/30/2024	51.49	162.10	BNL-141	Mauldin's Well Service
BH-MW2	26	211.79	>26	185.79	211.59	14 - 19	197.59	192.59	10/29/2024	10/30/2024	9.97	201.62	BNL-142	Mauldin's Well Service
BH-MW3	40	199.34	12.5	186.84	199.08	30 - 40	169.08	159.08	10/29/2024	10/30/2024	Dry	NA	BNL-143	Mauldin's Well Service
BH-MW4	45	198.99	21	177.99	198.55	30 - 45	168.55	153.55	10/15/2024	10/30/2024	35.90	162.65	BNL-144	Cascade Environmental, LLC
BH-1	11	215.69	11	204.7	--	--	--	--	8/13/2024	--	--	--	--	Cascade Environmental, LLC
BH-2	8	211.59	8	203.6	--	--	--	--	8/14/2024	--	--	--	--	Cascade Environmental, LLC
BH-3	15.5	205.95	15.5	190.4	--	--	--	--	8/14/2024	--	--	--	--	Cascade Environmental, LLC
BH-4	14	199.76	14	185.8	--	--	--	--	8/12/2024	--	--	--	--	Cascade Environmental, LLC
BH-5	20	208.23	20	188.2	--	--	--	--	8/13/2024	--	--	--	--	Cascade Environmental, LLC
BH-6	15.5	203.00	15.5	187.5	--	--	--	--	8/14/2024	--	--	--	--	Cascade Environmental, LLC
BH-7	13	198.76	13	185.8	--	--	--	--	8/12/2024	--	--	--	--	Cascade Environmental, LLC
BH-8	16.5	210.32	16.5	193.8	--	--	--	--	8/13/2024	--	--	--	--	Cascade Environmental, LLC
BH-9	15.5	207.67	15.5	192.2	--	--	--	--	8/13/2024	--	--	--	--	Cascade Environmental, LLC
BH-10	14.5	205.71	14.5	191.2	--	--	--	--	8/13/2024	--	--	--	--	Cascade Environmental, LLC
BH-11	20.5	200.98	20.5	180.5	--	--	--	--	8/12/2024	--	--	--	--	Cascade Environmental, LLC
BH-12	20.5	198.08	20.5	177.6	--	--	--	--	8/12/2024	--	--	--	--	Cascade Environmental, LLC

Notes:

[1] Surveyed boring and monitoring well locations are shown in Figure 3.

[2] Surveyed ground surface elevations are presented in North American Veritical Datum 1988 (NAVD88) measured by licensed surveyors in August and October 2024.

[3] Depth to bedrock is approximated and is considered a minimum depth for all direct-push borings where refusal was met but confirmed due to limited recovery in the drilling bit.

[4] Top of bedrock elevation was calculated by subtracting the measured depth to bedrock from the surveyed ground surface elevation and is presented in feet NAVD88.

[5] Depth to groundwater measurements were conducted a minimum of 24 hours after well development was conducted.

bgs = below ground surface

BTOC = below top of casing

ft = feet

Table 3

Soil Analytical Results[1]

Per- and Polyfluoroalkyl Substances (PFAS)

Bailer Hill

Friday Harbor, Washington

Sample Location[2]		BH-1		BH-2	BH-3			BH-4		BH-5		BH-6			BH-7		BH-8		BH-9		BH-10		BH-11		BH-12		SS-1	Soil Protective of Potable Groundwater-Preliminary Cleanup Level (µg/kg)[4]	
Sample Identification		BH-1-0.5	BH-1-10-11	BH-2-1-2	BH-3-1-2	BH-3-5-6	SDUP-240814-2	BH-4-7-8	BH-4-13-14	BH-5-1-2	BH-5-5-6	BH-6-1-2	BH-6-5-6	DUP-240814-	BH-7-1-2	BH-7-7-8	BH-8-1-2	BH-8-5-6	BH-9-1-2	BH-9-14-15	BH-10-1-2	BH-10-13-14	BH-11-1-2	BH-11-20-21	BH-12-1-2	BH-12-5-6	SS-1-0.5		
Sample Date		7/23/2024	8/13/2024	8/14/2024	8/14/2024	8/14/2024	8/14/2024	8/12/2024	8/12/2024	8/13/2024	8/13/2024	8/14/2024	8/14/2024	8/14/2024	8/12/2024	8/12/2024	8/13/2024	8/13/2024	8/13/2024	8/13/2024	8/13/2024	8/13/2024	8/12/2024	8/12/2024	8/12/2024	8/12/2024	7/23/2024		
Sample Depth (feet bgs)		0-0.5	10-11	1-2	1-2	5-6	5-6	7-8	13-14	1-2	5-6	1-2	5-6	1-2	1-2	7-8	1-2	5-6	1-2	14-15	1-2	13-14	1-2	20-21	1-2	5-6	0-0.5		
Vadose or Saturated Samples[3]																													
Analyte Name	**Abbreviation**	Vadose	Saturated	Vadose	Vadose	Vadose	Vadose	Vadose	Saturated	Vadose	Vadose	Vadose	Vadose	Vadose	Vadose	Vadose	Vadose	Vadose	Vadose	Saturated	Vadose	Vadose	Vadose	Saturated	Vadose	Vadose	Vadose	**Vadose**	**Saturated**
PFAS Compounds with Washington PCUL (µg/kg)																													
Perfluorohexanesulfonic acid	PFHxS	*0.21 U*	*0.23 U*	**2.7**	*0.21 U*	*0.21 U*	*0.21 U*	**1.3**	*0.22 U*	**9.5**	**0.46**	**3.2**	**1.8**	**3.4**	**0.99**	**0.51**	*0.22 U*	0.23 U	**5.6**	**4.7 J**	**4.2**	**2.7**	**24.0**	**1.3**	**3.3**	**0.41**	**0.32**	0.00004	0.0000026
Perfluorodecanoic acid	PFDA	**0.23**	*0.23 U*	**0.70**	*0.21 U*	**0.20 J**	**0.15 J**	*0.22 U*	*0.22 U*	**2.3**	*0.22 U*	**0.47**	*0.23 U*	**0.56**	*0.22 U*	*0.22 U*	*0.22 U*	*0.23 U*	*0.21 U*	*0.25 U*	*0.24 U*	*0.22 U*	*0.22 U*	*0.23 U*	*0.23 U*	*0.25 U*	*0.21 U*	0.00038	0.000022
Perfluorooctanoic acid	PFOA	**0.13 J**	*0.23 U*	**0.82**	*0.21 U*	*0.21 U*	*0.21 U*	**0.20 J**	*0.22 U*	**1.1**	*0.22 U*	**0.47**	**0.24**	**0.56**	**0.29**	*0.22 U*	*0.22 U*	*0.23 U*	**0.38**	**0.24 J**	**0.34**	**0.19 J**	**1.3**	*0.23 U*	**0.88**	**0.17 J**	**0.12 J**	0.025	0.0016
Perfluorooctanesulfonic acid	PFOS	**6.2**	*0.23 U*	**67.0**	**2.7**	**2.0**	**1.8**	**9.8**	*0.22 U*	**359**	**9.5**	**327**	**33.2**	**314**	**26.7**	**11.3**	**12.5**	**0.62**	**255**	**17.9 J**	**104**	**8.3**	**25.7**	**3.1**	*0.23 U*	*0.25 U*	**7.4**	0.046	0.0026
Perfluorononanoic acid	PFNA	**0.66**	*0.23 U*	**9.1**	**3.1**	**0.66**	**0.61**	**3.7**	**0.18 J**	**5.7**	**0.22**	**6.7**	**2.0**	**7.1**	**5.6**	**1.6**	*0.22 U*	*0.23 U*	**5.2**	**0.39**	**10**	**0.82**	**80.1**	**0.86**	**5.6**	**0.52**	**0.14 J**	0.089	0.0053
Hexafluoropropylene oxide dimer acid	HFPO-DA (GenX)	*0.84 U*	*0.91 U*	*0.87 U*	*0.84 U*	*0.85 U*	*0.85 U*	*0.87 U*	*0.87 U*	*0.86 U*	*0.86 U*	*0.86 U*	*0.91 U*	*0.86 U*	*0.87 U*	*0.89 U*	*0.88 U*	*0.91 U*	*0.85 U*	*1.0 U*	*0.97 U*	*0.87 U*	*0.86 U*	*0.93 U*	*0.92 U*	*0.99 U*	*0.84 U*	0.12	0.0069
Perfluorobutanesulfonic acid	PFBS	0.21 U	0.23 U	0.22 U	0.21 U	0.21 U	0.21 U	0.22 U	0.22 U	**0.22**	0.22 U	**0.17 J**	**0.21 J**	**0.19 J**	0.22 U	0.22 U	0.22 U	0.23 U	**0.17 J**	**0.42**	**0.29**	**0.40**	**2.9**	**0.16 J**	**0.11 J**	0.25 U	0.21 U	25	1.7
Perfluorobutanoic acid	PFBA	0.84 U	0.91 U	0.87 U	0.84 U	0.85 U	0.85 U	0.87 U	0.87 U	0.86 U	0.86 U	0.86 U	0.91 U	0.86 U	0.87 U	0.89 U	0.88 U	0.91 U	0.85 U	1.0 U	0.97 U	0.87 U	0.86 U	0.93 U	0.92 U	0.99 U	0.84 U	44	2.9
Perfluorohexanoic acid	PFHxA	0.21 U	0.23 U	**0.40**	**0.12 J**	0.21 U	0.21 U	0.22 U	0.22 U	**0.53**	0.22 U	**0.63**	**0.18 J**	**0.76**	**0.12 J**	0.22 U	0.22 U	0.23 U	**0.55**	**0.25**	**0.31**	**0.18 J**	**2.0**	**0.21 J**	**0.30**	0.25 U	**0.11 J**	35	2.5
6:2 Fluorotelomer sulfonate	6:2FTS	0.84 U	0.91 U	0.87 U	0.84 U	0.85 U	0.85 U	0.87 U	0.87 U	0.86 U	0.86 U	0.86 U	0.91 U	0.86 U	0.87 U	0.89 U	0.88 U	0.91 U	0.85 U	1.0 U	0.97 U	0.87 U	0.86 U	0.93 U	0.92 U	0.99 U	0.84 U	74	4
Perfluoroalkyl Carboxylic Acids (µg/kg)																													
Perfluoropentanoic acid	PFPeA	**0.20 J**	0.46 U	**0.75**	**0.52**	0.43 U	0.42 U	0.44 U	0.44 U	**0.69**	0.43 U	**1.3**	**0.13 J**	**1.5**	**0.21 J**	0.44 U	0.44 U	0.45 U	**0.90**	0.51 U	**0.22 J**	0.44 U	**0.95**	0.47 U	**0.23 J**	0.50 U	**0.34 J**	NE	NE
Perfluoroheptanoic acid	PFHpA	0.21 U	0.23 U	**0.24**	0.21 U	0.21 U	0.21 U	0.22 U	0.22 U	**0.33**	0.22 U	**0.25**	0.23 U	**0.32**	0.22 U	0.22 U	0.22 U	0.23 U	0.21 U	0.25 U	0.24 U	0.22 U	**0.37**	0.23 U	**0.21 J**	0.25 U	0.21 U	NE	NE
Perfluoroundecanoic acid	PFUnA	**3.3**	0.23 U	**13.7**	0.21 U	**0.66**	**0.59**	0.22 U	0.22 U	**100**	**0.15 J**	**1.5**	0.23 U	**1.4**	0.22 U	0.22 U	0.22 U	0.23 U	**0.61**	0.25 U	0.24 U	0.22 U	0.22 U	0.23 U	0.23 U	0.25 U	**0.18 J**	NE	NE
Perfluorododecanoic acid	PFDoDA	0.21 U	0.23 U	**0.27**	0.21 U	0.21 U	0.21 U	0.22 U	0.22 U	**1.8**	0.22 U	0.21 U	0.23 U	0.21 U	0.22 U	0.22 U	0.22 U	0.23 U	0.21 U	0.25 U	0.24 U	0.22 U	0.22 U	0.23 U	0.23 U	0.25 U	0.21 U	NE	NE
Perfluorotridecanoic acid	PFTrDA	**1.9**	0.23 U	**6.2**	**0.17 J**	0.21 U	0.21 U	0.22 U	0.22 U	**20.1**	0.22 U	**0.11 J**	0.23 U	0.21 U	0.22 U	0.22 U	0.22 U	0.23 U	**0.29**	0.25 U	0.24 U	0.22 U	0.22 U	0.23 U	0.23 U	0.25 U	**0.38**	NE	NE
Perfluorotetradecanoic acid	PFTeDA	0.21 U	0.23 U	0.22 U	0.21 U	0.21 U	0.21 U	0.22 U	0.22 U	**0.24**	0.22 U	0.21 U	0.23 U	0.21 U	0.22 U	0.22 U	0.22 U	0.23 U	0.21 U	0.25 U	0.24 U	0.22 U	0.22 U	0.23 U	0.23 U	0.25 U	0.21 U	NE	NE
Fluorotelomer Carboxylic Acids																													
3:3 Fluorotelomer carboxylate	3:3FTCA	1.1 U	1.1 U	1.1 U	1.0 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.1 U	1.3 U	1.2 U	1.1 U	1.1 U	1.2 U	1.1 U	1.2 U	1.0 U	NE	NE
5:3 Fluorotelomer carboxylate	5:3FTCA	5.3 U	5.7 U	5.4 U	5.2 U	5.3 U	5.3 U	5.5 U	5.5 U	5.4 U	5.4 U	5.3 U	5.7 U	5.4 U	5.4 U	5.5 U	5.5 U	5.7 U	5.3 U	6.3 U	6.1 U	5.4 U	5.4 U	5.8 U	5.7 U	6.2 U	5.2 U	NE	NE
7:3 Fluorotelomer carboxylate	7:3FTCA	5.3 U	5.7 U	5.4 U	5.2 U	5.3 U	5.3 U	5.5 U	5.5 U	5.4 U	5.4 U	5.3 U	5.7 U	5.4 U	5.4 U	5.5 U	5.5 U	5.7 U	5.3 U	6.3 U	6.1 U	5.4 U	5.4 U	5.8 U	5.7 U	6.2 U	5.2 U	NE	NE
Per- and Polyfluoroether Carboxylic Acids																													
4,8-Dioxa-3H-perfluorononanoic acid	ADONA	0.84 U	0.91 U	0.87 U	0.84 U	0.85 U	0.85 U	0.87 U	0.87 U	0.86 U	0.86 U	0.86 U	0.91 U	0.86 U	0.87 U	0.89 U	0.88 U	0.91 U	0.85 U	1.0 U	0.97 U	0.87 U	0.86 U	0.93 U	0.92 U	0.99 U	0.84 U	NE	NE
Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	0.42 U	0.46 U	0.44 U	0.42 U	0.43 U	0.42 U	0.44 U	0.44 U	0.43 U	0.43 U	0.43 U	0.45 U	0.43 U	0.43 U	0.44 U	0.44 U	0.45 U	0.42 U	0.51 U	0.48 U	0.44 U	0.43 U	0.47 U	0.46 U	0.50 U	0.42 U	NE	NE
Perfluoro-3-methoxypropanoic acid	PFMPA	0.42 U	0.46 U	0.44 U	0.42 U	0.43 U	0.42 U	0.44 U	0.44 U	0.43 U	0.43 U	0.43 U	0.45 U	0.43 U	0.43 U	0.44 U	0.44 U	0.45 U	0.42 U	0.51 U	0.48 U	0.44 U	0.43 U	0.47 U	0.46 U	0.50 U	0.42 U	NE	NE
Perfluoro-4-methoxybutanoic acid	PFMBA	0.42 U	0.46 U	0.44 U	0.42 U	0.43 U	0.42 U	0.44 U	0.44 U	0.43 U	0.43 U	0.43 U	0.45 U	0.43 U	0.43 U	0.44 U	0.44 U	0.45 U	0.42 U	0.51 U	0.48 U	0.44 U	0.43 U	0.47 U	0.46 U	0.50 U	0.42 U	NE	NE
Perfluoroalkyl Sulfonic Acids																													
Perfluoropentanesulfonic acid	PFPeS	0.21 U	0.23 U	0.22 U	0.21 U	0.21 U	0.21 U	0.22 U	0.22 U	**0.52**	0.22 U	**0.30**	**0.26**	**0.33**	0.22 U	0.22 U	0.22 U	0.23 U	**0.38**	**0.60**	**0.56**	**0.48**	**4.1**	**0.24**	**0.21 J**	0.25 U	0.21 U	NE	NE
Perfluoroheptanesulfonic acid	PFHpS	0.21 U	0.23 U	**0.64**	0.21 U	0.21 U	0.21 U	**0.28**	0.22 U	**1.3**	0.22 U	**0.27**	**0.22 J**	**0.21**	**0.43**	0.22 U	0.22 U	0.23 U	**0.82**	**0.52**	**0.78**	**0.18 J**	**5.7**	0.23 U	0.23 U	0.25 U	0.21 U	NE	NE
Perfluorononanesulfonic acid	PFNS	0.21 U	0.23 U	0.22 U	0.21 U	0.21 U	0.21 U	0.22 U	0.22 U	**4.0**	0.22 U	0.21 U	0.23 U	0.21 U	0.22 U	0.22 U	0.22 U	0.23 U	0.21 U	0.25 U	0.24 U	0.22 U	0.22 U	0.23 U	0.23 U	0.25 U	0.21 U	NE	NE
Perfluorodecanesulfonic acid	PFDS	0.21 U	0.23 U	0.22 U	0.21 U	0.21 U	0.21 U	0.22 U	0.22 U	**2.9**	0.22 U	0.21 U	0.23 U	0.21 U	0.22 U	0.22 U	0.22 U	0.23 U	0.21 U	0.25 U	0.24 U	0.22 U	0.22 U	0.23 U	0.23 U	0.25 U	0.21 U	NE	NE
Perfluorododecanesulfonic acid	PFDoDS	0.21 U	0.23 U	0.22 U	0.21 U	0.21 U	0.21 U	0.22 U	0.22 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U	0.22 U	0.22 U	0.22 U	0.23 U	0.21 U	0.25 U	0.24 U	0.22 U	0.22 U	0.23 U	0.23 U	0.25 U	0.21 U	NE	NE
Fluorotelomer Sulfonic Acids																													
4:2 Fluorotelomer sulfonate	4:2FTS	0.84 U	0.91 U	0.87 U	0.84 U	0.85 U	0.85 U	0.87 U	0.87 U	0.86 U	0.86 U	0.86 U	0.91 U	0.86 U	0.87 U	0.89 U	0.88 U	0.91 U	0.85 U	1.0 U	0.97 U	0.87 U	0.86 U	0.93 U	0.92 U	0.99 U	0.84 U	NE	NE
8:2 Fluorotelomer sulfonate	8:2FTS	0.84 U	0.91 U	0.87 U	0.84 U	0.85 U	0.85 U	0.87 U	0.87 U	**1.1**	0.86 U	0.86 U	0.91 U	0.86 U	0.87 U	0.89 U	0.88 U	0.91 U	0.85 U	1.0 U	0.97 U	0.87 U	0.86 U	0.93 U	0.92 U	0.99 U	0.84 U	NE	NE
Per- and Polyfluoroether Sulfonic Acids																													
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acd	9Cl-PF3ONS	0.84 U	0.91 U	0.87 U	0.84 U	0.85 U	0.85 U	0.87 U	0.87 U	0.86 U	0.86 U	0.86 U	0.91 U	0.86 U	0.87 U	0.89 U	0.88 U	0.91 U	0.85 U	1.0 U	0.97 U	0.87 U	0.86 U	0.93 U	0.92 U	0.99 U	0.84 U	NE	NE
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	0.84 U	0.91 U	0.87 U	0.84 U	0.85 U	0.85 U	0.87 U	0.87 U	0.86 U	0.86 U	0.86 U	0.91 U	0.86 U	0.87 U	0.89 U	0.88 U	0.91 U	0.85 U	1.0 U	0.97 U	0.87 U	0.86 U	0.93 U	0.92 U	0.99 U	0.84 U	NE	NE
Perfluoro(2-ethoxyethane)sulfonic acid	PFEESA	0.42 U	0.46 U	0.44 U	0.42 U	0.43 U	0.42 U	0.44 U	0.44 U	0.43 U	0.43 U	0.43 U	0.45 U	0.43 U	0.43 U	0.44 U	0.44 U	0.45 U	0.42 U	0.51 U	0.48 U	0.44 U	0.43 U	0.47 U	0.46 U	0.50 U	0.42 U	NE	NE
Perfluorooctane Sulfonamides/Amidoacetic Acids/Sulfonamido Ethanols																													
Perfluorooctanesulfonamide	PFOSA	0.21 U	0.23 U	0.22 U	0.21 U	0.21 U	0.21 U	0.22 U	0.22 U	**3.6**	0.22 U	0.21 U	0.23 U	0.21 U	0.22 U	0.22 U	0.22 U	0.23 U	0.21 U	0.25 U	0.24 U	0.22 U	0.22 U	0.23 U	0.23 U	0.25 U	0.21 U	NE	NE
N-Methylperfluorooctanesulfonamide	MeFOSA	0.21 U	0.23 U	0.22 U	0.21 U	0.21 U	0.21 U	0.22 U	0.22 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U	0.22 U	0.22 U	0.22 U	0.23 U	0.21 U	0.25 U	0.24 U	0.22 U	0.22 U	0.23 U	0.23 U	0.25 U	0.21 U	NE	NE
N-Methyl perfluorooctane sulfonamidoacitic acid	MeFOSAA	0.21 U	0.23 U	0.22 U	0.21 U	0.21 U	0.21 U	0.22 U	0.22 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U	0.22 U	0.22 U	0.22 U	0.23 U	0.21 U	0.25 U	0.24 U	0.22 U	0.22 U	0.23 U	0.23 U	0.25 U	0.21 U	NE	NE
N-Methylperfluorooctanesulfonamidothanol	MeFOSE	2.1 U	2.3 U	2.2 U	2.1 U	2.1 U	2.1 U	2.2 U	2.2 U	2.1 U	2.2 U	2.1 U	2.3 U	2.1 U	2.2 U	2.2 U	2.2 U	2.3 U	2.1 U	2.5 U	2.4 U	2.2 U	2.2 U	2.3 U	2.3 U	2.5 U	2.1 U	NE	NE
N-Ethylperfluorooctanesulfonamide	EtFOSA	0.21 U	0.23 U	0.22 U	0.21 U	0.21 U	0.21 U	0.22 U	0.22 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U	0.22 U	0.22 U	0.22 U	0.23 U	0.21 U	0.25 U	0.24 U	0.22 U	0.22 U	0.23 U	0.23 U	0.25 U	0.21 U	NE	NE
N-Ethyl perfluorooctane sulonamidoacetic acid	EtFOSAA	0.21 U	0.23 U	0.22 U	0.21 U	0.21 U	0.21 U	0.22 U	0.22 U	0.21 U	0.22 U	0.21 U	0.23 U	0.21 U	0.22 U	0.22 U	0.22 U	0.23 U	0.21 U	0.25 U	0.24 U	0.22 U	0.22 U	0.23 U	0.23 U	0.25 U	0.21 U	NE	NE
N-Ethylperfluorooctanesulfonamidothanol	EtFOSE	2.1 U	2.3 U	2.2 U	2.1 U	2.1 U	2.1 U	2.2 U	2.2 U	2.1 U	2.2 U	2.1 U	2.3 U	2.1 U	2.2 U	2.2 U	2.2 U	2.3 U	2.1 U	2.5 U	2.4 U	2.2 U	2.2 U	2.3 U	2.3 U	2.5 U	2.1 U	NE	NE

Notes:

[1] Chemical analyses performed by SGS of Orlando, Florida. PFAS compounds were analyzed by EPA Method 1633. Chemical analytical laboratory reports are included in Appendix C.

[2] Approximate sample locations are shown on Figure 3.

[3] The interpretation of vadose and saturated soil samples was determined by GeoEngineers using depth to groundwater measured at the time of well construction.

[4] Preliminary cleanup levels were established by the Washington State Department of Ecology (revised February 2025).

bgs = below ground surface

µg/kg = micrograms per kilogram

U = Analyte not detected at a concentration greater than the listed reporting limit.

J = Analyte detected at less than reporting level but greater than or equal to the method detection limit and the concentration is an approximate value. Flag applied by the laboratory.

NE = Not established

Bolded value indicates analyte detected at the concentration shown.

Gray shaded value indicates the detected concentration is greater than the Preliminary Cleanup Level.

Italicized value indicates the analyte was not detected but the reporting limit is greater than the Preliminary Cleanup Level.

Table 4

Groundwater Analytical Results[1]

Per- and Polyfluoroalkyl Substances (PFAS)

Bailer Hill Area

Friday Harbor, Washington

Sample Location[2]		BH-1		BH-4	BH-5	BH-6	BH-10	BH-12	BH-MW1	BH-MW2		BH-MW4	P1[3]	Preliminary Cleanup Level for Groundwater (ng/L)[4]
Sample Identification		BH-1-240814	WDUP-240814	BH-4-240812	BH-5-240814	BH-6-240814	BH-10-240813	BH-12-240812	BH-MW1-241030	BH-DUP1-241030W	BH-MW2-241030	BH-MW4-241030	P-1-240814	
	Sample Date	8/14/2024	8/14/2024	8/12/2024	8/14/2024	8/14/2024	8/13/2024	8/12/2024	10/30/2024	10/30/2024	10/30/2024	10/30/2024	8/14/2024	
Analyte Name	**Abbreviation**													
PFAS Compounds with Washington PCUL (ng/L)														
Perfluorohexanesulfonic acid	PFHxS	**18.5**	**19.9**	**1,080**	**4,320**	**2,710**	**45,500**	**10,800**	**2.1 J**	**2,090**	**2,310**	**630**	*1.8 U*	0.0064
Perfluorodecanoic acid	PFDA	**1.3 J**	**1.5 J**	*2.2 U*	**47.1**	*33 U*	**29.3**	*17 U*	*3.3 U*	**20.6**	**21.1**	*2.3 U*	*1.8 U*	0.032
Perfluorooctanoic acid	PFOA	**10.5**	**10.3**	**269**	**492**	**473**	**3,470**	**1,210**	**2.0 J**	**277**	**290**	**218**	1.8 U	4.0
Perfluorooctanesulfonic acid	PFOS	**68.5**	**64.4**	**81.2**	**12,500 J**	**31,400**	**48,100**	**7,660**	3.3 U	**4,130**	**4,510**	**12.2**	1.8 U	4.0
Perfluorononanoic acid	PFNA	**60**	**57.2**	**566**	**1,420**	**5,990**	**13,500**	**3,960**	**5.2**	**2,020**	**2,280**	**260**	1.8 U	10
Hexafluoropropylene oxide dimer acid	HFPO-DA (GenX)	6.7 U	6.2 U	4.4 U	3.6 U	67 U	33 U	33 U	6.6 U	33 U	33 U	4.5 U	3.6 U	10
6:2 Fluorotelomer sulfonate	6:2FTS	13 U	12 U	8.9 U	**455**	**308**	**544**	**804**	13 U	**417**	**471**	**201**	7.1 U	3,200
Perfluorobutanesulfonic acid	PFBS	**3.0 J**	**3.1**	**145**	**793**	**343**	**12,300**	**1,800**	**2.5 J**	**334**	**353**	**572**	**0.91 J**	4,800
Perfluorobutanoic acid	PFBA	**13.1**	**13.7**	**92**	**710**	**211**	**792**	**414**	**12.1 J**	**208**	**226**	**279**	**7.1 U**	8,000
Perfluorohexanoic acid	PFHxA	**15.3**	**14.3**	**279**	**1,210**	**485**	**4,410**	**1,530**	**8.0**	**503**	**553**	**859**	1.8 U	8,000
Hazard Index	HI	**8**	**8**	**165**	**575**	**874**	**5,908**	**1,479**	1	**413**	**461**	**90**	0	1
Perfluoroalkyl Carboxylic Acids (ng/L)														
Perfluoropentanoic acid	PFPeA	**6.9**	**6.8**	**343**	**1,290**	**558**	**2,170**	**1,210**	**13.0**	**496**	**544**	**688**	3.6 U	NE
Perfluoroheptanoic acid	PFHpA	**15.8**	**15.9**	**183**	**433**	**315**	**1,360**	**710**	**3.8**	**248**	**268**	**265**	1.8 U	NE
Perfluoroundecanoic acid	PFUnA	**10.9**	**8.4**	2.2 U	**423**	33 U	**8.1 J**	17 U	3.3 U	**14.2 J**	**18.8**	2.3 U	1.8 U	NE
Perfluorododecanoic acid	PFDoDA	3.3 U	3.1 U	2.2 U	**3.3**	33 U	17 U	17 U	3.3 U	17 U	17 U	2.3 U	1.8 U	NE
Perfluorotridecanoic acid	PFTrDA	**1.4 J**	3.1 U	2.2 U	**6.6**	33 U	17 U	17 U	3.3 U	17 U	17 U	2.3 U	1.8 U	NE
Perfluorotetradecanoic acid	PFTeDA	3.3 U	3.1 U	2.2 U	1.8 U	33 U	17 U	17 U	3.3 U	17 U	17 U	2.3 U	1.8 U	NE
Fluorotelomer Carboxylic Acids (ng/L)														
3:3 Fluorotelomer carboxylate	3:3FTCA	17 U	15 U	11 U	9.1 U	170 U	83 U	83 U	16 U	83 U	83 U	11 U	8.9 U	NE
5:3 Fluorotelomer carboxylate	5:3FTCA	83 U	77 U	56 U	45 U	830 U	420 U	420 U	82 U	420 U	420 U	57 U	45 U	NE
7:3 Fluorotelomer carboxylate	7:3FTCA	83 U	77 U	56 U	45 U	830 U	420 U	420 U	82 U	420 U	420 U	57 U	45 U	NE
Per- and Polyfluoroether Carboxylic Acids (ng/L)														
4,8-Dioxa-3H-perfluorononanoic acid	ADONA	13 U	12 U	8.9 U	7.3 U	130 U	67 U	67 U	13 U	67 U	67 U	9.1 U	7.1 U	NE
Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	6.7 U	6.2 U	4.4 U	3.6 U	67 U	33 U	33 U	6.6 U	33 U	33 U	4.5 U	3.6 U	NE
Perfluoro-3-methoxypropanoic acid	PFMPA	6.7 U	6.2 U	4.4 U	**1.1 J**	67 U	33 U	33 U	6.6 U	33 U	33 U	4.5 U	3.6 U	NE
Perfluoro-4-methoxybutanoic acid	PFMBA	6.7 U	6.2 U	4.4 U	3.6 U	67 U	33 U	33 U	6.6 U	33 U	33 U	4.5 U	3.6 U	NE
Perfluoroalkyl Sulfonic Acids (ng/L)														
Perfluoropentanesulfonic acid	PFPeS	**2.8 J**	**2.9 J**	**164**	**906**	**374**	**12,100**	**2,530**	3.3 U	**430**	**474**	**396**	1.8 U	NE
Perfluoroheptanesulfonic acid	PFHpS	3.3 U	3.1 U	**39.3**	**338**	**413**	**3,580**	**486**	3.3 U	**202**	**211**	**10.3**	1.8 U	NE
Perfluorononanesulfonic acid	PFNS	3.3 U	3.1 U	2.2 U	**46.1**	33 U	17 U	17 U	3.3 U	17 U	17 U	2.3 U	1.8 U	NE
Perfluorodecanesulfonic acid	PFDS	3.3 U	3.1 U	2.2 U	**12.3**	33 U	17 U	17 U	3.3 U	17 U	17 U	2.3 U	1.8 U	NE
Perfluorododecanesulfonic acid	PFDoDS	3.3 U	3.1 U	2.2 U	1.8 U	33 U	17 U	17 U	3.3 U	17 U	17 U	2.3 U	1.8 U	NE
Fluorotelomer Sulfonic Acids (ng/L)														
4:2 Fluorotelomer sulfonate	4:2FTS	13 U	12 U	8.9 U	7.3 U	130 U	67 U	67 U	13 U	67 U	67 U	**8.9 J**	7.1 U	NE
8:2 Fluorotelomer sulfonate	8:2FTS	13 U	12 U	8.9 U	**80.9**	130 U	67 U	67 U	13 U	**67.4**	**80.7**	9.1 U	7.1 U	NE
Per- and Polyfluoroether Sulfonic Acids (ng/L)														
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acd	9Cl-PF3ONS	13 U	12 U	8.9 U	7.3 U	130 U	67 U	67 U	13 U	67 U	67 U	9.1 U	7.1 U	NE
11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	13 U	12 U	8.9 U	7.3 U	130 U	67 U	67 U	13 U	67 U	67 U	9.1 U	7.1 U	NE
Perfluoro(2-ethoxyethane)sulfonic acid	PFEESA	6.7 U	6.2 U	4.4 U	3.6 U	67 U	33 U	33 U	6.6 U	33 U	33 U	4.5 U	3.6 U	NE

Sample Location[2]		BH-1		BH-4	BH-5	BH-6	BH-10	BH-12	BH-MW1	BH-MW2		BH-MW4	P1[3]	Preliminary Cleanup Level for Groundwater (ng/L)[4]
Sample Identification		BH-1-240814	WDUP-240814	BH-4-240812	BH-5-240814	BH-6-240814	BH-10-240813	BH-12-240812	BH-MW1-241030	BH-DUP1-241030W	BH-MW2-241030	BH-MW4-241030	P-1-240814	
Sample Date		8/14/2024	8/14/2024	8/12/2024	8/14/2024	8/14/2024	8/13/2024	8/12/2024	10/30/2024	10/30/2024	10/30/2024	10/30/2024	8/14/2024	
Analyte Name	**Abbreviation**													
Perfluorooctane Sulfonamides/Amidoacetic Acids/Sulfonamido Ethanols (ng/L)														
Perfluorooctanesulfonamide	PFOSA	3.3 U	3.1 U	2.2 U	**20.3 J**	33 U	17 U	17 U	3.3 U	17 U	17 U	2.3 U	1.8 U	NE
N-Methylperfluorooctanesulfonamide	MeFOSA	6.7 U	6.2 U	4.4 U	3.6 U	67 U	33 U	33 U	6.6 U	33 U	33 U	4.5 U	3.6 U	NE
N-Methyl perfluorooctane sulfonamidoacitic acid	MeFOSAA	3.3 U	3.1 U	2.2 U	1.8 U	33 U	17 U	17 U	3.3 U	17 U	17 U	2.3 U	1.8 U	NE
N-Methylperfluorooctanesulfonamidothanol	MeFOSE	33 U	31 U	22 U	18 U	330 U	170 U	170 U	33 U	170 U	170 U	23 U	18 U	NE
N-Ethylperfluorooctanesulfonamide	EtFOSA	6.7 U	6.2 U	4.4 U	3.6 U	67 U	33 U	33 U	6.6 U	33 U	33 U	4.5 U	3.6 U	NE
N-Ethyl perfluorooctane sulonamidoacetic acid	EtFOSAA	3.3 U	3.1 U	2.2 U	1.8 UJ	33 U	17 U	17 U	3.3 U	17 U	17 U	2.3 U	1.8 U	NE
N-Ethylperfluorooctanesulfonamidothanol	EtFOSE	33 U	31 U	22 U	18 U	330 U	170 U	170 U	33 U	170 U	170 U	23 U	18 U	NE

Notes:

[1] Chemical analyses performed by SGS of Orlando, Florida. PFAS compounds were analyzed by EPA Method 1633. Chemical analytical laboratory reports are included in Appendix C.

[2] Approximate sample locations are shown on Figure 3.

[3] Sample location P-1 is off-property but was collected as a part of the source characterization investigation in coordination with the property owners and Washington State Department of Ecology.

[4] Preliminary cleanup levels were established by the Washington State Department of Ecology (revised February 2025).

bgs = below ground surface

ng/L = nanograms per liter

U = Analyte not detected at a concentration greater than the listed reporting limit.

J = Analyte detected at less than reporting level but greater than or equal to the method detection limit and the concentration is an approximate value. Flag applied by the laboratory.

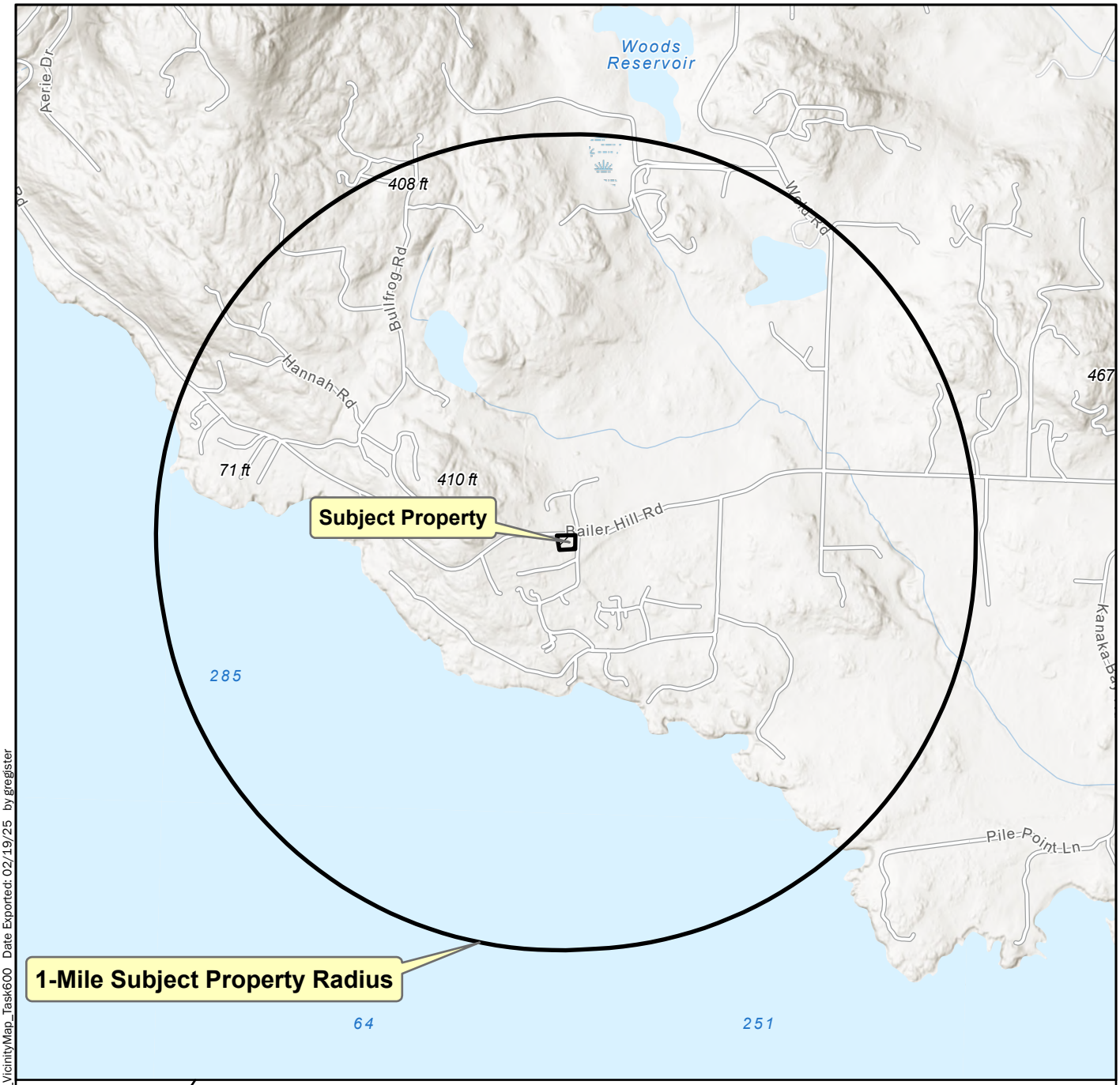
NE = Not established

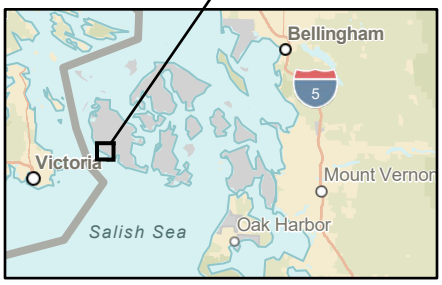
Bolded value indicates analyte detected at the concentration shown.

Gray shaded value indicates the detected concentration is greater than the Preliminary Cleanup Level.

Italicized value indicates the analyte was not detected but the reporting limit is greater than the Preliminary Cleanup Level.

Figures





N

0 2,000

Feet

Source(s):
- ESRI

Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet

Vicinity Map

Bailer Hill Road and Straits View Drive
Friday Harbor, Washington

GeoEngineers

Figure 1

Legend

- Subject Property
- 200 — Elevation Contour (NAVD88, LiDAR 2019)
- Parcel Boundary
- W — Approximate Water Line Location
- P — Approximate Underground Power Line
- T — Approximate Underground Telecoms Line
- Well No.2 — Existing Drinking Water Well

Note(s):

1. Direct-Push borings completed by GeoEngineers on August 12 - 15, 2024. Borings were surveyed by San Juan Surveying using the Leica TS16 Robotic Total Station and GS18 GNSS RTK Rover on August 14, 2024.
2. All subsurface infrastructure should be considered approximate. Septic tank features were surveyed in August 2024 by licensed surveyor San Juan Surveying.

Source(s): Aerial from Microsoft Bing, 2023

Coordinate System: WA State Plane, North Zone, NAD83, US Foot

N

0 40

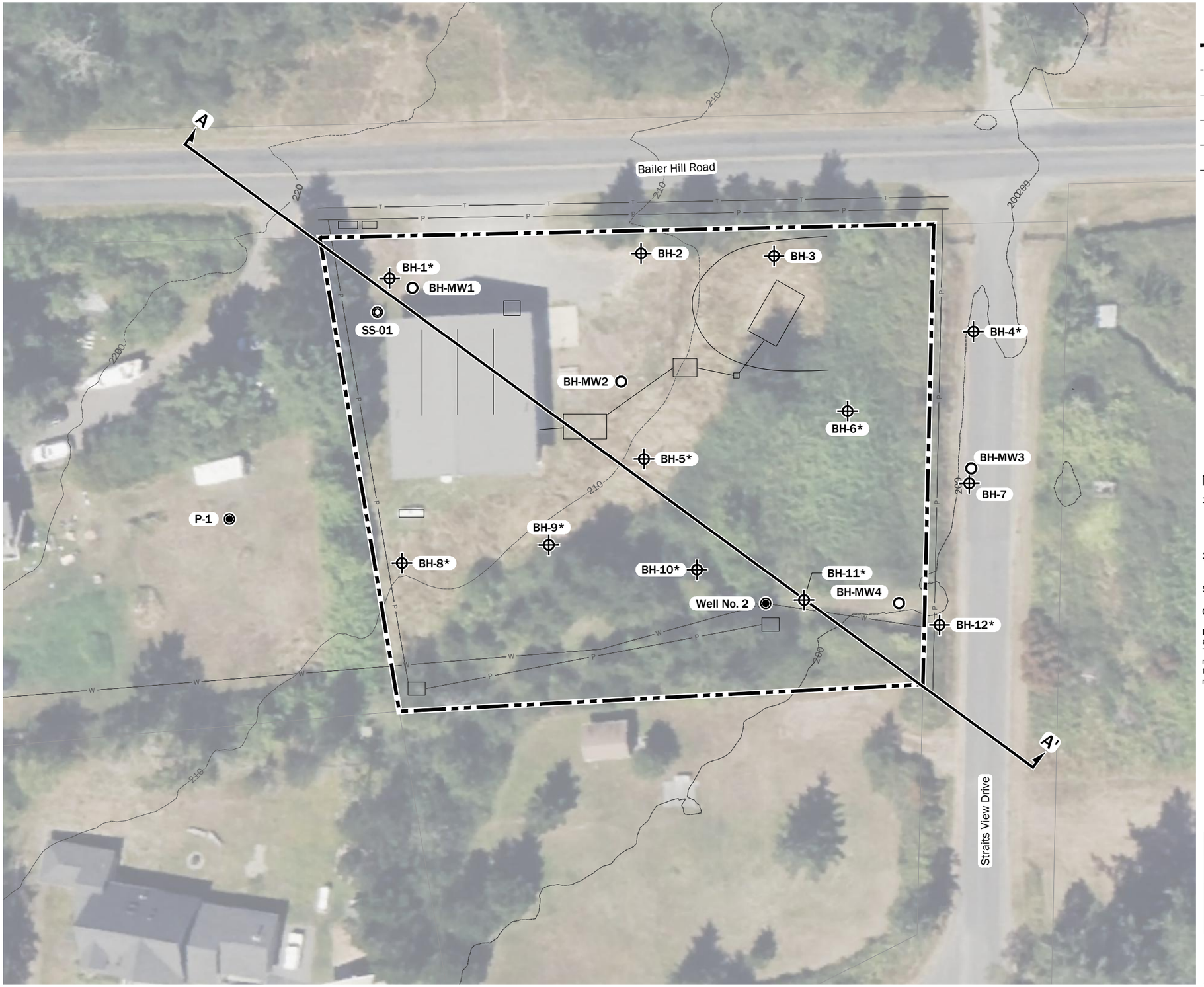
Feet

Site Plan

Bailer Hill Road and Straits View Drive
Friday Harbor, Washington

GeoEngineers

Figure 2



Legend

- Subject Property
- 200 — Elevation Contour (NAVD88, LiDAR 2019)
- Parcel Boundary
- W — Approximate Water Line Location
- P — Approximate Underground Power Line
- T — Approximate Underground Telecoms Line
- A' — Cross Section Location
- Well No.2 — Existing Drinking Water Well
- BH-1* — Direct-push Borings by GeoEngineers, August 2024 (*) = Groundwater was available to collect a grab sample for potential analysis
- SS-01 — Shallow Soil Sample by GeoEngineers, August 2024
- BH-MW1 — Monitoring Well by GeoEngineers, September-October 2024

Note(s):

1. Direct-Push borings completed by GeoEngineers on August 12 - 15, 2024. Monitoring wells were installed by GeoEngineers in September and October 2024. Borings were surveyed by San Juan Surveying using the Leica TS16 Robotic Total Station and GS18 GNSS RTK Rover on August 14, 2024 and Monitoring wells were surveying in October 2024.
2. All subsurface infrastructures should be considered approximate. Septic tank features were surveyed in August 2024 by licensed surveyor San Juan Surveying.

Source(s): Aerial from Microsoft Bing, 2023

Coordinate System: WA State Plane, North Zone, NAD83, US Foot

N

0 40

Feet

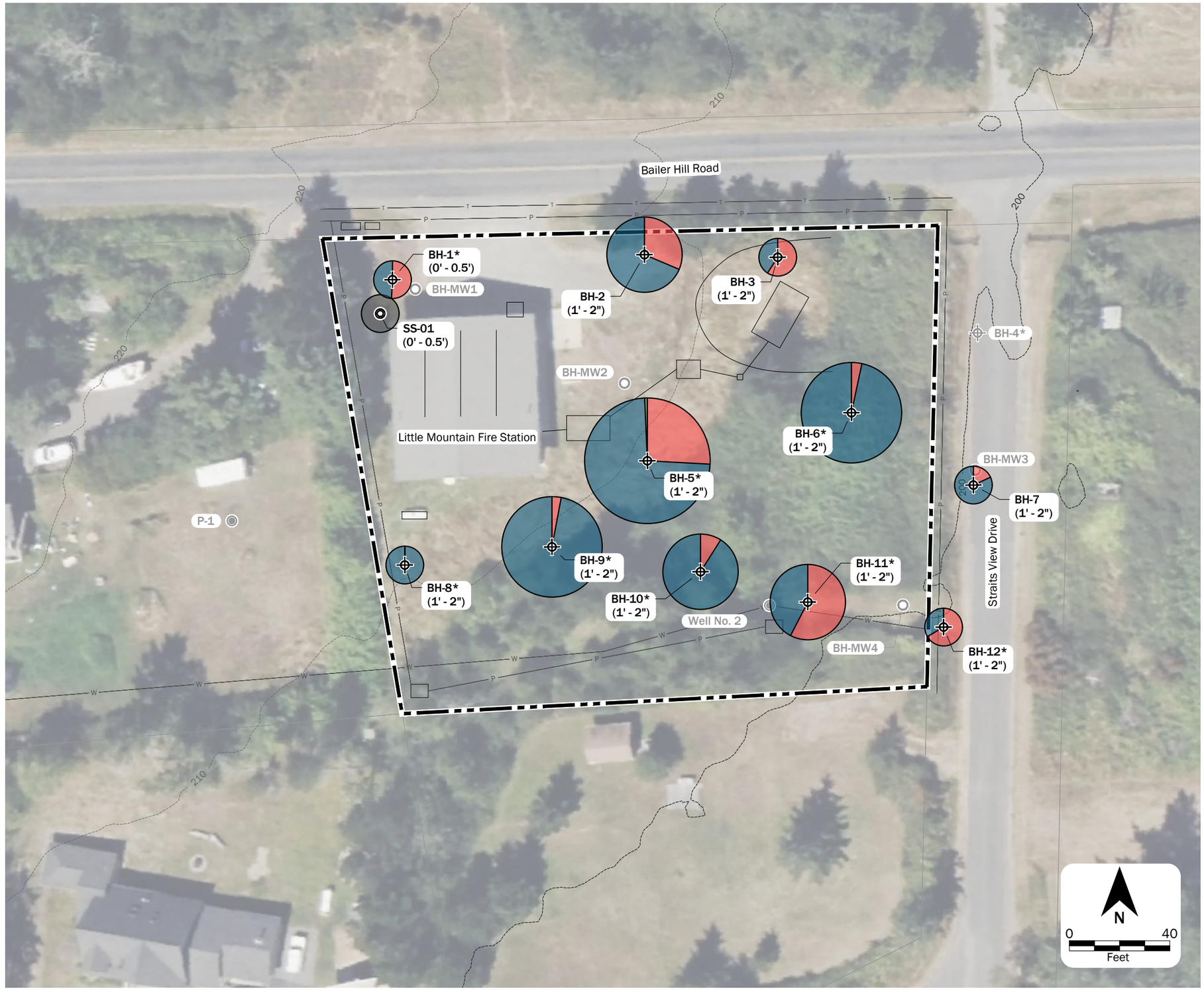
Borings And Monitoring Wells

Bailer Hill Road And Straits View Drive
Friday Harbor, Washington

GeoEngineers

Figure 3

P:\0\0504217\CAD\00\soil and gw investigation\0504217 00_Sht 3_3 [Borings and MW].dwg 2 3 [Borings and MW] Date Exported:5/14/2025 11:43 AM - by Chad Stickel



Legend

- Subject Property
- 200 — Elevation Contour (NAVD88, LiDAR 2019)
- Parcel Boundary
- Approximate Water Line Location
- Approximate Underground Power Line
- Approximate Underground Telecoms Line
- Well No. 2 — Existing Drinking Water Well
- BH-1* (0' - 0.5') — Direct-push Borings by GeoEngineers, 2024; (*) = Groundwater Observed While Drilling in August 2024; Sample Depth in Feet Below Ground Surface
- SS-01 — Shallow Soil Sample by GeoEngineers, 2024
- BH-MW1 — Monitoring Well by GeoEngineers, 2024
- BH-MW1 — Gray Symbols Indicate No Analytical Data is Available

PFAS Analytical Results in Soil

Distribution of Detected PFAS Subgroups

- PFCAs
- PFSAs
- FT-Derived
- Non Detect

Concentration of Total PFAS Detected (µg/kg)

- 0-50
- 50-100
- 100-250
- 250-500
- >500

Note(s):

1. Abbreviations: PFAS = Per- and polyfluoroalkyl substances; PFCA = Perfluorocarboxylic acids; PFSA = Perfluorosulfonic acids, FT = Fluorotelemerization; µg/kg = micrograms per kilogram
2. Direct-push borings were completed by GeoEngineers in August 2024. Monitoring wells were installed with either a sonic drilling rig or air rotary drilling rig in September and October 2024.
3. All boring and monitoring well locations were surveyed by San Juan Surveying using the Leica TS16 Robotic Total Station and GS18 GNSS RTK Rover in August and October 2024.

Source(s): Aerial from Microsoft Bing, 2023

Coordinate System: WA State Plane, North Zone, NAD83, US Foot

Shallow Soil Analytical Results (<5' bgs)

Bailer Hill Road And Straits View Drive
Friday Harbor, Washington

GeoEngineers

Figure 4

P:\0\05042117\CAD\00\Soil and GW Investigation\050421700_Sht 4_4 [Shallow Soil Results].dwg 4 [Shallow Soil Results] Date Exported:6/10/2025 7:54 AM - by Gabby Register

Legend

- Subject Property
- 200 — Elevation Contour (NAVD88, LiDAR 2019)
- Parcel Boundary
- Approximate Water Line Location
- Approximate Underground Power Line
- Approximate Underground Telecoms Line
- Well No. 2 — Existing Drinking Water Well
- BH-1* (10' - 11') — Direct-push Borings by GeoEngineers, 2024; (*) = Groundwater Observed While Drilling in August 2024; Sample Depth in Feet Below Ground Surface
- SS-01 — Shallow Soil Sample by GeoEngineers, 2024
- BH-MW1 — Monitoring Well by GeoEngineers, 2024
- BH-MW1 — Gray Symbols Indicate No Analytical Data is Available

PFAS Analytical Results in Soil

Distribution of Detected PFAS Subgroups

- PFCAs
- PFSAs
- FT-Derived
- Non Detect

Concentration of Total PFAS Detected (µg/kg)

- 0-50
- 50-100
- 100-250
- 250-500
- >500

Note(s):

1. Abbreviations: PFAS = Per- and polyfluoroalkyl substances; PFCA = Perfluorocarboxylic acids; PFSA = Perfluorosulfonic acids, FT = Fluorotelemerization; µg/kg = micrograms per kilogram
2. Chemical analytical results are presented in report tables and laboratory analytical reports are provided in the report appendix.

Source(s): Aerial from Microsoft Bing, 2023

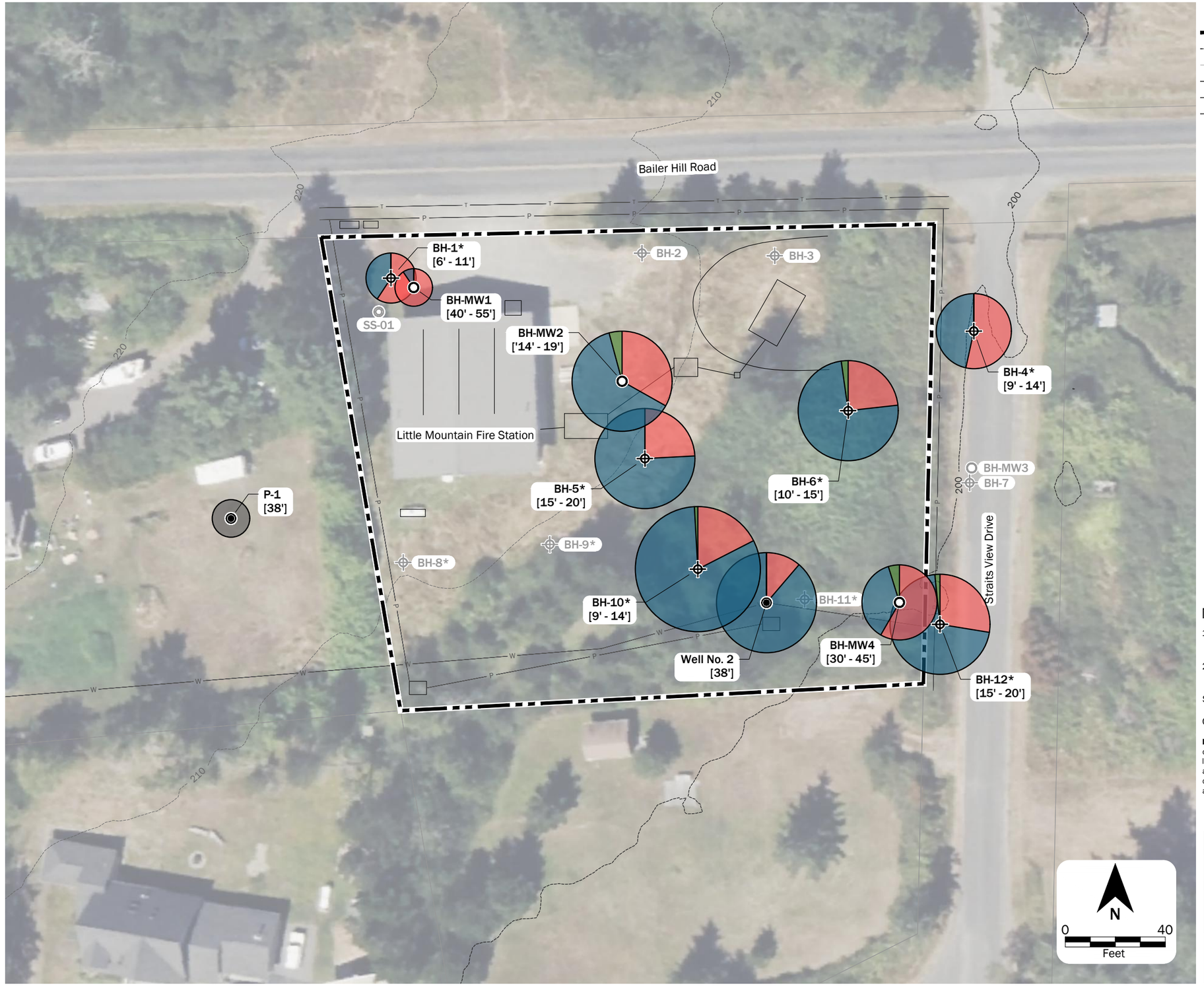
Coordinate System: WA State Plane, North Zone, NAD83, US Foot

Deep Soil Analytical Results (5-21' bgs)

Bailer Hill Road And Straits View Drive
Friday Harbor, Washington

GeoEngineers

Figure 5



Legend

- Subject Property
- 200 — Elevation Contour (NAVD88, LiDAR 2019)
- Parcel Boundary
- W — Approximate Water Line Location
- P — Approximate Underground Power Line
- T — Approximate Underground Telecoms Line
- Well No. 2 — Existing Drinking Water Well
- BH-1* [6' - 11'] — Direct-push Borings by GeoEngineers, 2024; (*) = Groundwater Observed While Drilling in August 2024; Screen Depth in Feet Below Ground Surface
- SS-01 — Shallow Soil Sample by GeoEngineers, 2024
- BH-MW1 — Monitoring Well by GeoEngineers, 2024
- BH-MW3 — Gray Symbols Indicate No Analytical Data is Available

PFAS Analytical Results in GroundWater

Distribution of Detected PFAS Subgroups

- PFCAs
- PFSAs
- FT-Derived
- Non Detect

Concentration of Total PFAS Detected (ng/L)

- 0-100
- 100-1,000
- 1,000-10,000
- 10,000-100,000
- >100,000

Note(s):

1. Abbreviations: PFAS = Per- and polyfluoroalkyl substances; PFCA = Perfluorocarboxylic acids; PFSA = Perfluorosulfonic acids, FT = Fluorotelemerization; µg/kg = micrograms per kilogram
2. Chemical analytical results are presented in report tables and laboratory analytical reports are provided in the report appendix.

Source(s): Aerial from Microsoft Bing, 2023

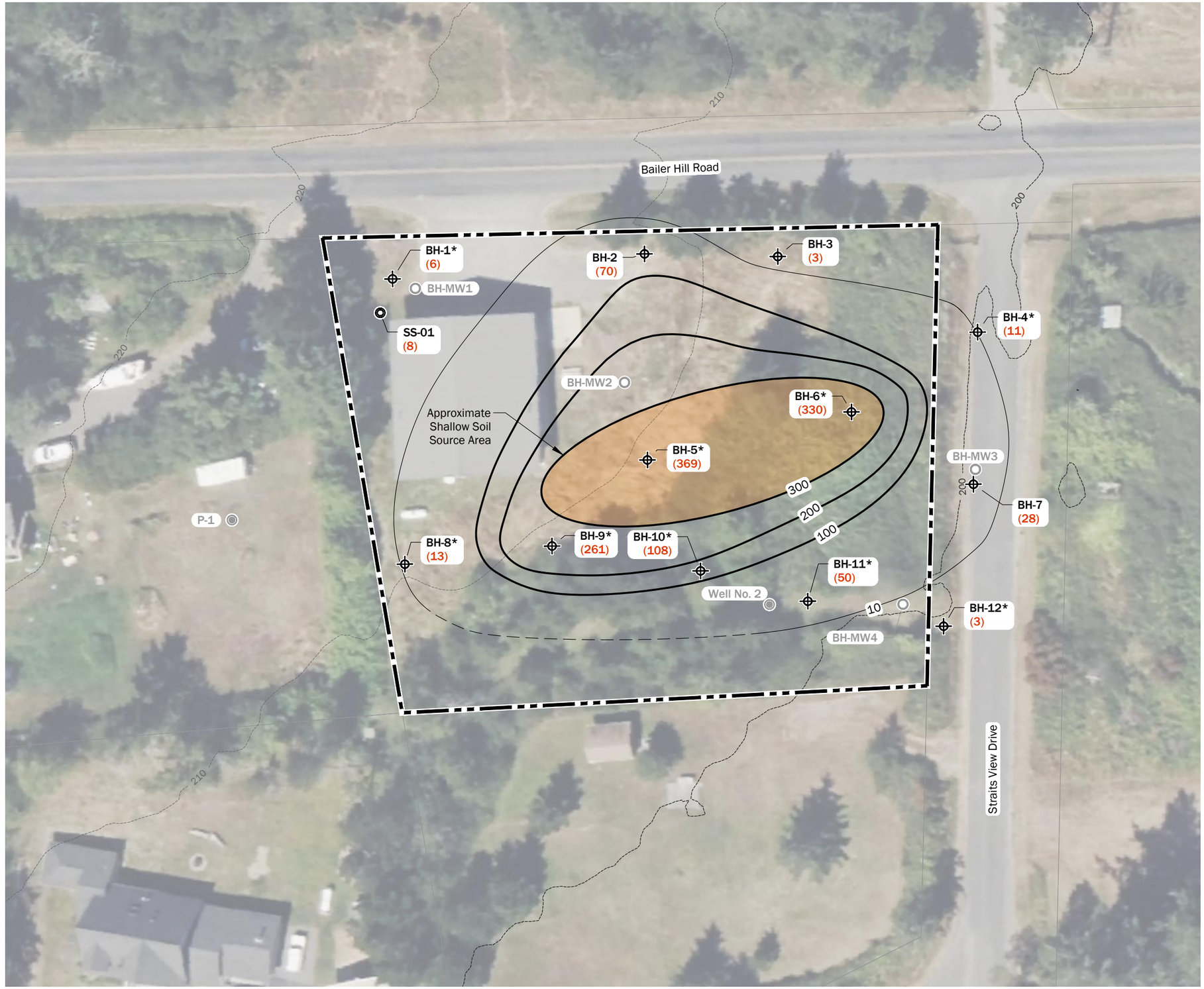
Coordinate System: WA State Plane, North Zone, NAD83, US Foot

Groundwater Analytical Results

Bailer Hill Road And Straits View Drive
Friday Harbor, Washington

GeoEngineers

Figure 6



Legend

- Subject Property
- 200 — Elevation Contour (NAVD88, LiDAR 2019)
- Parcel Boundary
- Well No. 2 — Existing Drinking Water Well
- BH-1* (2.7) — Direct-push Borings by GeoEngineers, 2024; (*) = Groundwater Observed While Drilling in August 2024; Sum PFOS and PFHxS (µg/kg)
- SS-01 — Shallow Soil Sample by GeoEngineers, 2024
- BH-MW1 — Monitoring Well by GeoEngineers, 2024
- BH-MW1 — Gray Symbols Indicate No Analytical Data is Available

Shallow Soil (<5' bgs) Chemical Analytical Results

- 100 — Concentration Contour for Sum of PFOS and PFHxS (µg/kg)
- 10 — Order of Magnitude Reduced Concentration Contour for Sum of PFOS and PFHxS (µg/kg)
- Estimated Concentration Contour
- Approximate Shallow Soil Source Area

Note(s):

1. Abbreviations: PFAS = Per- and polyfluoroalkyl substances; PFCA = Perfluorocarboxylic acids; PFSA = Perfluorosulfonic acids, FT = Fluorotelemerization; µg/kg = micrograms per kilogram
2. Sum of PFOS and PFHxS was calculated from detected values only. Non-detect reporting limits were not included in the sum. Data for each sample location is presented in the report tables.

Source(s): Aerial from Microsoft Bing, 2023

Coordinate System: WA State Plane, North Zone, NAD83, US Foot

N

0 40

Feet

Shallow Soil PFOS and PFHxS Analytical Results

Bailer Hill Road And Straits View Drive
Friday Harbor, Washington

GeoEngineers

Figure 7

Legend

- Subject Property
- 200 — Elevation Contour (NAVD88, LiDAR 2019)
- Parcel Boundary
- Well No. 2 — Existing Drinking Water Well
- BH-1* (87) — Direct-push Borings by GeoEngineers, 2024; (*) = Groundwater Observed While Drilling in August 2024; Sum PFOS and PFHxS (ng/L)
- SS-01 — Shallow Soil Sample by GeoEngineers, 2024
- BH-MW1 — Monitoring Well by GeoEngineers, 2024
- BH-MW1 — Gray Symbols Indicate No Analytical Data is Available
- General Direction of Surface Gradient and Likely Shallow Groundwater Flow

Groundwater Chemical Analytical Results

- 1,000 — Concentration Contour for Sum of PFOS and PFHxS (ng/L)
- 100 — Order of Magnitude Reduced Concentration Contour for Sum of PFOS and PFHxS (ng/L)
- Estimated Concentration Contour
- Approximate Shallow Soil Source Area

Note(s):

1. Abbreviations: PFAS = Per- and polyfluoroalkyl substances; PFCA = Perfluorocarboxylic acids; PFSA = Perfluorosulfonic acids, FT = Fluorotelemerization; µg/kg = micrograms per kilogram
2. Sum of PFOS and PFHxS was calculated from detected values only. Non-detect reporting limits were not included in the sum. Data for each sample location is presented in the report tables.

Source(s): Aerial from Microsoft Bing, 2023

Coordinate System: WA State Plane, North Zone, NAD83, US Foot

N

0 40

Feet

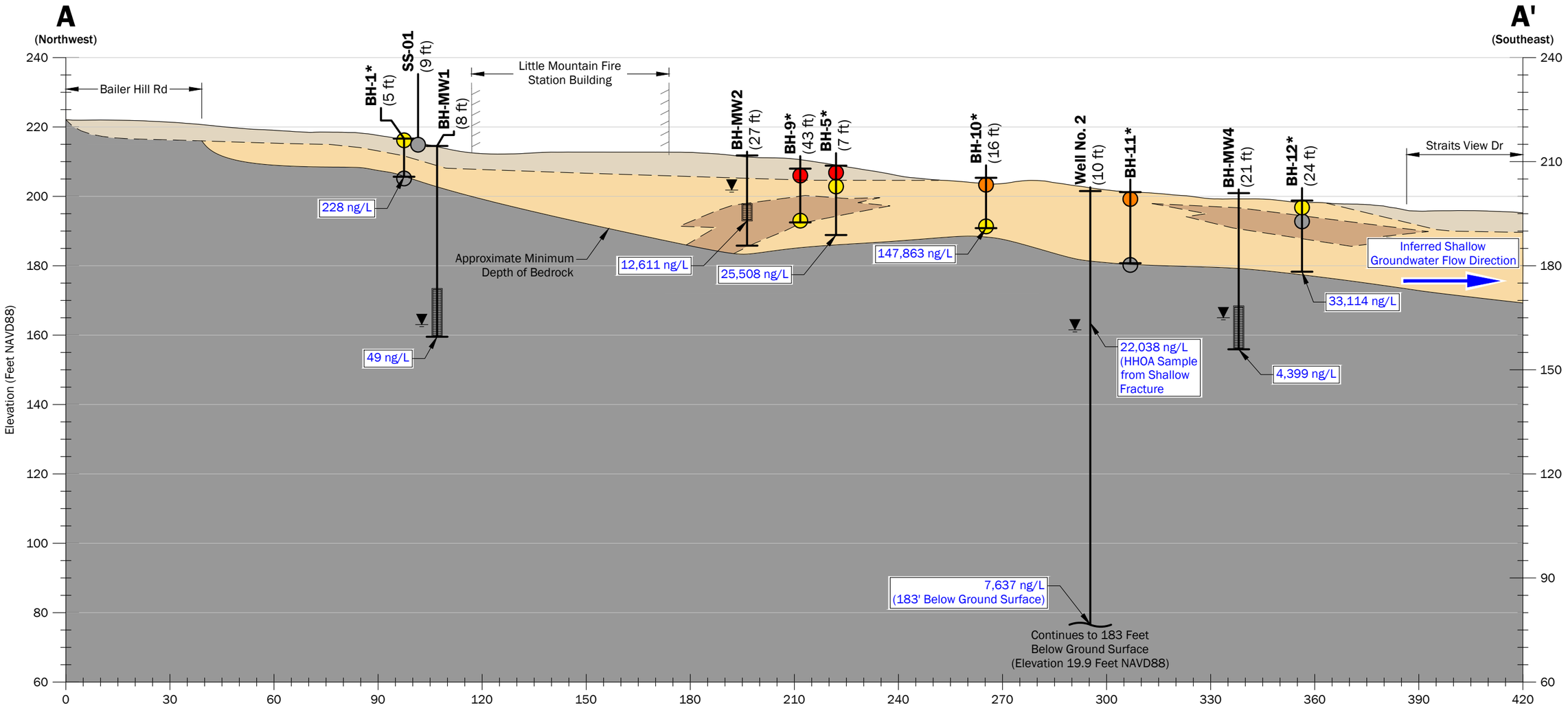
Groundwater PFOS and PFHxS Analytical Results

Bailer Hill Road And Straits View Drive
Friday Harbor, Washington

GeoEngineers

Figure 8

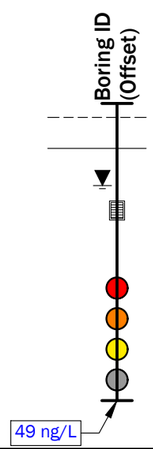
P:\0\0504217\CAD\00\Soil and GW Investigation\0504217.00_Sht 8_8 [GW Total PFAS].dwg 8.8 [GW Total PFAS] Date Exported:5/14/2025 11:52 AM - by Chad Stickel



Note(s):

1. The subsurface conditions shown are based on interpolation between widely spaced explorations and should be considered approximate; actual subsurface conditions may vary from those shown.
2. Surface elevation was extracted from a 2019 LiDAR survey (WA DNR LiDAR Portal - San Juan 2019).
3. Static groundwater at Well No. 2 measured at 40' below ground surface on well installation log. Depth to water was measured at monitoring wells BH-MW1, BH-MW2, and BH-MW4 in October 2024 by GeoEngineers.
4. The surface soil (SS) sample SS-1 was collected on July 23, 2024 by GeoEngineers to a depth of 0.5 feet below ground surface using a decontaminated hand trowel.

Datum: North American Vertical Datum 1988 (NAVD88)



Legend

Boring
(*) = Groundwater Observed While Drilling in August 2024

Inferred Soil Contact

Soil Contact

Groundwater Measured

Well Screen

Total PFAS Detected in Soil (µg/kg)

>150

75-150

10-75

<10

Total PFAS Detected in Groundwater (ng/L)

Geologic Formation and Soil Type

Fill Comprised of Sand, Gravel, and Silt

Quaternary Glaciomarine Deposits

Sand to Silty Sand

Silt to Sandy Silt

Pre-Tertiary Bedrock

Dark Gray Aphanitic Crystalline Bedrock with Quartz-Filled Veins (Orcas Chert Group)

0 30
Horizontal Feet

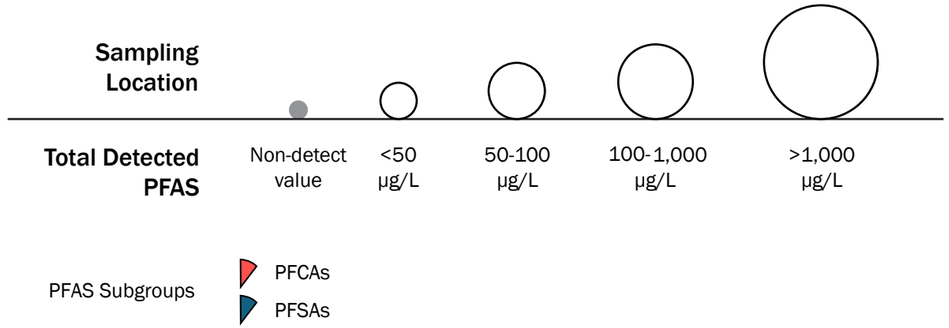
0 30
Vertical Feet
Vertical Exaggeration = 1X

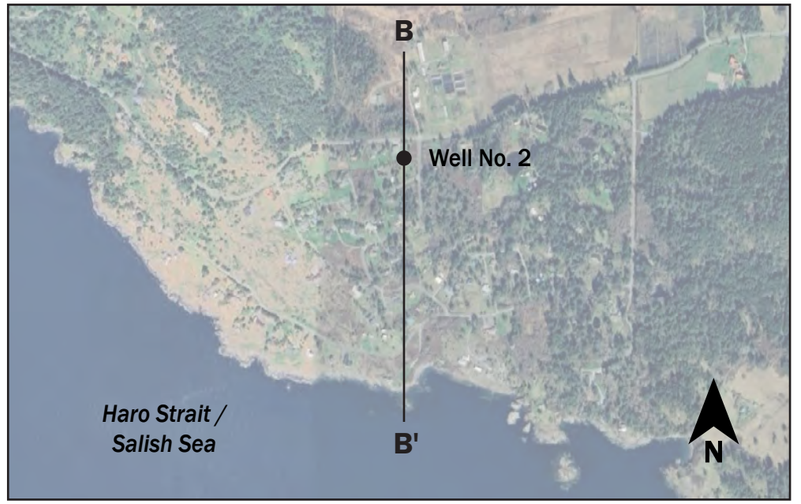
Cross Section A-A'

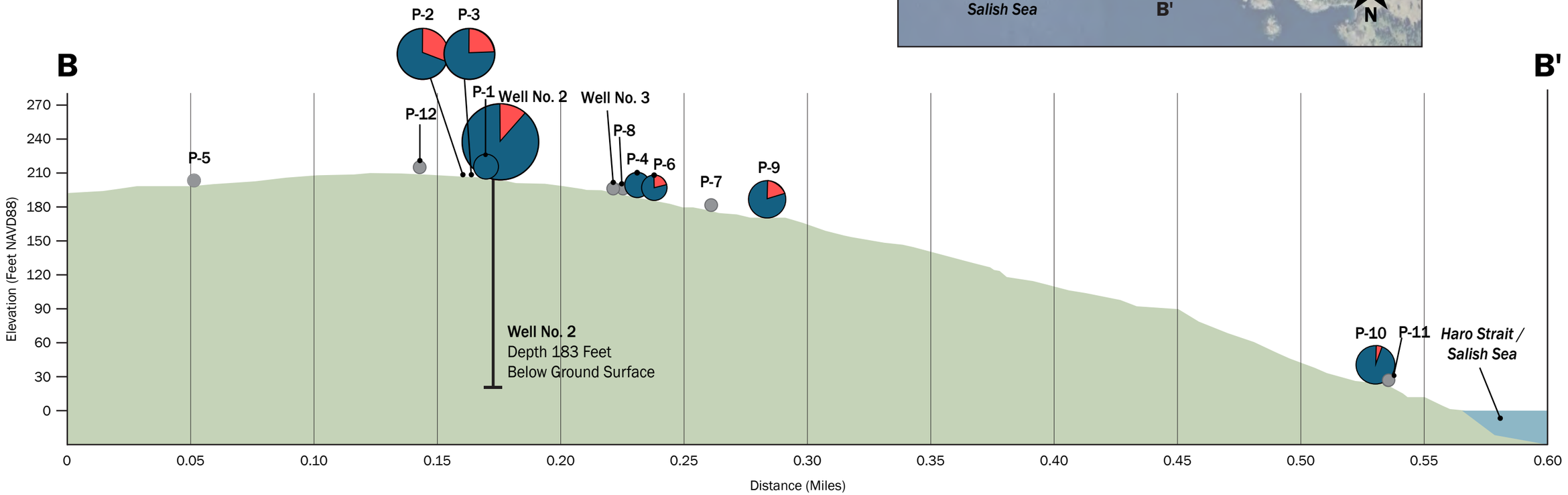
Bailer Hill Road And Straits View Drive
Friday Harbor, Washington

GeoEngineers

Figure 9







Note(s):

1. All samples locations were projected orthogonally to the cross section trace B-B' and should be considered as approximate locations.
2. Sample location identification stands for Parcel-# (P-#) to preserve anonymity for volunteered data.
3. Analytical results for the neighborhood drinking water samples are summarized in Table 1 of the report.

Source(s):

- Aerial and Elevation Profile from Google Earth Pro, dated 5/16/2024

Coordinate System: Washington State Plan, Zone 10, Horizontal Datum NAD83, Vertical Datum NAVD88, US Foot

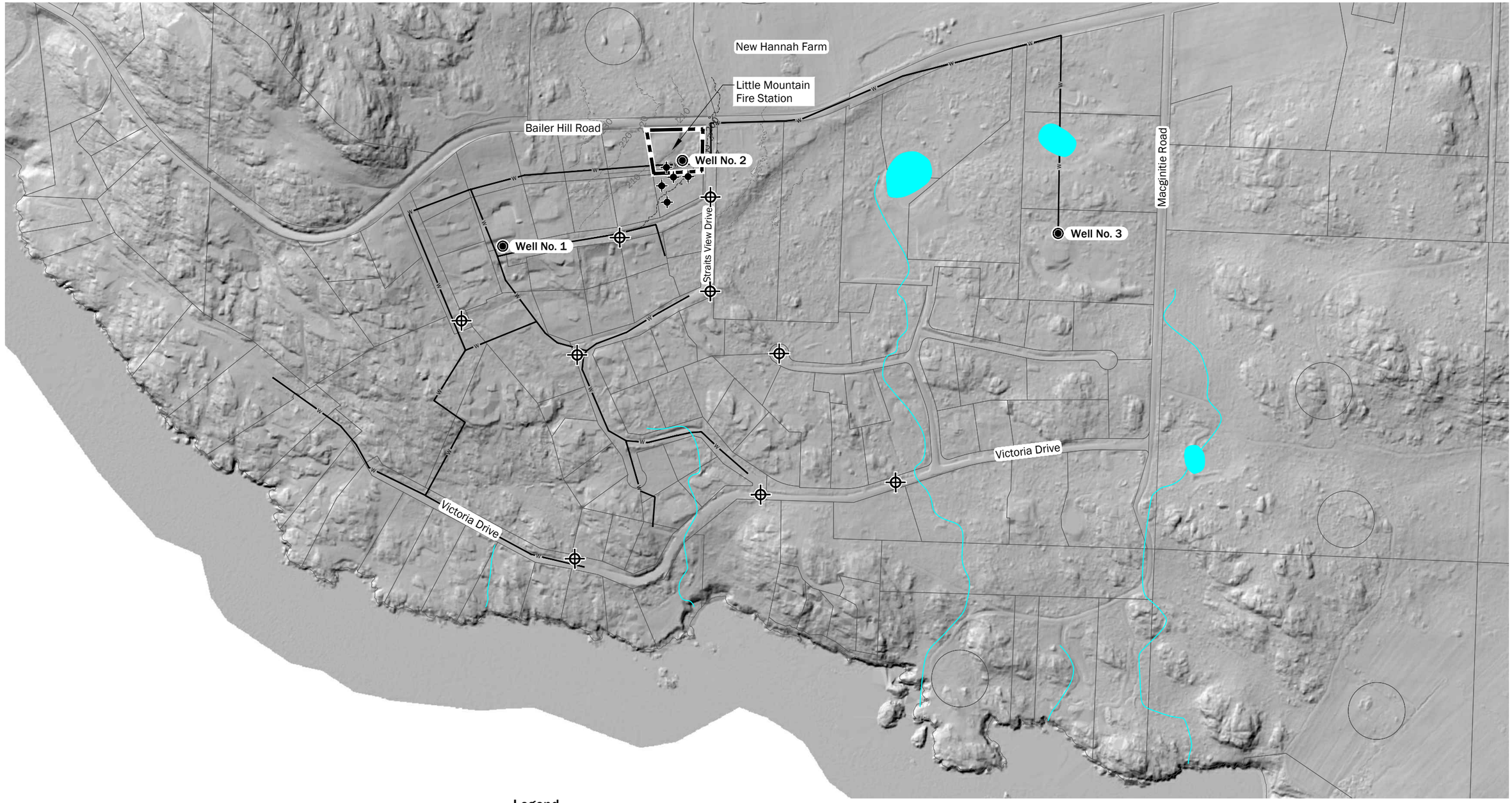
Neighborhood Drinking Water PFAS Results

Bailer Hill Road and Straits View Drive
Friday Harbor, Washington

GeoEngineers

Figure 10

P:\0\0504217\00\Neighborhood Drinking Water PFAS Results 2.ai Exported 3/19/25 by spride



Legend

- Subject Property Boundary
- Approximate Water Line Location
- Parcels
- Surface Water Features
- Proposed Well Location
- Proposed Soil Boring Location
- **Well No. 1** Approximate Well Location

N

0 400

Feet

Source(s):

- LiDAR from Washington LiDAR Portal
- Washington State Department of Health, Office of Drinking Water, Source Water Assessment Program (SWAP)

Coordinate System: WA State Plane, North Zone, NAD83, US Foot

Proposed Well Locations

Bailer Hill Road and Straits View Drive
Friday Harbor, Washington

GeoEngineers

Figure 11

Appendices

Appendix A
Soil Exploration Logs and Field Procedures

Appendix A
Soil Exploration Logs and Field Procedures

UNDERGROUND UTILITY LOCATE

Prior to drilling activities, an underground utility locate was conducted in the area of the proposed boring locations to identify subsurface utilities and/or potential underground physical hazards. The underground utility check consisted of contacting a local utility alert service (One Call) and hiring a private utility locating service to locate utilities by conductible and ground penetrating radar (GPR) technologies.

SOIL SAMPLING

Subsurface soil and groundwater conditions were evaluated at the Bailer Hill PFAS Study Area by drilling 16 sub-surface borings (BH-1 through BH-12, BH-MW1 through BH-MW4) and completing one shallow sub-surface boring using a hand auger (SS-1). Approximate boring locations are shown in Figure 3.

Sixteen borings were completed with drilling equipment subcontracted to GeoEngineers. Twelve soil borings (BH-1 through BH-12) were completed using direct-push drilling equipment. Discrete soil samples from selected depths were collected at 5-foot vertical intervals with clean, plastic 1.5-inch-diameter disposable liners. One soil boring (BH-MW4) was completed using sonic drilling equipment. Discrete soil samples from selected depths were collected from disposable liners. Three borings (BH-MW1 through BH-MW3) were completed using air rotary drilling equipment. No soil samples were collected from the borings completed using air rotary drilling equipment.

Soil samples were obtained for field screening and possible chemical analysis. Soil samples obtained during the exploration activities were collected from the sampler with a stainless-steel knife or new gloves. Shallow sub-surface soil sample (SS-1) were collected by GeoEngineers staff using a hand auger and sampled directly into laboratory-provided jars.

A representative from GeoEngineers observed and classified the soil encountered in general accordance with ASTM International (ASTM) D 2488-94 and maintained a detailed log of each exploration. The sampling equipment was decontaminated before each sampling attempt with an Alconox® solution wash and a laboratory-certified per- and polyfluoroalkyl substances- (PFAS-)free distilled water rinse. Soil samples were obtained from the split spoon sampler for field screening and possible chemical analysis. Undisturbed portions of selected samples were placed in laboratory-prepared vials/jars for chemical analytical testing for PFAS by U.S. Environmental Protection Agency (EPA) Method 1633 at SGS North America. The soil samples were placed in a cooler with ice for transport to the laboratory within proper hold-times under standard chain-of-custody procedures.

Drill cuttings and decontamination/purge water generated during the investigation were tested for characterization purposes and were removed from the Site by a licensed waste removal company for off-site disposal. Borings not completed as monitoring wells were backfilled with bentonite and the surface restored to match the surrounding area.

FIELD SCREENING OF SOIL SAMPLES

Soil samples obtained from the borings were screened in the field for evidence of contamination using: (1) visual examination; (2) sheen screening and (3) vapor headspace screening with a photoionization detector (PID). The results of headspace and sheen screening were included in the tables and on the boring logs.

Visual screening consisted of inspecting the soil for stains indicative of petroleum-related contamination. Visual screening is generally more effective when contamination is related to heavy petroleum hydrocarbons, such as motor oil or hydraulic oil, or when hydrocarbon concentrations are high. Sheen screening and headspace vapor screening are more sensitive methods that have been effective in detecting contamination at concentrations less than regulatory cleanup guidelines. Sheen screening involves placing soil in a pan of water and observing the water surface for signs of sheen. Sheen classifications are as follows:

- **No Sheen (NS)** No visible sheen on the water surface.
- **Slight Sheen (SS)** Light, colorless, dull sheen; spread is irregular, not rapid; sheen dissipates rapidly. Natural organic matter in the soil might produce a slight sheen.
- **Moderate Sheen (MS)** Light to heavy sheen; might have some color/iridescence; spread is irregular to flowing, maybe rapid; few remaining areas of no sheen on water surface; and
- **Heavy Sheen (HS)** Heavy sheen with color/iridescence; spread is rapid; entire water surface might be covered with sheen.

Headspace vapor screening involves placing a soil sample in a plastic sample bag. Air is captured in the bag and the bag is shaken to expose the soil to the air trapped in the bag. The probe of a PID is inserted in the bag and the instrument measures the concentration of combustible vapor in the air removed from the sample headspace. The PID measures concentrations in parts per million (ppm) and is calibrated to 100 ppm isobutylene gas. The PID is designed to quantify combustible gas and organic vapor concentrations up to 5,000 ppm. A lower threshold of significance of 1 ppm was used in this application. Field screening results are site-specific and vary with soil type, soil moisture content, temperature, and type of contaminant.

GROUNDWATER MONITORING WELL DEVELOPMENT AND SAMPLING

Following construction of the monitoring wells, the wells were developed using surge and purge development methods until the groundwater was relatively clear of suspended solids. Monitoring wells were left to sit undisturbed for at least 24 hours following development prior to groundwater sampling. Groundwater samples were obtained from monitoring wells BH-MW1, BH-MW2, and BH-MW4. Groundwater samples were collected by low-flow methods using dedicated disposable PFAS-free tubing and a peristaltic pump. Groundwater samples were placed in laboratory-prepared vials/jars for chemical analytical testing at SGS North America. The samples were placed in a cooler with ice for transport to the laboratory within proper hold-times under standard chain-of-custody procedures. Purge water from groundwater sampling was placed into drums and left on site pending receipt of analytical data for characterization and disposal at a permitted off-site facility.

SAMPLE IDENTIFICATION SCHEME

Each environmental sample obtained during the investigation was identified by a unique sample designation. The sample designation was documented in the field report, on the boring log, included on the sample container label and on the laboratory chain-of-custody. The soil sample designation scheme is as follows:

- Soil samples from borings: Boring number BH-MW2- etc., followed by the depth from which the soil sample was collected, to the nearest 0.5 foot. For example, BH-MW2-10.0 is from boring number BH-MW2 sampled at a depth of 10 feet below the ground surface (bgs).
- Groundwater samples from monitoring wells: Boring number BH-MW2- etc., followed by the date. For example, BH-MW2-20240213 is the groundwater sample collected from boring/monitoring well BH-MW2 sampled on February 2, 2024.

INVESTIGATION-DERIVED WASTE (IDW) MANAGEMENT

IDW includes drill cuttings, well development water, sampling equipment decontamination water, pre-sampling purge water from monitoring wells, and incidental waste. Drill cuttings, well development water, decontamination water, and pre-sampling purge water was stored in sealed drums. The drums were temporarily stored on the Site, pending waste designation and off-site disposal. The drums were labeled with the following information:

- Material contained in the drum (e.g., drill cuttings, decontamination water, etc.).
- Source of the material (e.g., investigation locations and depths where applicable).
- Date material was generated.
- Name and telephone number of the appropriate contact person.

Incidental waste to be generated during sampling activities includes items such as disposable gloves, plastic sheeting, sample bags, paper towels, and similar expended and discarded field supplies. These materials are considered *de minimis* and were disposed of in a trash receptacle or county disposal facility.

Field Procedures – Standard Operating Procedure PFAS Sampling Objective

The objective of this technical standard operating procedure (SOP) is to define the techniques and requirements for PFAS sampling. Techniques discussed in this SOP include field sampling and preservation methods using the protocols intended to be analyzed for per- and polyfluoroalkyl substances (PFAS) by EPA Method 1633.

Background

DISCUSSION

Specialized techniques and procedures are used for collecting and analyzing samples for PFAS. The field procedures are outlined in the following sections showing restricted equipment and materials that can be used when sampling for PFAS. EPA Method 1633 provides PFAS results with reporting limits of approximately 2 nanograms per liter (ng/L). Acceptable materials for sampling include stainless steel, high density polyethylene (HDPE) and polypropylene.

Additional materials may be acceptable if proven not to contain PFAS. NOTE: Grundfos pumps and bladder pumps are known to contain PFC materials (e.g., Teflon™ washers for Grundfos pumps and low-density polyethylene [LDPE] bladders for bladder pumps). Selection of sampling devices must be carefully researched. All sampling equipment components and sample containers should not come in contact with aluminum foil, LDPE, glass or polytetrafluoroethylene (PTFE, Teflon™) materials including sample bottle cap liners with a PTFE layer. Standard two step decontamination using detergent and clean water rinse should be considered for equipment that does come in contact with polyfluorinated materials. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with polyfluorinated materials must be avoided. Many food and drink packaging materials and “plumbers thread seal tape” contain PFAS. All clothing worn by sampling personnel must have been laundered multiple times and dried without using dryer sheets of any type. The sampler must wear nitrile gloves while filling and sealing the sample bottles.

Pre-cleaned sample bottles with closures, coolers, ice, sample labels and a chain-of-custody form will be provided by the laboratory.

There are special laboratory requirements and sample coolers are clearly identified for PFAS sampling. This SOP outlines the sampling procedure typically used to collect PFAS samples for analysis.

General Responsibilities

Study area **Manager** – The study area manager is responsible for ensuring that field personnel are trained in the use of this procedure and the required equipment, and for ensuring that PFAS samples are collected in accordance with this procedure and any other SOPs pertaining to specific media sampling. The study area manager must also ensure that the quantity and location of PFAS samples collected meet the requirements of the study area -specific sampling and/or work plans.

Field Team Leader – The field team leader is responsible for ensuring that field personnel collect PFAS samples in accordance with this SOP and other relevant procedures.

Note: All field team member responsibilities are defined in the project-specific quality assurance project plan (QAPP).

Recommended and Prohibited Field Equipment

RECOMMENDED

- Study area -specific plans (e.g., sampling, work, health and safety)
- HDPE and Silicon materials including tubing, bailers, tape, plumbing paste
- Loose paper
- Masonite or Aluminum Clipboard
- Pens
- Insulated cooler(s) provided by lab with sample containers
- Cotton construction is recommended for field clothing and should be laundered a minimum of six times from time of purchase due to possible PFAS related treatments. Fabric softener and dryer sheets must be avoided. Rain gear should be made from polyurethane and wax-coated materials
- Plastic zip-top bags
- Decontamination supplies – Alconox®/Liquinox®
- Sample chain-of-custody forms
- Custody seals
- Nitrile or appropriate gloves
- Lab supplied and verified "PFAS Free" water to be used for trip and decontamination blanks and decontamination procedures
- Bags of ice
- Labels and appropriate forms/documentation for sample shipment provided by Laboratory

PROHIBITED

- Teflon®-containing materials, when possible, should be avoided (e.g., tubing, bailers, tape, and plumbing paste). In cases where Teflon® -containing materials are unavoidable, ensure adequate purging is performed prior to sampling (e.g., in-well pumps) and/or rinse blanks are collected prior to sampling.
- Paper products such as waterproof field books, plastic clipboards, binders, spiral hard cover notebooks, sticky notes or glue materials
- Water resistant, waterproof, stain-treated clothing or shoes including Gore-Tex™ and Tyvek® materials
- LDPE or polypropylene containing materials (e.g., bags or containers used to transport samples)

- Markers
- Chemical (blue) ice packs
- Decontamination soaps containing fluorosurfactants such as Decon 90
- Water that is not verified to be "PFAS-free" to be used for trip and decontamination blanks and decontamination processes
- Aluminum foil

SOIL SAMPLING EQUIPMENT

Acceptable materials for sampling include stainless steel, HDPE and polypropylene. Additional materials may be acceptable if proven not to contain PFAS. All sampling equipment components and sample containers **should not** come in contact with aluminum foil, LDPE, glass or PTFE, Teflon™ materials including sample bottle cap liners with a PTFE layer. A list of acceptable equipment is provided below, but other equipment may be considered appropriate at a later date.

- Stainless steel spoon
- Stainless steel bowl

Procedures

PREPARATION

1. Review study area -specific health and safety plan and project plans before initiating sampling activity.
2. Don the appropriate personal protective clothing as indicated in the study area -specific health and safety plan.
3. Locate sampling location(s) in accordance with project documents (e.g., work plan) and document pertinent information in the appropriate field logbook. When possible, reference locations back to existing study area features such as buildings, roads, intersections, monitoring wells, etc.
4. Verify sampling depths in as specified in the study area -specific plans.
5. If decontamination of equipment and/or personnel is required, set up a decontamination zone.
6. Prepare an area near the sampling location to perform sample collection activities.

GROUNDWATER SAMPLE COLLECTION

The following steps must be followed when collecting PFAS samples for environmental purposes.

- Wear clean Nitrile gloves during handling of all sample containers and sampling devices.
- All clothing worn by sampling personnel must have been laundered multiple times and dried without using dryer sheets of any type. The sampler must wear nitrile gloves while filling and sealing the sample bottles.

- Acceptable materials for sampling include stainless steel, high density polyethylene (HDPE) and polypropylene. Sampling with a water pump and tubing with check valve is the preferred method.
- Purge the well.
- Pre-cleaned sample bottles with closures, coolers, sample labels and a chain-of-custody form will be provided by the laboratory.
- Fill the laboratory-supplied bottle(s) with the sample.
- Cap the bottles with an acceptable cap and liner closure system.
- Label the sample bottles.
- Fill out the chain-of-custody.
- Place in a cooler maintained at 4 ± 2° Celsius.
- Decontaminate reusable sampling equipment according using PFAS Free water provided by lab and Alconox/Liquinox before proceeding to other sampling locations.
- Complete the field sampling form, being sure to record all relevant information before leaving the study area. All sampling information, including well ID, sample depth, sample volume, and requisite analyses should be recorded in the field form as specified in the study area -specific sampling/work plans. Field Logbooks shall not be used.
- Properly package all samples for shipment to laboratories and complete all necessary sample shipment documentation. Remand custody of the samples to appropriate personnel.

SOIL SAMPLE COLLECTION

- The sampler must wear nitrile gloves while conducting field work and handling sample containers
- Sampling is often conducted in areas where a vegetative turf has been established. In these cases, a clean stainless- steel spoon should be used to carefully remove the turf so that it may be replaced at the conclusion of sampling. Surface soil samples (e.g., 0 to 6 inches below surface) shall then be collected using a pre-cleaned, stainless steel spoon.
- Shallow subsurface soil samples (e.g., 6 to ~36 inches below surface) may be collected by digging a hole using a stainless-steel hand auger.
- When the desired subsurface depth is reached, a pre-cleaned hand auger shall be used to obtain the sample.

SAMPLE SHIPMENT

Place the samples in a cooler with wet ice. The ice should be double bagged. The samples should be shipped for next day delivery. Always include enough ice to keep samples around 4°C, especially during summer months. The cooler drain spout should be closed and taped so that water does not flow out of the cooler.

- Always package samples securely to prevent breakage/spillage.
- Check with laboratory if Saturday delivery of samples is required.

- Be sure to include a completed chain-of-custody (COC) form in each shipment with all necessary information for both reporting and invoicing.
- Double check to make sure all samples are labeled correctly and correspond with the COC form.

Restrictions/Limitations

Acceptable materials for sampling include stainless steel, HDPE and polypropylene. Additional materials may be acceptable if proven not to contain PFAS. NOTE: Grundfos pumps and bladder pumps are known to contain PFC materials (e.g., Teflon™ washers for Grundfos pumps and LDPE bladders for bladder pumps). Selection of sampling devices must be carefully researched. All sampling equipment components and sample containers should not come in contact with aluminum foil, LDPE, glass or polytetrafluoroethylene (PTFE, Teflon™) materials including sample bottle cap liners with a PTFE layer. Standard two step decontamination using detergent and clean water rinse should be considered for equipment that does come in contact with polyfluorinated materials. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with polyfluorinated materials must be avoided. Many food and drink packaging materials and “plumbers thread seal tape” contain PFAS.

All clothing worn by sampling personnel must have been laundered multiple times and dried without using dryer sheets of any type. The sampler must wear nitrile gloves while filling and sealing the sample bottles.

SOIL CLASSIFICATION CHART

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

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

Sampler Symbol Descriptions

- Modified California Sampler (6-inch sleeve) or Dames & Moore
- Standard Penetration Test (SPT)
- Shelby tube
- Piston
- Direct-Push
- Bulk or grab
- Continuous Coring

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

"P" indicates sampler pushed using the weight of the drill rig.

"WOH" indicates sampler pushed using the weight of the hammer.

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS GRAPH	SYMBOLS LETTER	TYPICAL DESCRIPTIONS
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/ Quarry Spalls
	SOD	Sod/Forest Duff
	TS	Topsoil

Groundwater Contact

- Measured groundwater level in exploration, well, or piezometer
- Measured free product in well or piezometer

Graphic Log Contact

- Distinct contact between soil strata
- Approximate contact between soil strata

Material Description Contact

- Contact between geologic units
- Contact between soil of the same geologic unit

Laboratory / Field Tests

%F	Percent fines
%G	Percent gravel
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DD	Dry density
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
Mohs	Mohs hardness scale
OC	Organic content
PM	Permeability or hydraulic conductivity
PI	Plasticity index
PL	Point load test
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
UU	Unconsolidated undrained triaxial compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

Key to Exploration Logs

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Figure A-1

Drilled Start 8/13/2024 End 8/13/2024	Total Depth (ft) 11	Logged By MAB Checked By KRA	Driller Cascade Environmental, LLC	Drilling Method Direct Push	
Surface Elevation (ft) 215.69 Vertical Datum NAVD88		Hammer Data Pneumatic		Drilling Equipment GeoProbe 7822 DT	
Easting (X) 1087622.38 Northing (Y) 554446.08		System Datum WA State Plane North NAD83 (feet)		See "Remarks" section for groundwater observed	
Notes:					

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
215	0		48					SP-SM	Dark brown fine to medium sand with silt and roots (dry)			
						BH-1-1-2		SP-SM	Tan fine to coarse sand with silt and gravel (dry)	NS	<1	
								SM	Brown silty fine sand with occasional gravel (dry)	NS	<1	
210	5		36			BH-1-5-6				NS	<1	
										NS	<1	
								SP-SM	Brown fine to medium sand with silt and occasional gravel (dry)			
									Becomes with gravel (dry)			
205	10		12			BH-1-10-11 CA			Becomes with trace silt (wet)	NS	<1	Groundwater encountered at approximately 10 feet bgs
									Boring terminated at 11 feet bgs due to refusal on bedrock			

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Locational GPS Survey (San Juan Surveying 2024). Vertical approximated based on Locational GPS Survey (San Juan Surveying 2024).

Log of Boring BH-1

GeoEngineers

Project: Bailer Hill PFAS Tier 2 Investigation
Project Location: Bailer Hill Road, Friday Harbor, Washington
Project Number: 0504-217-00

Figure A-2
Sheet 1 of 1

Drilled	Start 8/14/2024	End 8/14/2024	Total Depth (ft) 8	Logged By MAB / Checked By KRA	Driller Cascade Environmental, LLC	Drilling Method Direct Push
Surface Elevation (ft) / Vertical Datum	211.59 NAVD88		Hammer Data	Pneumatic	Drilling Equipment	GeoProbe 7822 DT
Easting (X) / Northing (Y)	1087722.75 554456.06		System Datum	WA State Plane North NAD83 (feet)	Groundwater not observed at time of exploration	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name / Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		36			BH-2-1-2 CA		SP-SM	Dark brown fine sand with silt and occasional gravel, roots (dry)			
210								SP-SM	Tan fine to medium sand with silt and occasional gravel (dry)	NS	<1	
									Becomes mottled orange (dry)			
	5		36			BH-2-5-6				NS	<1	
205										NS	<1	
								SP-SM	Brown fine to medium sand with silt and occasional gravel (dry)			
									Becomes with increased gravel at 7½ feet bgs			
									Boring terminated at 8 feet bgs due to refusal on bedrock			

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Locational GPS Survey (San Juan Surveying 2024). Vertical approximated based on Locational GPS Survey (San Juan Surveying 2024).

Log of Boring BH-2

GeoEngineers

Project: Bailer Hill PFAS Tier 2 Investigation
Project Location: Bailer Hill Road, Friday Harbor, Washington
Project Number: 0504-217-00

Figure A-3
Sheet 1 of 1

Drilled Start 8/14/2024 End 8/14/2024	Total Depth (ft) 15.5	Logged By MAB Checked By KRA	Driller Cascade Environmental, LLC	Drilling Method Direct Push	
Surface Elevation (ft) 205.95 Vertical Datum NAVD88		Hammer Data Pneumatic		Drilling Equipment GeoProbe 7822 DT	
Easting (X) 1087775.82 Northing (Y) 554455.01		System Datum WA State Plane North NAD83 (feet)		Groundwater not observed at time of exploration	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
205	0		48					SP-SM	Dark brown fine sand with silt and roots (dry)			
						BH-3-1-2 CA		SP-SM	Tan fine to medium sand with silt and occasional fine gravel (dry)	NS	<1	
									Becomes mottled orange	NS	1.4	
200	5		60			BH-3-5-6 CA		SM	Brown silty fine sand with occasional gravel (dry)			
									Becomes with increased gravel			
									Becomes with decreased gravel	NS	2.4	
195	10		42					SP-SM	Brown fine to medium sand with silt and occasional gravel (dry)	NS	3.3	
									Becomes moist			
						BH-3-14-15				NS	3.2	
	15									NS	3.5	
									Boring terminated at 15½ feet bgs due to refusal on bedrock			

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Locational GPS Survey (San Juan Surveying 2024). Vertical approximated based on Locational GPS Survey (San Juan Surveying 2024).

Log of Boring BH-3

GeoEngineers

Project: Bailer Hill PFAS Tier 2 Investigation
Project Location: Bailer Hill Road, Friday Harbor, Washington
Project Number: 0504-217-00

Figure A-4
Sheet 1 of 1

Drilled Start 8/12/2024 End 8/12/2024	Total Depth (ft) 14	Logged By MAB Checked By KRA	Driller Cascade Environmental, LLC	Drilling Method Direct Push	
Surface Elevation (ft) 199.76 Vertical Datum NAVD88		Hammer Data Pneumatic		Drilling Equipment GeoProbe 7822 DT	
Easting (X) 1087855.45 Northing (Y) 554424.87		System Datum WA State Plane North NAD83 (feet)		See "Remarks" section for groundwater observed	
Notes:					

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		48					TS	Flat grass surface with fine to medium gravel (dry)			
						BH4-1-2		SP-SM	Tan fine to medium sand with silt (dry) (fill)	NS	<1	
									Becomes with occasional gravel (dry)			
								SP-SM	Brown fine to medium sand with silt and occasional gravel (dry)	NS		
195	5		60						Becomes interbedded with silty fine sand			
						BH4-7-8 CA			Becomes moist	NS	<1	
190	10		48					SP	Brown fine to medium sand with trace silt (moist to wet)	NS	<1	Groundwater encountered at approximately 12 feet bgs
						BH4-13-14 CA				NS	<1	
								SM	Brown silty fine sand (moist)			
									Boring terminated at 14 feet bgs due to refusal on bedrock			

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Locational GPS Survey (San Juan Surveying 2024). Vertical approximated based on Locational GPS Survey (San Juan Surveying 2024).

Log of Boring BH-4

GeoEngineers

Project: Bailer Hill PFAS Tier 2 Investigation
Project Location: Bailer Hill Road, Friday Harbor, Washington
Project Number: 0504-217-00

Figure A-5
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	8/13/2024	8/13/2024	20	MAB	KRA	Cascade Environmental, LLC	Direct Push

Surface Elevation (ft) Vertical Datum	208.23 NAVD88	Hammer Data	Pneumatic	Drilling Equipment	GeoProbe 7822 DT
Easting (X) Northing (Y)	1087723.9 554373.95	System Datum	WA State Plane North NAD83 (feet)	See "Remarks" section for groundwater observed	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0							SP-SM	Light brown fine to medium sand with silt, gravel and roots (dry)	NS	<1	
						BH-5-1-2 CA						
205									Becomes with wood fragments and gravel			
								SP-SM	Tan mottled fine sand with silt and occasional gravel (dry)	NS	1.1	
	5		60			BH-5-5-6 CA			Becomes brown fine to medium sand with silt and gravel (dry)			
200										NS	<1	
	10		54					SM	Brown silty fine sand with occasional gravel (dry)	NS	<1	
								SM	Gray brown silty fine sand (moist)			Groundwater encountered at approximately 12 feet bgs
195								SP-SM	Brown fine sand with silt and interbedded with sandy silt (moist)	NS	<1	
								ML	Brown silt (moist)			
	15		24					SP	Brown fine to coarse sand with silt and gravel (moist to wet)	NS	<1	
190										NS	<1	
						BH-5-19-20						
	20								Boring terminated at 20 feet bgs due to refusal on bedrock			

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Locational GPS Survey (San Juan Surveying 2024). Vertical approximated based on Locational GPS Survey (San Juan Surveying 2024).

Log of Boring BH-5

GeoEngineers

Project: Bailer Hill PFAS Tier 2 Investigation
Project Location: Bailer Hill Road, Friday Harbor, Washington
Project Number: 0504-217-00

Figure A-6
Sheet 1 of 1

Drilled Start 8/14/2024 End 8/14/2024	Total Depth (ft) 15.5	Logged By MAB Checked By KRA	Driller Cascade Environmental, LLC	Drilling Method Direct Push	
Surface Elevation (ft) 203 Vertical Datum NAVD88		Hammer Data Pneumatic		Drilling Equipment GeoProbe 7822 DT	
Easting (X) 1087805.2 Northing (Y) 554393.09		System Datum WA State Plane North NAD83 (feet)		See "Remarks" section for groundwater observed	
Notes:					

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
200	0		42					SP-SM	Dark brown fine sand with silt and roots (dry)			
						BH-6-1-2 CA		SP-SM	Becomes orange	NS	<1	
									Tan fine to medium sand with silt and occasional gravel (roots to 1½ feet bgs) (dry) (Orange mottled in ML lenses)			
								SP-SM	Brown fine sand with silt, occasional gravel and organic matter (dry)	NS	<1	
195	5		60			BH-6-5-6 CA		ML	Brown sandy silt (dry)	NS	<1	
								SP-SM	Mottled fine sand with silt and gravel (dry)	NS	<1	
								SM	Brown silty fine sand with occasional fine gravel (dry)			
190	10		60					SP-SM	Brown fine to medium sand with silt and occasional gravel (dry)	NS	<1	
									Becomes with increased pebbles			
						BH-6-14-15				NS	<1	
	15								Becomes interbedded with fine to medium sand and sandy silt (moist) Becomes wet			Groundwater encountered at approximately 15 feet bgs
									Boring terminated at 15½ feet bgs due to refusal on bedrock			

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Locational GPS Survey (San Juan Surveying 2024). Vertical approximated based on Locational GPS Survey (San Juan Surveying 2024).

Log of Boring BH-6

GeoEngineers

Project: Bailer Hill PFAS Tier 2 Investigation
Project Location: Bailer Hill Road, Friday Harbor, Washington
Project Number: 0504-217-00

Figure A-7
Sheet 1 of 1

Drilled Start 8/12/2024 End 8/12/2024	Total Depth (ft) 13	Logged By MAB Checked By KRA	Driller Cascade Environmental, LLC	Drilling Method Direct Push	
Surface Elevation (ft) 198.78 Vertical Datum NAVD88		Hammer Data Pneumatic		Drilling Equipment GeoProbe 7822 DT	
Easting (X) 1087853.78 Northing (Y) 554364.27		System Datum WA State Plane North NAD83 (feet)		Groundwater not observed at time of exploration	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		48			BH-7-1-2 CA		SP-SM	Gray fine to coarse sand with silt and occasional fine gravel (dry) (Orange mottling observed)	NS	<1	
								ML	Brown silt with coarse sand (dry)	NS	<1	
195	5		60							NS	<1	
						BH-7-7-8 CA		SP-SM	Brown fine sand with silt and occasional fine gravel (moist)	NS	<1	
190								SM	Brown silty fine sand (moist)			
	10		36						Becomes with occasional fine gravel			
						BH-7-12-13		SP-SM	Brown fine sand with silt and occasional gravel (moist)	NS	<1	
									Boring terminated at 13 feet bgs due to refusal on bedrock			

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Locational GPS Survey (San Juan Surveying 2024). Vertical approximated based on Locational GPS Survey (San Juan Surveying 2024).

Log of Boring BH-7

GeoEngineers

Project: Bailer Hill PFAS Tier 2 Investigation
Project Location: Bailer Hill Road, Friday Harbor, Washington
Project Number: 0504-217-00

Figure A-8
Sheet 1 of 1

Drilled Start 8/13/2024 End 8/13/2024	Total Depth (ft) 16.5	Logged By MAB Checked By KRA	Driller Cascade Environmental, LLC	Drilling Method Direct Push	
Surface Elevation (ft) 210.32 Vertical Datum NAVD88		Hammer Data Pneumatic		Drilling Equipment GeoProbe 7822 DT	
Easting (X) 1087627.27 Northing (Y) 554332.42		System Datum WA State Plane North NAD83 (feet)		See "Remarks" section for groundwater observed	
Notes:					

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
210	0		54					SP-SM	Dark brown fine to medium sand with silt and roots (dry)			
						BH-8-1-2 CA		SP-SM	Tan fine to medium sand with silt, occasional gravel and roots, orange mottling (dry)	NS	<1	
								SM	Brown silty fine sand with silt and occasional gravel (dry)	NS	<1	
205	5		60			BH-8-5-6 CA				NS	<1	
								SP-SM	Brown to orange fine sand with silt and occasional gravel (dry)			
								ML	Brown to orange sandy silt (dry)	NS	<1	
200	10		60							NS	<1	
								SP-SM	Brown fine sand with silt and gravel (moist), interbedded with brown sandy silt (wet)			Groundwater ecnountered at approximately 13 feet
195	15		18			BH-8-15-16		SP	Brown fine to medium sand with silt and gravel (wet)	NS	1	
								GP	Gray angular fine gravel with sand and silt (wet)			
									Boring terminated at 16½ feet bgs due to refusal on bedrock			

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Locational GPS Survey (San Juan Surveying 2024). Vertical approximated based on Locational GPS Survey (San Juan Surveying 2024).

Log of Boring BH-8

GeoEngineers

Project: Bailer Hill PFAS Tier 2 Investigation
Project Location: Bailer Hill Road, Friday Harbor, Washington
Project Number: 0504-217-00

Drilled Start 8/13/2024 End 8/13/2024	Total Depth (ft) 15.5	Logged By MAB Checked By KRA	Driller Cascade Environmental, LLC	Drilling Method Direct Push	
Surface Elevation (ft) 207.67 Vertical Datum NAVD88		Hammer Data Pneumatic		Drilling Equipment GeoProbe 7822 DT	
Easting (X) 1087685.91 Northing (Y) 554339.65		System Datum WA State Plane North NAD83 (feet)		See "Remarks" section for groundwater observed	
Notes:					

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		48					SP-SM	Dark brown fine sand with silt and roots (dry)			
						BH-9-1-2 CA		SP-SM	Brown-tan fine to medium sand with silt and gravel (dry)	NS	<1	
205								SM	Brown silty fine sand with occasional gravel (dry)	NS	<1	
	5		60			BH-9-5-6 CA			Becomes with increased gravel from 4½ to 5 feet bgs (dry) Becomes with less gravel	NS	<1	
200								ML	Brown sandy silt with trace gravel (dry)	NS	<1	
	10		60							NS	<1	
195									Becomes with increased layers of fine to medium sand (moist)	NS	<1	
						BH-9-14-15		SP	Brown fine to coarse sand with silt and gravel (wet)	NS	1.1	Groundwater encountered at approximately 14½ feet
	15								Boring terminated at 15½ feet bgs due to refusal on bedrock			

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Locational GPS Survey (San Juan Surveying 2024). Vertical approximated based on Locational GPS Survey (San Juan Surveying 2024).

Log of Boring BH-9

GeoEngineers

Project: Bailer Hill PFAS Tier 2 Investigation
Project Location: Bailer Hill Road, Friday Harbor, Washington
Project Number: 0504-217-00

Figure A-10
Sheet 1 of 1

Drilled Start 8/13/2024 End 8/13/2024	Total Depth (ft) 14.5	Logged By MAB Checked By KRA	Driller Cascade Environmental, LLC	Drilling Method Direct Push	
Surface Elevation (ft) 205.71 Vertical Datum NAVD88		Hammer Data Pneumatic		Drilling Equipment GeoProbe 7822 DT	
Easting (X) 1087739.46 Northing (Y) 554323.02		System Datum WA State Plane North NAD83 (feet)		See "Remarks" section for groundwater observed	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
205	0		48					SP-SM	Dark brown fine to medium sand with silt and roots (dry)			
								SP-SM	Light brown to orange fine sand with silt and occasional gravel (dry)	NS	<1	
						BH-10-1-2 CA		SP-SM	Brown fine sand with silt and gravel (dry)			
200	5		60			BH-10-5-6		SM	Gray-brown silty fine sand with occasional gravel (dry)	NS	<1	
								SP-SM	Brown fine sand with silt and occasional gravel (moist)	NS	<1	
195	10		36					SM	Brown silty fine sand with organic matter and occasional fine gravel (moist)	NS	<1	
						BH-10-13-14 CA		SP-SM	Brown fine to medium sand with silt and occasional gravel (moist to wet)	NS	<1	Groundwater encountered at approximately 13 feet

Boring terminated at 14½ feet bgs due to refusal on bedrock

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Locational GPS Survey (San Juan Surveying 2024). Vertical approximated based on Locational GPS Survey (San Juan Surveying 2024).

Log of Boring BH-10

GeoEngineers

Project: Bailer Hill PFAS Tier 2 Investigation
Project Location: Bailer Hill Road, Friday Harbor, Washington
Project Number: 0504-217-00

Figure A-11
Sheet 1 of 1

Drilled Start 8/12/2024 End 8/12/2024	Total Depth (ft) 20.5	Logged By MAB Checked By KRA	Driller Cascade Environmental, LLC	Drilling Method Direct Push	
Surface Elevation (ft) 200.98 Vertical Datum NAVD88		Hammer Data Pneumatic		Drilling Equipment GeoProbe 7822 DT	
Easting (X) 1087770.93 Northing (Y) 554312.49		System Datum WA State Plane North NAD83 (feet)		See "Remarks" section for groundwater observed	

Notes:

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
200	0		54			BH-11-1-2 CA		SP-SM	Dark brown fine sand with silt and roots (dry)			
									Becomes light brown with occasional gravel (dry)	NS	<1	
								SM	Light brown to orange silty fine sand with organic matter and occasional gravel (dry)			
									Becomes without roots	NS	<1	
195	5		60			BH-11-5-6		SP-SM	Brown fine sand with silt (dry)	NS	<1	
								SM	Gray-brown silty fine sand with occasional fine gravel (dry)			
190	10		60					SM	Brown silty fine sand with occasional fine gravel (dry)	NS	<1	
								SP-SM	Brown fine sand with silt and occasional gravel (moist) Cobbles at 14 feet bgs	NS	<1	
185	15		60					SP-SM	Brown fine sand with silt and occasional gravel (wet)	NS	<1	Groundwater encountered at approximately 15 feet
										NS	<1	
	20					BH-11-20-21 CA		GP	Gray fine to medium gravel with silt and sand (wet)	NS	<1	
								SP	Brown-gray fine to medium sand with silt and gravel (wet)			
									Boring terminated at 20½ feet bgs due to refusal on bedrock			

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Locational GPS Survey (San Juan Surveying 2024). Vertical approximated based on Locational GPS Survey (San Juan Surveying 2024).

Log of Boring BH-11

GeoEngineers

Project: Bailer Hill PFAS Tier 2 Investigation
Project Location: Bailer Hill Road, Friday Harbor, Washington
Project Number: 0504-217-00

Figure A-12
Sheet 1 of 1

Drilled Start 8/12/2024 End 8/12/2024	Total Depth (ft) 20.5	Logged By MAB Checked By KRA	Driller Cascade Environmental, LLC	Drilling Method Direct Push	
Surface Elevation (ft) 198.08 Vertical Datum NAVD88		Hammer Data Pneumatic		Drilling Equipment GeoProbe 7822 DT	
Easting (X) 1087841.91 Northing (Y) 554307.7		System Datum WA State Plane North NAD83 (feet)		See "Remarks" section for groundwater observed	
Notes:					

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	REMARKS
	0		54					SM	Brown silty fine sand with roots (dry)			
						BH-12-1-2 CA		SP-SM	Tan fine to medium sand with silt and occasional fine gravel (dry)	NS	<1	
195								SP-SM	Brown fine to medium sand with silt (dry)			
								ML	Brown sandy silt with gravel (dry)			
	5		60			BH-12-5-6 CA		SM	Tan silty fine sand (dry)	NS	<1	
								ML	Brown sandy silt with occasional gravel (trace leaf fragments) (dry)			
190										NS	<1	
									Becomes with decreased gravel			
	10		60					SP-SM	Brown fine to medium sand with silt and occasional gravel (moist)	NS	<1	
									Becomes with less fine, increased gravel and sand			
185									Becomes fine to medium sand with silt and gravel	NS	<1	
	15		60						Becomes with occasional gravel (wet)			Groundwater encountered at approximately 15 feet
										NS	<1	
180									Becomes fine to coarse sand			
						BH-12-19-20						
	20									NS	<1	
									Becomes brown fine to medium sand with silt and gravel (wet)			
									Boring terminated at 20½ feet bgs due to refusal on bedrock			

Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Locational GPS Survey (San Juan Surveying 2024). Vertical approximated based on Locational GPS Survey (San Juan Surveying 2024).

Log of Boring BH-12

GeoEngineers

Project: Bailer Hill PFAS Tier 2 Investigation
Project Location: Bailer Hill Road, Friday Harbor, Washington
Project Number: 0504-217-00

Figure A-13
Sheet 1 of 1

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	10/28/2024	10/28/2024	55	KRA	MAB	Mauldin's Well Service Inc.	Air Rotary

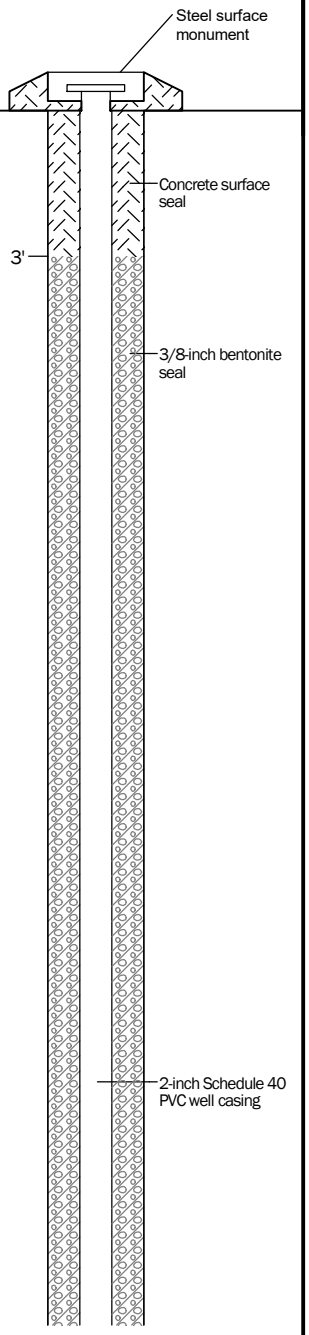
Hammer Data	NA	Drilling Equipment	NA
Surface Elevation (ft) Vertical Datum	213.9 NAVD88	Top of Casing Elevation (ft)	213.44
Easting (X) Northing (Y)	1087631.45 554442.33	Horizontal Datum	WA State Plane North NAD83 (feet)

DOE Well I.D.: BNL141
A 2-in well was installed on 10/28/2024 to a depth of 55 ft.

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
10/30/2024	51.49	161.95

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
215	0		120						TS	Approximately 6 inches of topsoil		
									SP-SM	Brown fine to coarse sand with silt and occasional gravel (moist)		
210	5											
									SP-SM	Gray fine to coarse sand with silt and fine to medium angular gravel (moist)		
205	10		120									
									RX	Dark gray aphanitic crystalline rock with quartz-filled veins		
200	15											
195	20		120									
190	25											



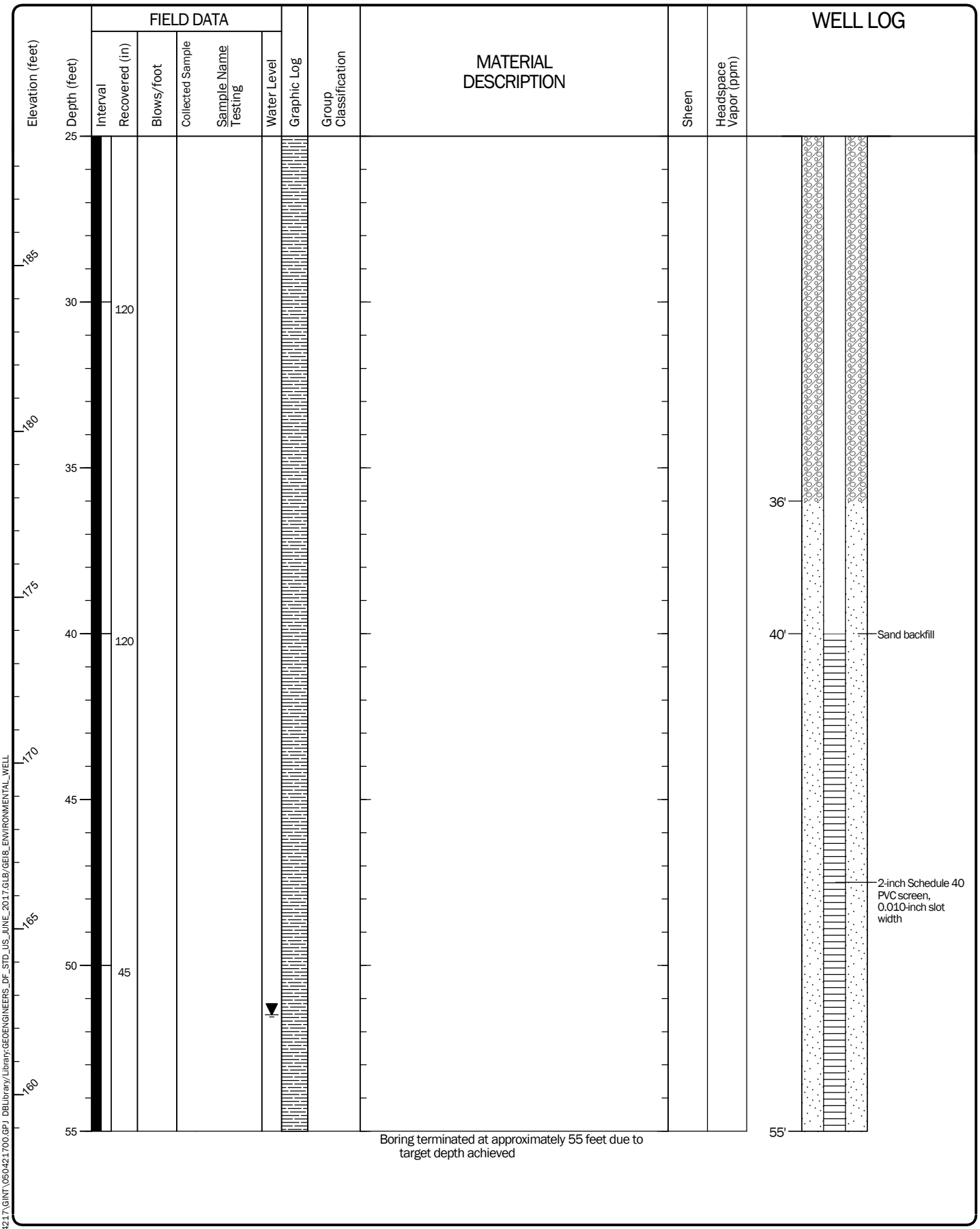
Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Locational GPS Survey (San Juan Surveying 2024). Vertical approximated based on Locational GPS Survey (San Juan Surveying 2024).

Log of Boring with Monitoring Well BH-MW-1

GeoEngineers

Project: Bailer Hill PFAS Tier 2 Investigation
Project Location: Bailer Hill Road, Friday Harbor, Washington
Project Number: 0504-217-00

Figure A-14
Sheet 1 of 2



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Log of Boring with Monitoring Well BH-MW-1 (continued)

GeoEngineers

Project: Bailer Hill PFAS Tier 2 Investigation
Project Location: Bailer Hill Road, Friday Harbor, Washington
Project Number: 0504-217-00

Figure A-14
Sheet 2 of 2

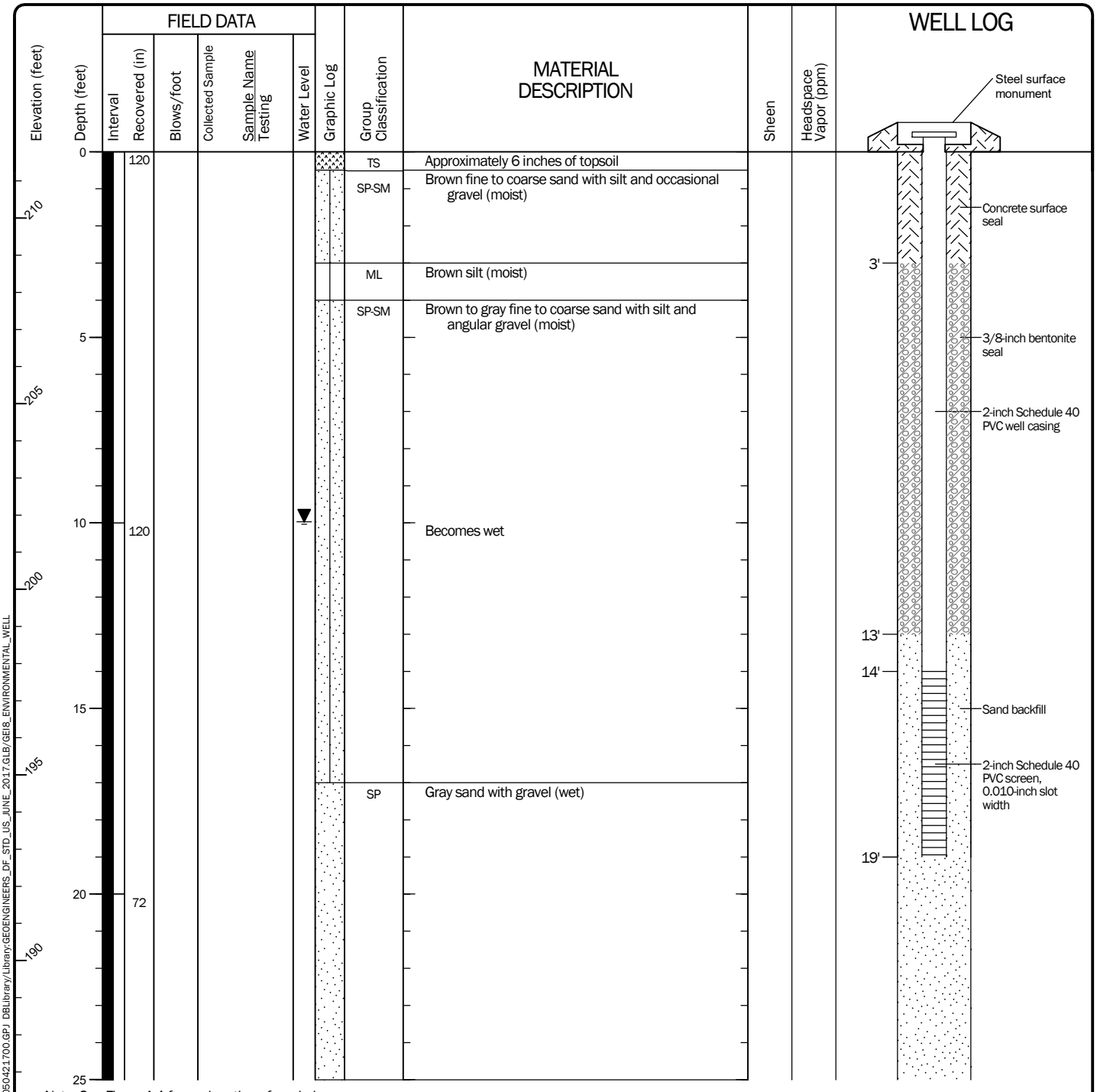
Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	10/29/2024	10/29/2024	26	KRA	MAB	Mauldin's Well Service Inc.	Air Rotary

Hammer Data	NA	Drilling Equipment	NA
Surface Elevation (ft) Vertical Datum	211.79 NAVD88	Top of Casing Elevation (ft)	211.44
Easting (X) Northing (Y)	1087714.79 554404.85	Horizontal Datum	WA State Plane North NAD83 (feet)

DOE Well I.D.: BNL142
A 2-in well was installed on 10/29/2024 to a depth of 19 ft.

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
10/30/2024	9.97	201.47

Notes:



Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Locational GPS Survey (San Juan Surveying 2024). Vertical approximated based on Locational GPS Survey (San Juan Surveying 2024).

Log of Boring with Monitoring Well BH-MW-2

GeoEngineers

Project: Bailer Hill PFAS Tier 2 Investigation
Project Location: Bailer Hill Road, Friday Harbor, Washington
Project Number: 0504-217-00

Figure A-15
Sheet 1 of 2

Elevation (feet)	Depth (feet)	FIELD DATA: Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)	WELL LOG
	25								ML	Gray silt with occasional gravel (moist)			26'
										Boring terminated at approximately 26 feet due to target depth achieved			

Log of Boring with Monitoring Well BH-MW-2 (continued)

GeoEngineers

Project: Bailer Hill PFAS Tier 2 Investigation
Project Location: Bailer Hill Road, Friday Harbor, Washington
Project Number: 0504-217-00

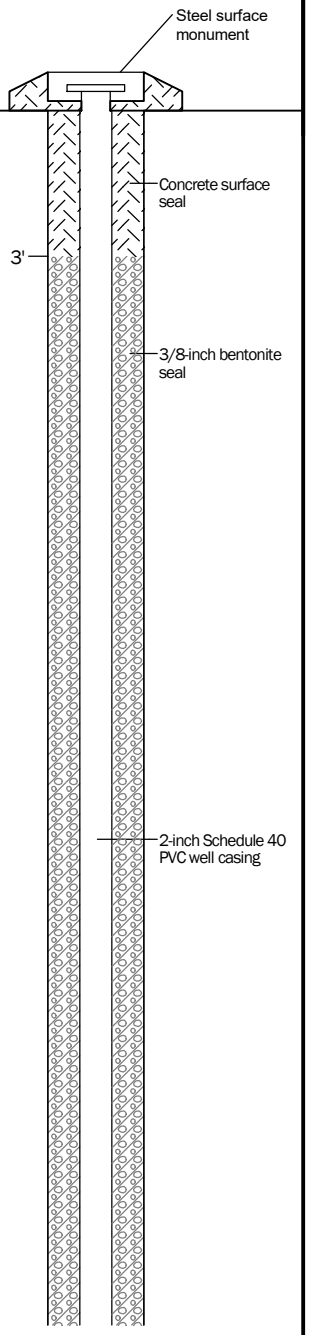
Figure A-15
Sheet 2 of 2

Drilled Start 10/29/2024 End 10/29/2024	Total Depth (ft) 40	Logged By KRA Checked By MAB	Driller Mauldin's Well Service Inc.	Drilling Method Air Rotary	
Hammer Data NA		Drilling Equipment NA		DOE Well I.D.: BNL143 A 2-in well was installed on 10/29/2024 to a depth of 40 ft.	
Surface Elevation (ft) Vertical Datum 199.34 NAVD88		Top of Casing Elevation (ft) 198.93		Groundwater Date Measured: Dry; Depth to Water (ft): NA; Elevation (ft): NA	
Easting (X) 1087854.57 Northing (Y) 554370.2		Horizontal Datum WA State Plane North NAD83 (feet)			

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
195	0		120						AC	Approximately 6 inches of asphalt concrete		
									SP-SM	Brown fine to coarse sand with silt (dry)		
									SM	Brown silty fine to coarse sand (dry)		
									SP-SM	Gray fine to coarse sand with silt and angular gravel (moist)		
190	5											
	10		120						ML	Gray silt with occasional gravel and fine to coarse sand (dry)		
185									RX	Dark gray aphanitic crystalline rock with quartz-filled veins		
	15											
180												
	20		120									
175	25											

WELL LOG



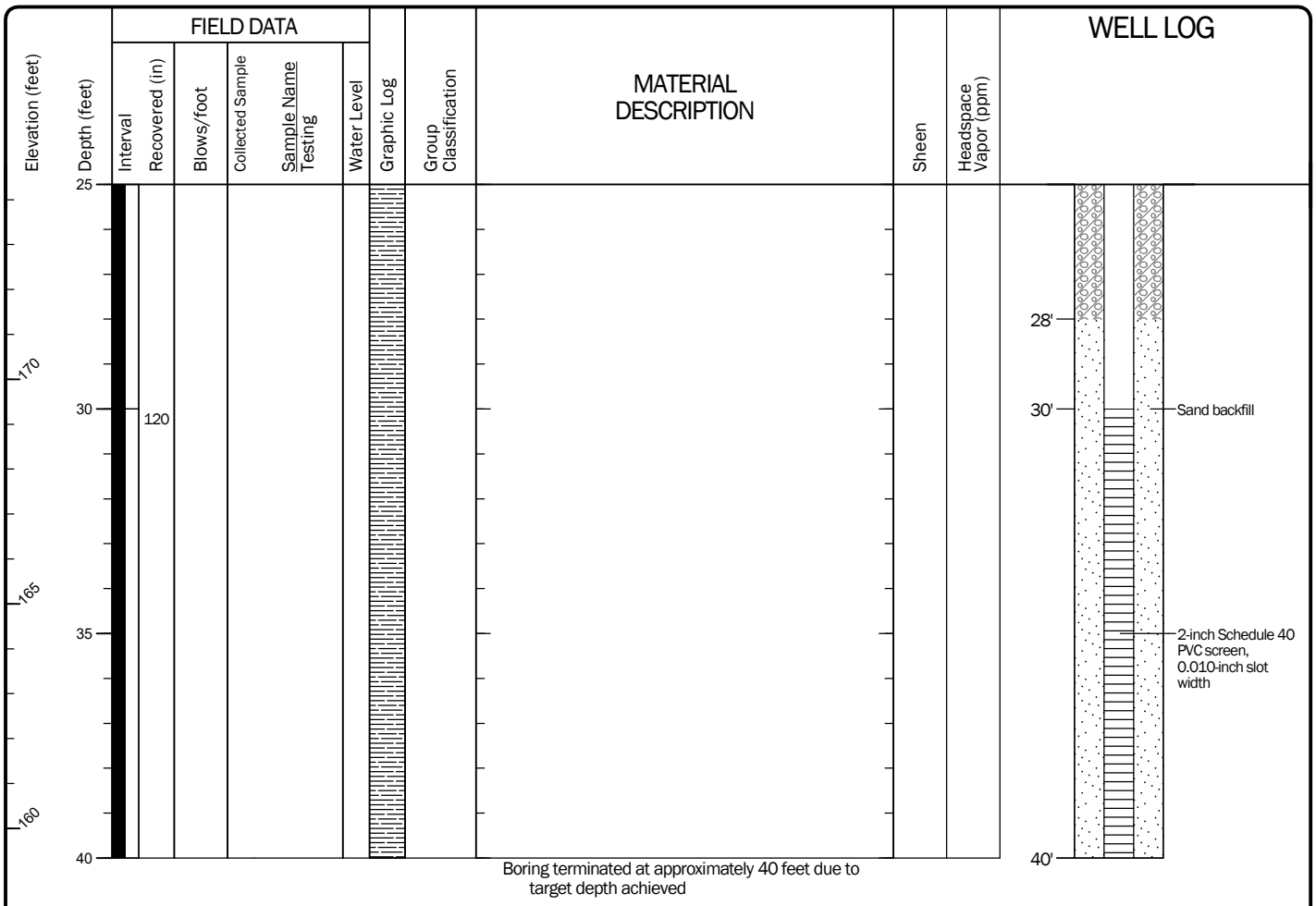
Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Locational GPS Survey (San Juan Surveying 2024). Vertical approximated based on Locational GPS Survey (San Juan Surveying 2024).

Log of Boring with Monitoring Well BH-MW-3

GeoEngineers

Project: Bailer Hill PFAS Tier 2 Investigation
Project Location: Bailer Hill Road, Friday Harbor, Washington
Project Number: 0504-217-00

Figure A-16
Sheet 1 of 2



Log of Boring with Monitoring Well BH-MW-3 (continued)

GeoEngineers

Project: Bailer Hill PFAS Tier 2 Investigation
Project Location: Bailer Hill Road, Friday Harbor, Washington
Project Number: 0504-217-00

Figure A-16
Sheet 2 of 2

Drilled	Start	End	Total Depth (ft)	Logged By	Checked By	Driller	Drilling Method
	10/15/2024	10/15/2024	45	KRA	MAB	Cascade Environmental, LLC	Sonic

Hammer Data	NA	Drilling Equipment	Terra Sonic TSi 150 CC Compact-Crawler
Surface Elevation (ft) Vertical Datum	198.99 NAVD88	Top of Casing Elevation (ft)	198.40
Easting (X) Northing (Y)	1087825.71 554309.92	Horizontal Datum	WA State Plane North NAD83 (feet)

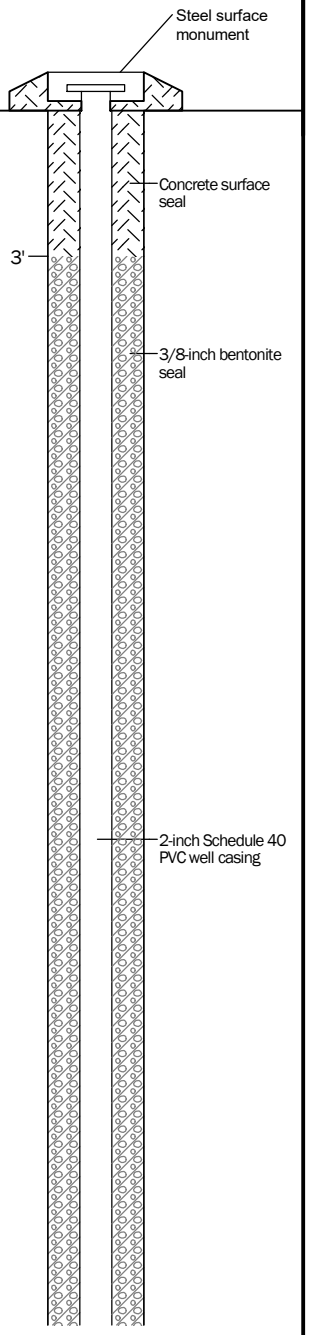
DOE Well I.D.: BNL144
A 2-in well was installed on 10/16/2024 to a depth of 45 ft.

Groundwater Date Measured	Depth to Water (ft)	Elevation (ft)
10/30/2024	35.90	162.50

Notes:

Elevation (feet)	Depth (feet)	Interval	Recovered (in)	Blows/foot	Collected Sample	Sample Name Testing	Water Level	Graphic Log	Group Classification	MATERIAL DESCRIPTION	Sheen	Headspace Vapor (ppm)
	0		60						SP-SM	Dark brown fine sand with silt and roots (moist)		
									SP-SM	Tan fine to medium sand with silt and occasional fine gravel (moist)	NS	0.6
										Becomes with orange mottled layers		
									ML	Brown sandy silt with occasional fine to medium rounded gravel (moist)		
195									SM	Brown silty sand with occasional fine to medium gravel (moist)	NS	0.9
	5		60						ML	Brown sandy silt with occasional fine to medium gravel (moist)		
									SP-SM	Brown fine sand with silt and occasional fine to coarse gravel (moist)	NS	0.2
190									SP-SM	Brown fine to medium sand with silt (moist)		
	10		60								NS	0.2
											NS	0.6
185									SP-SM	Dark brown fine to medium sand with silt and occasional fine to medium gravel	NS	0.8
									SP-SM	Brown fine sand with silt (moist to wet)		
	15		60						SP-SM	Brown fine to medium sand with silt and occasional gravel (moist)	NS	0.5
180									SM	Brown silty fine sand with occasional fine rounded gravel (moist)		
	20		11								NS	0.3
			48						RX	Dark gray aphanitic crystalline rock with quartz-filled veins		
175												
	25											

WELL LOG



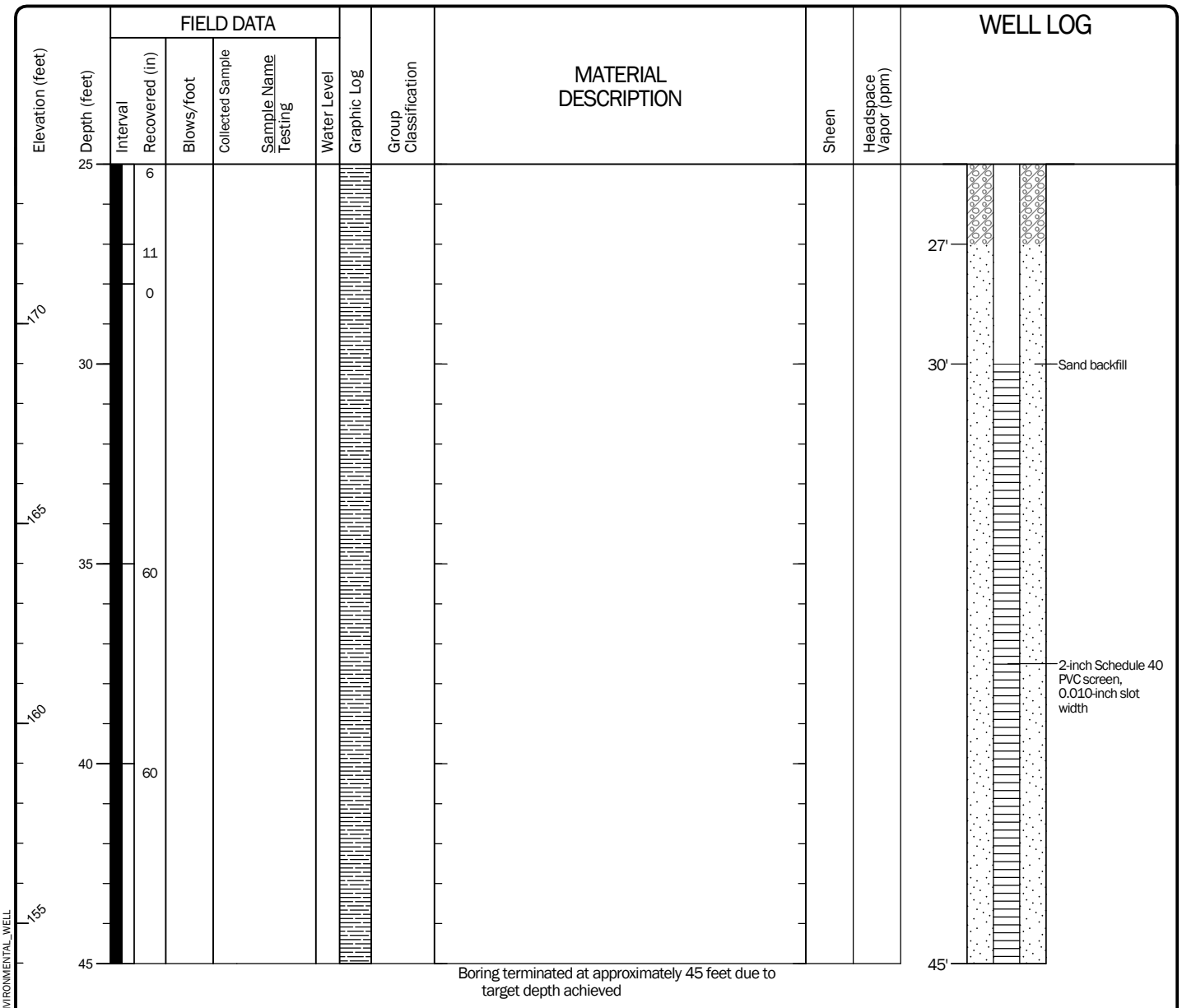
Note: See Figure A-1 for explanation of symbols.
Coordinates Data Source: Horizontal approximated based on Locational GPS Survey (San Juan Surveying 2024). Vertical approximated based on Locational GPS Survey (San Juan Surveying 2024).

Log of Boring with Monitoring Well BH-MW-4

GeoEngineers

Project: Bailer Hill PFAS Tier 2 Investigation
Project Location: Bailer Hill Road, Friday Harbor, Washington
Project Number: 0504-217-00

Figure A-17
Sheet 1 of 2



Log of Boring with Monitoring Well BH-MW-4 (continued)

GeoEngineers

Project: Bailer Hill PFAS Tier 2 Investigation
Project Location: Bailer Hill Road, Friday Harbor, Washington
Project Number: 0504-217-00

Figure A-17
Sheet 2 of 2

File Original and First Copy with Department of Ecology
Second Copy – Owner's Copy
Third Copy – Driller's Copy 35/3w-30/K

WATER WELL REPORT

STATE OF WASHINGTON

Application No. G1-25274

Permit No. 35/3W-30 K

(1) OWNER: Name Hannah Heights % John Bell Address Friday Harbor, Wash.

(2) LOCATION OF WELL: County San Juan Hannah Heights #1 NW SE ¼ Sec. 30 T. 35 N., R. 3 W W.M.

Bearing and distance from section or subdivision corner (620' E & 1100' S of CTR - SEC. 30)

(3) PROPOSED USE: Domestic ☒ Industrial ☐ Municipal ☐
Irrigation ☐ Test Well ☐ Other ☐

(4) TYPE OF WORK: Owner's number of well (if more than one) (1)
New well ☒ Method: Dug ☐ Bored ☐
Deepened ☐ Cable ☐ Driven ☐
Reconditioned ☐ Rotary ☒ Jetted ☐

(5) DIMENSIONS: Diameter of well 6 inches.
Drilled 183 ft. Depth of completed well 183 ft.

(6) CONSTRUCTION DETAILS:
Casing installed: 6 " Diam. from 0 ft. to 18½ ft.
Threaded ☐ " Diam. from ft. to ft.
Welded ☐ " Diam. from ft. to ft.

Perforations: Yes ☐ No ☒
Type of perforator used
SIZE of perforations in. by in.
perforations from ft. to ft.
perforations from ft. to ft.
perforations from ft. to ft.

Screens: Yes ☐ No ☒
Manufacturer's Name
Type Model No.
Diam. Slot size from ft. to ft.
Diam. Slot size from ft. to ft.

Gravel packed: Yes ☐ No ☒ Size of gravel:
Gravel placed from ft. to ft.

Surface seal: Yes ☒ No ☐ To what depth? 18½ ft.
Material used in seal Bentonite & cement
Did any strata contain unusable water? Yes ☐ No ☐
Type of water? Depth of strata
Method of sealing strata off

(7) PUMP: Manufacturer's Name
Type: H.P.

(8) WATER LEVELS: Land-surface elevation above mean sea level ~~400~~ 200 ft.
Static level 40 ft. below top of well Date 7/15/75
Artesian pressure lbs. per square inch Date
Artesian water is controlled by (Cap, valve, etc.)

(9) WELL TESTS: Drawdown is amount water level is lowered below static level
Was a pump test made? Yes ☐ No ☐ If yes, by whom?
Yield: gal./min. with ft. drawdown after hrs.
" " " "
" " " "

Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level)

Time	Water Level	Time	Water Level	Time	Water Level

Date of test
Bailer test gal./min. with ft. drawdown after hrs.
Artesian flow g.p.m. Date
Temperature of water Was a chemical analysis made? Yes ☐ No ☐

(10) WELL LOG:

Formation: *Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the material in each stratum penetrated, with at least one entry for each change of formation.*

MATERIAL	FROM	TO
Grey Rhyolite	0	38
Soft gray with yellow bits of clay and appearance of quartz		
Show of water at 1 gal. per min.	38	40
Another layer of soft light gray with quartz - veins of clay	40	47
Very uniform-no change in stratum. Dark gray rhy. with 20% quartz	47	151
Softer multi-colored rhy. with much quartz fracture	151	157
Rock is harder again 20% to 30% quartz	157	180
Blow off 50 gal. per min.		

Work started July 13 19 75 Completed July 16 19 75

WELL DRILLER'S STATEMENT:

This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

NAME MARTEL WELL DRILLING, INC.
(Person, firm, or corporation) (Type or print)

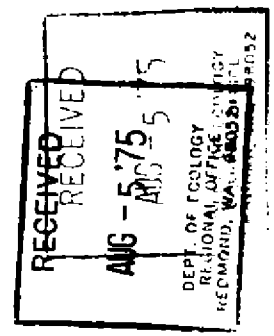
Address Friday Harbor, Wash. 98250

[Signed] (Well Driller)

License No. 0292 Date Aug. 1 19 75

(USE ADDITIONAL SHEETS IF NECESSARY)

S. F. No. 7356—OS—(Rev. 4-71).



MANTEL WELL DRILLING, INC.
Serving All The San Juans
P. O. Box 55
Friday Harbor, WA 98250
378-2842 378-4723

G-1-20705P

HANNAH HEIGHTS % John Bell

PUMP TEST #1 July 18, 1975

Time	Rate , GPM	Feet
12:20	0	35'
12:35	50	5 6'
12:50	50	68'
1:05	50	72'
1:20	50	75'
1:50	50	82'
2:40	50	86'
3:20	50	90'
3:40	50	95'
4:10	50	97'
5:10	50	99'
6:10	50	103'
6:40	50	104'
6:45 - off		

RECOVERY

0	104
1	91
2	87.5
3	86.5
4	85.25
5	84.5
10	82.5
15	81.25
15 hours	45.0

HANNEL WELL DRILLING, INC.
Serving All The San Juans
P. O. Box 55
Friday Harbor, WA 98250
378-2842 378-4723

61-20705P

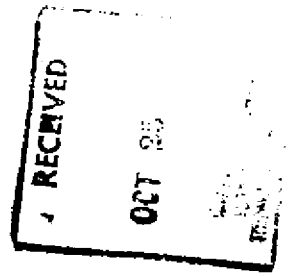
HANNAH HEIGHTS % John Bell

PUMP TEST #2 July 21, 1975

Time	Rate, GPM	Feet
9:00	50+	37
9:30	50+	70
10:00	50	77
10:30	50	82
11:00	50	86
11:30	50	89
12:00	50	92
Adjustment	35	85
12:00 to 12:30	33	85
12:40	33	80
12:55	33	78
1:00	33	78
1:30	33	79
2:00	33	82
2:30	33	84
3:00	33	86
3:30	33	87
4:00	33	88
4:30	33	89

RECOVERY

Min.	Feet
0	89
1	80½
2	78½
3	78
4	77
5	77½
15	75
30	72½
45	70½
1 hr.	69 3/4



Approx 183 deep

Well Tagging Form

WASHINGTON STATE DEPARTMENT OF ECOLOGY

Unique Well Tag No: AFL658

RECORD VERIFICATION (check ✓ one)

- [✓] Well Report available *(please attach this form to the well report and submit it to the Ecology Regional Office near you)*
- [ ] Verification inconclusive
- [ ] Well Report not available

WELL OWNERSHIP, IF DIFFERENT FROM WELL REPORT

First Name HANNAH HEIGHTS OWNERS ASSOCIATION (ID# 30850 D) WELL #2

Street Address PO BOX 722

City FRIDAY HARBOR State WA 98250

LOCATION OF WELL, IF DIFFERENT FROM WELL REPORT

Well Address 3189 BAILER HILL RD, TAX PARCEL # 353050029

City FRIDAY HARBOR County SAN JUAN

T 35 N R 3 W WM Sec 30 ____ 1/4 of the ____

FOR AGENCY USE ONLY

Latitude ____ ° ____ ' ____ . ____ "

Longitude ____ ° ____ ' ____ . ____ "

- [ ] GPS
- [ ] Topographic Map
- [ ] Survey
- [ ] Computer generated

Elevation at land surface 195 feet/meters *(circle one)* by

- [ ] Digital Altimeter
- [ ] Topographic Map
- [ ] Other ____

Additional information, if available:

- [ ] Location marked on topographic map *(please attach)*
- [ ] Location marked on air photo *(please attach)*

State Dept of Health

Appendix B
Laboratory Analytical Reports

GeoEngineers

Data Validation Report

1101 Fawcett Avenue, Suite 200, Tacoma, Washington 98402, Telephone: 253.383.4940 www.geoengineers.com

Project:	Bailer Hill PFAS Site – Soil and Groundwater Investigation July, August, and October 2024 Samples
File:	00504-217-00
Date:	January 8, 2025

This report documents the results of a United States Environmental Protection Agency (USEPA)-defined Stage 2A data validation (USEPA Document 540-R-08-005; USEPA, 2009) of analytical data from the analyses of soil and water samples collected as part of the July, August, and October 2024 sampling events, and the associated laboratory and field quality control (QC) samples. The samples were obtained from the Bailer Hill PFAS Site located at Bailer Hill Road & Straits View Drive in Friday Harbor, Washington.

Objective and Quality Control Elements

GeoEngineers, Inc. (GeoEngineers) completed the data validation consistent with the USEPA Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review (USEPA, 2020) (National Functional Guidelines) to determine if the laboratory analytical results meet the project objectives and are usable for their intended purpose. Data usability was assessed by determining if:

- The samples were analyzed using well-defined and acceptable methods that provide reporting limits below applicable regulatory criteria;
- The precision and accuracy of the data are well-defined and sufficient to provide defensible data; and
- The quality assurance/quality control (QA/QC) procedures utilized by the laboratory meet acceptable industry practices and standards.

The data validation included review of the following QC elements:

- Data Package Completeness
- Chain-of-Custody Documentation
- Holding Times and Sample Preservation
- Surrogate Recoveries
- Method, Equipment, and Field Blanks
- Matrix Spikes/Matrix Spike Duplicates
- Laboratory Control Samples/Laboratory Control Sample Duplicates
- Laboratory and Field Duplicates
- Miscellaneous

Validated Sample Delivery Groups

This data validation included review of the sample delivery groups (SDGs) listed below in Table 1.

TABLE 1. SUMMARY OF VALIDATED SAMPLE DELIVERY GROUPS

LABORATORY SDG	SAMPLES VALIDATED
FC17484	BH-1-0.5, SS-1-0.5
FC18042	BH-1-10-11, BH-1-240814, WDUP-240814, BH-2-1-2, BH-3-1-2, BH-3-5-6, SDUP-240814-2, BH-4-7-8, BH-4-13-14, BH-4-240812, BH-5-1-2, BH-5-5-6, BH-6-1-2, SDUP-240814-1, BH-6-5-6, BH-6-240814, BH-7-1-2, BH-7-7-8, BH-8-1-2, BH-8-5-6, BH-9-1-2, BH-9-14-15, BH-10-1-2, BH-10-13-14, BH-10-240813, BH-11-1-2, BH-11-20-21, BH-12-1-2, BH-12-5-6, BH-12-240812, RB-240813
FC18042R	BH-5-240814
FC18044	P-1-240814
FC19997	BH-MW1-241030, BH-MW2-241030, BH-DUP1-241030W, BH-MW4-241030, FB-1-241028, FB-2-241028, FB-3-241029, FB-4-241030

Chemical Analysis Performed

SGS North America, Inc. (SGS), located in Orlando, Florida, performed laboratory analyses on the samples using the following method:

- Per- and Polyfluoroalkyl Substances (PFAS) by Method EPA1633

Data Validation Summary

The results for each of the QC elements are summarized below.

DATA PACKAGE COMPLETENESS

SGS provided the required deliverables for the data validation according to the National Functional Guidelines. The laboratory followed adequate corrective action processes and the identified anomalies were discussed in the relevant laboratory case narrative.

CHAIN-OF-CUSTODY DOCUMENTATION

Chain-of-custody (COC) forms were provided with the laboratory analytical reports. The COCs were accurate and complete when submitted to the laboratory, with the following exception:

SDG FC18044: The laboratory noted that the sample ID for Sample MAPID-01-240814, as listed on COC, was changed to P-1-240814 at the request of GeoEngineers.

HOLDING TIMES AND SAMPLE PRESERVATION

The sample holding time is defined as the time that elapses between sample collection and sample analysis. Maximum holding time criteria exist for each analysis to help ensure that the analyte concentrations found at the time of analysis reflect the concentration present at the time of sample collection. Established holding times were met for each analysis. The sample coolers arrived at the laboratory within the appropriate temperatures of between 2 and 6 degrees Celsius.

SURROGATE RECOVERIES

A surrogate compound is a compound that is chemically similar to the organic analytes of interest, but unlikely to be found in an environmental sample. Surrogates are used for organic analyses and are added to the samples, standards, and blanks to serve as an accuracy and specificity check of each analysis. The surrogates are added to the samples at a known concentration and percent recoveries are calculated following analysis. The surrogate percent recoveries for field samples were within the laboratory control limits, with the following exceptions:

SDG FC18042R: (PFAS) The percent recoveries for surrogates 13C8-FOSA and d5-EtFOSAA were greater than the control limits in Sample BH-5-240814. The positive result for PFOSA and the reporting limit for EtFOSAA were qualified as estimated (J and UJ, respectively) in this sample.

METHOD, EQUIPMENT, AND FIELD BLANKS

Method Blanks

Method blanks are analyzed to ensure that laboratory procedures and reagents do not introduce measurable concentrations of the analytes of interest. A method blank was analyzed with each batch of samples, at a frequency of 1 per 20 samples. For each sample batch, method blanks for the applicable methods were analyzed at the required frequency. None of the analytes of interest were detected in the method blanks.

Equipment Blanks

Equipment rinsate blanks are analyzed to provide an indication as to whether field decontamination and sampling procedures effectively prevent cross-contamination in field activities. None of the analytes of interest were detected in the equipment blank.

Field Blanks

Field blanks are analyzed to provide an indication as to whether there has been cross-contamination from field conditions during sample collection. None of the analytes of interest were detected in the field blanks.

MATRIX SPIKES/MATRIX SPIKE DUPLICATES

Since the actual analyte concentration in an environmental sample is not known, the accuracy of a particular analysis is usually inferred by performing a matrix spike (MS) analysis on one sample from the associated batch, known as the parent sample. One aliquot of the sample is analyzed in the normal manner and then a second aliquot of the sample is spiked with a known amount of analyte concentration and analyzed. From these analyses, a percent recovery is calculated. Matrix spike duplicate (MSD) analyses are generally performed for organic analyses as a precision check and analyzed in the same sequence as a matrix spike. Using the result values from the MS and MSD, the relative percent difference (RPD) is calculated. The percent recovery control limits for MS and MSD analyses are specified in the laboratory documents, as are the RPD control limits for MS/MSD sample sets.

One MS/MSD analysis should be performed for every analytical batch or every 20 field samples, whichever is more frequent. The frequency requirements were met for each analysis and the percent recovery and RPD values were within the proper control limits, with the following exceptions:

SDG FC18042: (PFAS) The laboratory performed a matrix spike with a QC outlier; however, it was performed on a sample that was not associated with the field samples collected by GeoEngineers. For this reason, no action was required.

The laboratory performed an MS/MSD sample set on Sample BH-9-14-15. The percent recoveries for perfluorohexanesulfonic acid and perfluorooctanesulfonic acid were less than the control limits in the MS/MSD extracted on 8/23/2024. The positive results for these target analytes were qualified as estimated (J) in this sample.

SDG FC18042R: (PFAS) The laboratory performed a matrix spike with QC outliers; however, it was performed on a sample that was not associated with the field samples collected by GeoEngineers. For this reason, no action was required.

LABORATORY CONTROL SAMPLES/LABORATORY CONTROL SAMPLE DUPLICATES

A laboratory control sample (LCS) is a blank sample that is spiked with a known amount of analyte and then analyzed. An LCS is similar to an MS, but without the possibility of matrix interference. Given that matrix interference is not an issue, the LCS/LCSD control limits for accuracy and precision are usually more rigorous than for MS/MSD analyses. Additionally, data qualification based on LCS/LCSD analyses would apply to all samples in the associated batch, instead of just the parent sample. The percent recovery control limits for LCS and LCSD analyses are specified in the laboratory documents, as are the RPD control limits for LCS/LCSD sample sets.

One LCS/LCSD analysis should be performed for every analytical batch or every 20 field samples, whichever is more frequent. The frequency requirements were met for each analysis and the percent recovery and RPD values were within the proper control limits, with the following exception:

SDG FC17484: (PFAS) The percent recovery for NFDHA was greater than the control limits in the LCS extracted on 8/6/2024. There were no positive results for this target analyte in the associated field sample; therefore, no qualification was required.

LABORATORY DUPLICATES

Internal laboratory duplicate analyses are performed to monitor the precision of the analyses. Two separate aliquots of a sample are analyzed as distinct samples in the laboratory and the RPD between the two results is calculated. Duplicate analyses should be performed once per analytical batch. If one or more of the samples used has a concentration less than five times the reporting limit for that sample, the absolute difference is used instead of the RPD. The RPD control limits are specified in the laboratory documents. Laboratory duplicates were analyzed at the proper frequency and the specified acceptance criteria were met, with the following exception:

SDG FC18042: (PFAS) The laboratory performed a laboratory duplicate sample set with a QC outlier; however, it was performed on a sample that was not associated with the field samples collected by GeoEngineers. For this reason, no action was required.

FIELD DUPLICATES

In order to assess precision, field duplicate samples were collected and analyzed along with the reviewed sample batches. The duplicate samples were analyzed for the same parameters as the associated parent samples. Precision is determined by calculating the RPD between each pair of samples. If one or more of the sample analytes has a concentration less than five times the reporting limit for that sample, then the absolute difference is used instead of the RPD. The RPD control limit for water samples is 20 percent and the RPD control limit for soil samples is 35 percent.

SDG FC18042: Three field duplicate sample pairs, BH-1-240814/WDUP-240814, BH-3-5-6/SDUP-240814-2, and BH-6-1-2/SDUP-240814-1, were submitted with this SDG. The precision criteria for the target analytes were met for these sample pairs.

SDG FC19997: One field duplicate sample pair, BH-MW2-241030 and BH-DUP1-241030W, was submitted with this SDG. The precision criteria for the target analytes were met for this sample pair.

MISCELLANEOUS

SDG FC18042R: (PFAS) The result for perfluorooctanesulfonic acid exceeded the instrument calibration range in Sample BH-5-240814. For this reason, the positive result for this target analyte was qualified as estimated (J) in this sample.

Overall Assessment

As was determined by this data validation, the laboratory followed the specified analytical methods. Accuracy was acceptable, as demonstrated by the surrogate, LCS/LCSD, and MS/MSD percent recovery values, with the exceptions noted above. Precision was acceptable, as demonstrated by the LCS/LCSD, MS/MSD, and laboratory/field duplicate RPD values.

The data are acceptable for the intended use, with the following qualification listed below in Table 2.

TABLE 2. SUMMARY OF QUALIFIED SAMPLES

SAMPLE ID	ANALYTE	QUALIFIER	REASON
BH-5-240814	EtFOSAA	UJ	Surrogate Recovery
	PFOSA	J	Surrogate Recovery
	Perfluorooctanesulfonic acid	J	See Miscellaneous
BH-9-14-15	Perfluorohexanesulfonic acid	J	MS/MSD Recovery
	Perfluorooctanesulfonic acid	J	MS/MSD Recovery

References

U.S. Environmental Protection Agency (USEPA). “Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use,” EPA-540-R-08-005. January 2009.

U.S. Environmental Protection Agency (USEPA). Contract Laboratory Program National Functional Guidelines for Organic Superfund Methods Data Review, EPA-540-R-20-005. November 2020.

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

GeoEngineers, Inc.

WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

000504.217.00

SGS Job Number: FC17484

Sampling Date: 07/23/24

Report to:

GeoEngineers, Inc
17425 NE Union Hill Rd
Redmond, WA 98052
jletts@geoengineers.com; katakturk@geoengineers.com

ATTN: Jacob Letts

Total number of pages in report: 48

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

Norm Farmer
Technical Director

Client Service contact: Andrea Colby 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001) DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177), AL, AK, AR, CT, IA, KY, MA, MI. MS, ND, NH, NV, OK, OR, IL, UT, VT, WA, WI, WV

Sections: 1 2 3 4 5 6

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Sample Summary

GeoEngineers, Inc.

Job No: FC17484

WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA
Project No: 000504.217.00

Sample Number	Collected Date	Time	By	Received	Matrix Code	Matrix Type	Client Sample ID
This report contains results reported as ND = Not detected. The following applies:							
Organics ND = Not detected above the MDL							
FC17484-1	07/23/24	11:00	JL	07/25/24	SO	Soil	BH-1-0.5
FC17484-2	07/23/24	11:15	JL	07/25/24	SO	Soil	SS-1-0.5

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: GeoEngineers, Inc. **Job No:** FC17484

Site: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, **Report Date:** 8/15/2024 5:45:14 PM

On 07/25/2024, 2 Sample(s), 0 Trip Blank(s), 0 Equip. Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 3.8 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC17484 was assigned to the project.

Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Semi-volatiles By Method EPA 1633

Matrix: SO **Batch ID:** OP4608

Sample(s) FC17484-1MS, FC17484-1MSD were used as the QC samples indicated.

Blank Spike Recovery(s) for NFDHA are outside control limits.

OP4608-LLBS for NFDHA: Outside control limits.

MS Semi-volatiles By Method EPA DRAFT 1633

Matrix: SO **Batch ID:** S8Q146

S8Q146-IBLK for d9-EtFOSE: Outside control limits.

General Chemistry By Method SM19 2540G

Matrix: SO **Batch ID:** GN98057

Sample(s) FC17404-1DUP were used as the QC samples for Solids, Percent.

SGS North America Inc. - Orlando certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted. Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria. SGS North America Inc.- Orlando is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety.

Narrative prepared by:

_____

Kim Benham, Report Generation (signature on file)

Summary of Hits

Job Number: FC17484
Account: GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA
Collected: 07/23/24

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
FC17484-1	**BH-1-0.5**					
Perfluoropentanoic acid		0.20 J	0.42	0.11	ug/kg	EPA 1633
Perfluorooctanoic acid		0.13 J	0.21	0.11	ug/kg	EPA 1633
Perfluorononanoic acid		0.66	0.21	0.12	ug/kg	EPA 1633
Perfluorodecanoic acid		0.23	0.21	0.11	ug/kg	EPA 1633
Perfluoroundecanoic acid		3.3	0.21	0.14	ug/kg	EPA 1633
Perfluorotridecanoic acid		1.9	0.21	0.11	ug/kg	EPA 1633
Perfluorooctanesulfonic acid		6.2	0.21	0.11	ug/kg	EPA 1633
FC17484-2	**SS-1-0.5**					
Perfluoropentanoic acid		0.34 J	0.42	0.10	ug/kg	EPA 1633
Perfluorohexanoic acid		0.11 J	0.21	0.10	ug/kg	EPA 1633
Perfluorooctanoic acid		0.12 J	0.21	0.10	ug/kg	EPA 1633
Perfluorononanoic acid		0.14 J	0.21	0.12	ug/kg	EPA 1633
Perfluoroundecanoic acid		0.18 J	0.21	0.14	ug/kg	EPA 1633
Perfluorotridecanoic acid		0.38	0.21	0.11	ug/kg	EPA 1633
Perfluorohexanesulfonic acid		0.32	0.21	0.17	ug/kg	EPA 1633
Perfluorooctanesulfonic acid		7.4	0.21	0.10	ug/kg	EPA 1633

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: BH-1-0.5
Lab Sample ID: FC17484-1 **Date Sampled:** 07/23/24
Matrix: SO - Soil **Date Received:** 07/25/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 95.9
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	8Q10621.D	1	08/09/24 17:53	AL	08/06/24 09:35	OP4608	S8Q144
Run #2							

	Initial Weight	Final Volume
Run #1	4.95 g	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.84	0.53	ug/kg	
2706-90-3	Perfluoropentanoic acid	0.20	0.42	0.11	ug/kg	J
307-24-4	Perfluorohexanoic acid	ND	0.21	0.11	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	0.21	0.11	ug/kg	
335-67-1	Perfluorooctanoic acid	0.13	0.21	0.11	ug/kg	J
375-95-1	Perfluorononanoic acid	0.66	0.21	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	0.23	0.21	0.11	ug/kg	
2058-94-8	Perfluoroundecanoic acid	3.3	0.21	0.14	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.21	0.11	ug/kg	
72629-94-8	Perfluorotridecanoic acid	1.9	0.21	0.11	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.21	0.11	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	ND	0.21	0.11	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.21	0.17	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	0.21	0.17	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.21	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	6.2	0.21	0.11	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.21	0.19	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.21	0.15	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.21	0.16	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.84	0.42	ug/kg	
27619-97-2	6:2-FTS	ND	0.84	0.42	ug/kg	
39108-34-4	8:2-FTS	ND	0.84	0.63	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.21	0.11	ug/kg	
31506-32-8	MeFOSA	ND	0.21	0.14	ug/kg	
4151-50-2	EtFOSA	ND	0.21	0.11	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-1-0.5
Lab Sample ID: FC17484-1 **Date Sampled:** 07/23/24
Matrix: SO - Soil **Date Received:** 07/25/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 95.9
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.21	0.17	ug/kg	
2991-50-6	EtFOSAA	ND	0.21	0.21	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.1	1.1	ug/kg	
1691-99-2	EtFOSE	ND	2.1	1.1	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.84	0.30	ug/kg	
919005-14-4	ADONA	ND	0.84	0.35	ug/kg	
377-73-1	PFMPA	ND	0.42	0.21	ug/kg	
863090-89-5	PFMBA	ND	0.42	0.21	ug/kg	
151772-58-6	NFDHA	ND	0.42	0.26	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.84	0.46	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.84	0.42	ug/kg	
113507-82-7	PFEESA	ND	0.42	0.21	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.1	0.54	ug/kg	
914637-49-3	5:3-FTCA	ND	5.3	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	5.3	1.3	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	63%		10-130%
	13C5-PFPeA	59%		35-130%
	13C5-PFHxA	62%		40-130%
	13C4-PFHpA	65%		40-130%
	13C8-PFOA	63%		40-130%
	13C9-PFNA	65%		40-130%
	13C6-PFDA	64%		40-130%
	13C7-PFUnDA	66%		40-130%
	13C2-PFDoDA	70%		40-130%
	13C2-PFTeDA	63%		20-130%
	13C3-PFBS	56%		40-135%
	13C3-PFHxS	57%		40-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-1-0.5
Lab Sample ID: FC17484-1 **Date Sampled:** 07/23/24
Matrix: SO - Soil **Date Received:** 07/25/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 95.9
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	65%		40-130%
	13C8-FOSA	46%		40-130%
	d3-MeFOSA	47%		10-130%
	d5-EtFOSA	56%		10-130%
	d3-MeFOSAA	65%		40-135%
	d5-EtFOSAA	70%		40-150%
	d7-MeFOSE	46%		20-130%
	d9-EtFOSE	46%		15-130%
	13C2-4:2FTS	54%		40-165%
	13C2-6:2FTS	61%		40-215%
	13C2-8:2FTS	69%		40-275%
	13C3-HFPO-DA	74%		40-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SS-1-0.5
Lab Sample ID: FC17484-2 **Date Sampled:** 07/23/24
Matrix: SO - Soil **Date Received:** 07/25/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 96.2
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	8Q10904.D	1	08/14/24 19:39	AL	08/06/24 09:35	OP4608	S8Q146
Run #2							

	Initial Weight	Final Volume
Run #1	4.97 g	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.84	0.52	ug/kg	
2706-90-3	Perfluoropentanoic acid	0.34	0.42	0.10	ug/kg	J
307-24-4	Perfluorohexanoic acid	0.11	0.21	0.10	ug/kg	J
375-85-9	Perfluoroheptanoic acid	ND	0.21	0.10	ug/kg	
335-67-1	Perfluorooctanoic acid	0.12	0.21	0.10	ug/kg	J
375-95-1	Perfluorononanoic acid	0.14	0.21	0.12	ug/kg	J
335-76-2	Perfluorodecanoic acid	ND	0.21	0.10	ug/kg	
2058-94-8	Perfluoroundecanoic acid	0.18	0.21	0.14	ug/kg	J
307-55-1	Perfluorododecanoic acid	ND	0.21	0.10	ug/kg	
72629-94-8	Perfluorotridecanoic acid	0.38	0.21	0.11	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.21	0.10	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	ND	0.21	0.10	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.21	0.16	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	0.32	0.21	0.17	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.21	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	7.4	0.21	0.10	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.21	0.19	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.21	0.15	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.21	0.16	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.84	0.42	ug/kg	
27619-97-2	6:2-FTS	ND	0.84	0.42	ug/kg	
39108-34-4	8:2-FTS	ND	0.84	0.63	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.21	0.10	ug/kg	
31506-32-8	MeFOSA	ND	0.21	0.14	ug/kg	
4151-50-2	EtFOSA	ND	0.21	0.11	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SS-1-0.5		
Lab Sample ID:	FC17484-2	**Date Sampled:**	07/23/24
Matrix:	SO - Soil	**Date Received:**	07/25/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	96.2
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.21	0.17	ug/kg	
2991-50-6	EtFOSAA	ND	0.21	0.21	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.1	1.0	ug/kg	
1691-99-2	EtFOSE	ND	2.1	1.0	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.84	0.30	ug/kg	
919005-14-4	ADONA	ND	0.84	0.35	ug/kg	
377-73-1	PFMPA	ND	0.42	0.21	ug/kg	
863090-89-5	PFMBA	ND	0.42	0.21	ug/kg	
151772-58-6	NFDHA	ND	0.42	0.26	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.84	0.46	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.84	0.42	ug/kg	
113507-82-7	PFEESA	ND	0.42	0.21	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.0	0.53	ug/kg	
914637-49-3	5:3-FTCA	ND	5.2	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	5.2	1.3	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	61%		10-130%
	13C5-PFPeA	56%		35-130%
	13C5-PFHxA	57%		40-130%
	13C4-PFHpA	61%		40-130%
	13C8-PFOA	57%		40-130%
	13C9-PFNA	72%		40-130%
	13C6-PFDA	53%		40-130%
	13C7-PFUnDA	59%		40-130%
	13C2-PFDoDA	52%		40-130%
	13C2-PFTeDA	55%		20-130%
	13C3-PFBS	59%		40-135%
	13C3-PFHxS	61%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SS-1-0.5
Lab Sample ID: FC17484-2 **Date Sampled:** 07/23/24
Matrix: SO - Soil **Date Received:** 07/25/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 96.2
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	59%		40-130%
	13C8-FOSA	64%		40-130%
	d3-MeFOSA	72%		10-130%
	d5-EtFOSA	75%		10-130%
	d3-MeFOSAA	53%		40-135%
	d5-EtFOSAA	43%		40-150%
	d7-MeFOSE	72%		20-130%
	d9-EtFOSE	80%		15-130%
	13C2-4:2FTS	45%		40-165%
	13C2-6:2FTS	64%		40-215%
	13C2-8:2FTS	62%		40-275%
	13C3-HFPO-DA	64%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SGS North America Inc - Orlando
Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, Fl 32811
TEL. 407-425-6700 FAX: 407-425-0707
www.sgs.com

SGS - ORLANDO JOB # : FC17484 PAGE 1 OF 1

SGS - ORLANDO Quote # | SKIFF #

Client / Reporting Information

Company Name: GeoEngineers
Address: 17425 NE Union Hill Rd
City: Redmond State: WA Zip: 98052
Project Contact: Jacob Letts Email: JLetts@geoengineers.com
Phone #: 206-228-4375
Sampler(s) Name(s) (Printed) Sampler 1: Jacob Letts Sampler 2:

Project Information

Project Name: WA Ecology - Bailer Hill PFAS Tier 2
Street: Bailer Hill Rd + Straights View Dr.
City: Friday Harbor State: WA
Project #: 000504-217-00
Fax #:
Client Purchase Order #:

Analytical Information

PFAS EPA 1633

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid

SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	CONTAINER INFORMATION: OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NAOH+ZNA	DI WATER	MEOH	LAB USE ONLY
1	BH-1-0.5	7/23	11:00	JML	Soil	1										X
2	SS-1-0.5	7/23	11:15	JML	Soil	1										X

Turnaround Time (Business days)

- (10 Day (Business))
- 7 Day
- 5 Day
- 3 Day *RUSH*
- 2 Day *RUSH*
- 1 Day *RUSH*
- Other

Approved By: / Date:

Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

- ☐ COMMERCIAL "A" (RESULTS ONLY)
- ☐ COMMERCIAL "B" (RESULTS PLUS QC)
- ☐ REDT1 (EPA LEVEL 3)
- ☐ FULLT1 (EPA LEVEL 4)
- ☐ EDD'S

Comments / Remarks

INITIAL ASSESSMENT ZB
LABEL VERIFICATION JB

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1	Jacob Letts/GeoEngineers	7/24 14:00	2	3		4 7/25/24 930
5	Relinquished by/Affiliation	Date Time:	6	7		8

Lab Use Only : Cooler Temperature (s) Celsius (corrected): 4.0 IR#1

http://www.sgs.com/en/terms-and-conditions

SGSORLANDOCOC Rev 031318

FC17484: Chain of Custody
Page 1 of 2

SGS - Orlando Sample Receipt Summary

Job Number: fc17484 **Client:** GEOENGINEERS **Project:** WA ECOLOGY - BAILER HILL PFAS TIER

Date / Time Received: 7/25/2024 9:30:00 AM **Delivery Method:** UPS **Airbill #'s:** 1Z600FR30146876250

Cooler Temps (Raw Measured) °C: Cooler 1: (4.0);

Cooler Temps (Corrected) °C: Cooler 1: (3.8);

Cooler Information	Y	or	N
1. Custody Seals Present:	☑		☐
2. Custody Seals Intact:	☑		☐
3. Temp criteria achieved:	☑		☐
4. Cooler temp verification:	IR Gun		
5. Cooler media:	Ice (Bag)		

Trip Blank Information	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑

	W	or	S	N/A
3. Type of TB Received	☐		☐	☑

Sample Information	Y	or	N	N/A
1. Sample labels present on bottles:	☑		☐	
2. Samples presented properly	☑		☐	
3. Sufficient volume/containers recv'd for analysis	☑		☐	
4. Condition of sample:	Intact			
5. Sample recv'd within HT	☑		☐	
6. Dates/Times/IDs on COC match sample label	☑		☐	
7. VOCs have headspace	☐		☐	☑
8. Bottles received for unspecified tests	☐		☑	
9. Compositing instructions clear	☐		☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☑
11. % Solids Jar Received?	☐		☐	☑
12. Residual Chlorine Present?	☐		☐	☑

Misc Information

Number of Encores: 25 Gram 5 Gram

Number of Lab Filtered Metals:

Test Strip Lot #s: pH 0-3: 226422 pH 10-12: Other: (Specify) pH 1.0 - 12.0 222221

Residual Chlorine Test Strip Lot #

Comments

Sample Receipt Summary 112723 EK Technician: ZANEB Date: 7/26/2024 11:56:12 AM Reviewer: Date:

MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4608-MB	8Q10574.D	1	08/08/24	AL	08/06/24	OP4608	S8Q143

The QC reported here applies to the following samples: **Method:** EPA 1633

FC17484-1, FC17484-2

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.80	0.50	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	0.40	0.10	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	0.20	0.10	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	0.20	0.10	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	0.20	0.10	ug/kg	
375-95-1	Perfluorononanoic acid	ND	0.20	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.20	0.10	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	0.20	0.13	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.20	0.10	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.20	0.10	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.20	0.10	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	0.20	0.10	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.20	0.16	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	0.20	0.16	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.20	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.20	0.10	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.20	0.18	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.20	0.14	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.20	0.15	ug/kg	
757124-72-4	4:2-FTS	ND	0.80	0.40	ug/kg	
27619-97-2	6:2-FTS	ND	0.80	0.40	ug/kg	
39108-34-4	8:2-FTS	ND	0.80	0.60	ug/kg	
754-91-6	PFOSA	ND	0.20	0.10	ug/kg	
31506-32-8	MeFOSA	ND	0.20	0.14	ug/kg	
4151-50-2	EtFOSA	ND	0.20	0.10	ug/kg	
2355-31-9	MeFOSAA	ND	0.20	0.16	ug/kg	
2991-50-6	EtFOSAA	ND	0.20	0.20	ug/kg	
24448-09-7	MeFOSE	ND	2.0	1.0	ug/kg	
1691-99-2	EtFOSE	ND	2.0	1.0	ug/kg	
13252-13-6	HFPO-DA (GenX)	ND	0.80	0.29	ug/kg	
919005-14-4	ADONA	ND	0.80	0.34	ug/kg	
377-73-1	PFMPA	ND	0.40	0.20	ug/kg	
863090-89-5	PFMBA	ND	0.40	0.20	ug/kg	
151772-58-6	NFDHA	ND	0.40	0.24	ug/kg	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.80	0.44	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.80	0.40	ug/kg	

Method Blank Summary

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4608-MB	8Q10574.D	1	08/08/24	AL	08/06/24	OP4608	S8Q143

The QC reported here applies to the following samples: **Method:** EPA 1633

FC17484-1, FC17484-2

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.40	0.20	ug/kg	
356-02-5	3:3-FTCA	ND	1.0	0.51	ug/kg	
914637-49-3	5:3-FTCA	ND	5.0	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	5.0	1.3	ug/kg	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	76%	10-130%
	13C5-PFPeA	86%	35-130%
	13C5-PFHxA	79%	40-130%
	13C4-PFHpA	78%	40-130%
	13C8-PFOA	80%	40-130%
	13C9-PFNA	77%	40-130%
	13C6-PFDA	70%	40-130%
	13C7-PFUnDA	79%	40-130%
	13C2-PFDoDA	73%	40-130%
	13C2-PFTeDA	76%	20-130%
	13C3-PFBS	76%	40-135%
	13C3-PFHxS	75%	40-130%
	13C8-PFOS	80%	40-130%
	13C8-FOSA	70%	40-130%
	d3-MeFOSA	69%	10-130%
	d5-EtFOSA	77%	10-130%
	d3-MeFOSAA	81%	40-135%
	d5-EtFOSAA	79%	40-150%
	d7-MeFOSE	66%	20-130%
	d9-EtFOSE	73%	15-130%
	13C2-4:2FTS	72%	40-165%
	13C2-6:2FTS	77%	40-215%
	13C2-8:2FTS	72%	40-275%
	13C3-HFPO-DA	82%	40-130%

Method Blank Summary

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4608-MB	8Q10618.D	1	08/09/24	AL	08/06/24	OP4608	S8Q144

The QC reported here applies to the following samples: **Method:** EPA 1633

FC17484-1, FC17484-2

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.80	0.50	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	0.40	0.10	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	0.20	0.10	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	0.20	0.10	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	0.20	0.10	ug/kg	
375-95-1	Perfluorononanoic acid	ND	0.20	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.20	0.10	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	0.20	0.13	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.20	0.10	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.20	0.10	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.20	0.10	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	0.20	0.10	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.20	0.16	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	0.20	0.16	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.20	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.20	0.10	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.20	0.18	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.20	0.14	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.20	0.15	ug/kg	
757124-72-4	4:2-FTS	ND	0.80	0.40	ug/kg	
27619-97-2	6:2-FTS	ND	0.80	0.40	ug/kg	
39108-34-4	8:2-FTS	ND	0.80	0.60	ug/kg	
754-91-6	PFOSA	ND	0.20	0.10	ug/kg	
31506-32-8	MeFOSA	ND	0.20	0.14	ug/kg	
4151-50-2	EtFOSA	ND	0.20	0.10	ug/kg	
2355-31-9	MeFOSAA	ND	0.20	0.16	ug/kg	
2991-50-6	EtFOSAA	ND	0.20	0.20	ug/kg	
24448-09-7	MeFOSE	ND	2.0	1.0	ug/kg	
1691-99-2	EtFOSE	ND	2.0	1.0	ug/kg	
13252-13-6	HFPO-DA (GenX)	ND	0.80	0.29	ug/kg	
919005-14-4	ADONA	ND	0.80	0.34	ug/kg	
377-73-1	PFMPA	ND	0.40	0.20	ug/kg	
863090-89-5	PFMBA	ND	0.40	0.20	ug/kg	
151772-58-6	NFDHA	ND	0.40	0.24	ug/kg	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.80	0.44	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.80	0.40	ug/kg	

Method Blank Summary

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4608-MB	8Q10618.D	1	08/09/24	AL	08/06/24	OP4608	S8Q144

The QC reported here applies to the following samples: **Method:** EPA 1633

FC17484-1, FC17484-2

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.40	0.20	ug/kg	
356-02-5	3:3-FTCA	ND	1.0	0.51	ug/kg	
914637-49-3	5:3-FTCA	ND	5.0	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	5.0	1.3	ug/kg	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	76%	10-130%
	13C5-PFPeA	72%	35-130%
	13C5-PFHxA	75%	40-130%
	13C4-PFHpA	79%	40-130%
	13C8-PFOA	79%	40-130%
	13C9-PFNA	80%	40-130%
	13C6-PFDA	78%	40-130%
	13C7-PFUnDA	73%	40-130%
	13C2-PFDoDA	73%	40-130%
	13C2-PFTeDA	74%	20-130%
	13C3-PFBS	75%	40-135%
	13C3-PFHxS	71%	40-130%
	13C8-PFOS	78%	40-130%
	13C8-FOSA	59%	40-130%
	d3-MeFOSA	56%	10-130%
	d5-EtFOSA	66%	10-130%
	d3-MeFOSAA	82%	40-135%
	d5-EtFOSAA	86%	40-150%
	d7-MeFOSE	55%	20-130%
	d9-EtFOSE	58%	15-130%
	13C2-4:2FTS	69%	40-165%
	13C2-6:2FTS	73%	40-215%
	13C2-8:2FTS	62%	40-275%
	13C3-HFPO-DA	87%	40-130%

Method Blank Summary

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4608-MB	8Q10820.D	1	08/13/24	AL	08/06/24	OP4608	S8Q145

The QC reported here applies to the following samples: **Method:** EPA 1633

FC17484-1, FC17484-2

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.80	0.50	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	0.40	0.10	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	0.20	0.10	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	0.20	0.10	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	0.20	0.10	ug/kg	
375-95-1	Perfluorononanoic acid	ND	0.20	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.20	0.10	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	0.20	0.13	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.20	0.10	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.20	0.10	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.20	0.10	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	0.20	0.10	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.20	0.16	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	0.20	0.16	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.20	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.20	0.10	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.20	0.18	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.20	0.14	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.20	0.15	ug/kg	
757124-72-4	4:2-FTS	ND	0.80	0.40	ug/kg	
27619-97-2	6:2-FTS	ND	0.80	0.40	ug/kg	
39108-34-4	8:2-FTS	ND	0.80	0.60	ug/kg	
754-91-6	PFOSA	ND	0.20	0.10	ug/kg	
31506-32-8	MeFOSA	ND	0.20	0.14	ug/kg	
4151-50-2	EtFOSA	ND	0.20	0.10	ug/kg	
2355-31-9	MeFOSAA	ND	0.20	0.16	ug/kg	
2991-50-6	EtFOSAA	ND	0.20	0.20	ug/kg	
24448-09-7	MeFOSE	ND	2.0	1.0	ug/kg	
1691-99-2	EtFOSE	ND	2.0	1.0	ug/kg	
13252-13-6	HFPO-DA (GenX)	ND	0.80	0.29	ug/kg	
919005-14-4	ADONA	ND	0.80	0.34	ug/kg	
377-73-1	PFMPA	ND	0.40	0.20	ug/kg	
863090-89-5	PFMBA	ND	0.40	0.20	ug/kg	
151772-58-6	NFDHA	ND	0.40	0.24	ug/kg	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.80	0.44	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.80	0.40	ug/kg	

Method Blank Summary

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4608-MB	8Q10820.D	1	08/13/24	AL	08/06/24	OP4608	S8Q145

The QC reported here applies to the following samples: **Method:** EPA 1633

FC17484-1, FC17484-2

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.40	0.20	ug/kg	
356-02-5	3:3-FTCA	ND	1.0	0.51	ug/kg	
914637-49-3	5:3-FTCA	ND	5.0	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	5.0	1.3	ug/kg	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	75%	10-130%
	13C5-PFPeA	73%	35-130%
	13C5-PFHxA	65%	40-130%
	13C4-PFHpA	75%	40-130%
	13C8-PFOA	73%	40-130%
	13C9-PFNA	77%	40-130%
	13C6-PFDA	69%	40-130%
	13C7-PFUnDA	69%	40-130%
	13C2-PFDoDA	72%	40-130%
	13C2-PFTeDA	70%	20-130%
	13C3-PFBS	69%	40-135%
	13C3-PFHxS	68%	40-130%
	13C8-PFOS	88%	40-130%
	13C8-FOSA	83%	40-130%
	d3-MeFOSA	84%	10-130%
	d5-EtFOSA	99%	10-130%
	d3-MeFOSAA	82%	40-135%
	d5-EtFOSAA	75%	40-150%
	d7-MeFOSE	85%	20-130%
	d9-EtFOSE	85%	15-130%
	13C2-4:2FTS	73%	40-165%
	13C2-6:2FTS	72%	40-215%
	13C2-8:2FTS	61%	40-275%
	13C3-HFPO-DA	67%	40-130%

Instrument Blank

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S8Q144-IBLK	8Q10609.D	1	08/09/24	AL	n/a	n/a	S8Q144

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC17484-1

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	2.0	0.31	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.10	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.10	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.10	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.10	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.10	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.13	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.10	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.10	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.10	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.10	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.16	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.16	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.10	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.18	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.14	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	1.0	0.15	ug/kg	
757124-72-4	4:2-FTS	ND	2.0	0.30	ug/kg	
27619-97-2	6:2-FTS	ND	2.0	0.35	ug/kg	
39108-34-4	8:2-FTS	ND	2.0	0.61	ug/kg	
754-91-6	PFOSA	ND	1.0	0.10	ug/kg	
31506-32-8	MeFOSA	0.14	1.0	0.14	ug/kg	J
4151-50-2	EtFOSA	0.37	1.0	0.10	ug/kg	J
2355-31-9	MeFOSAA	ND	1.0	0.16	ug/kg	
2991-50-6	EtFOSAA	ND	1.0	0.20	ug/kg	
24448-09-7	MeFOSE	ND	5.0	0.64	ug/kg	
1691-99-2	EtFOSE	1.0	5.0	0.83	ug/kg	J
13252-13-6	HFPO-DA (GenX)	ND	2.0	0.29	ug/kg	
919005-14-4	ADONA	ND	2.0	0.34	ug/kg	
377-73-1	PFMPA	ND	1.0	0.11	ug/kg	
863090-89-5	PFMBA	ND	1.0	0.10	ug/kg	
151772-58-6	NFDHA	ND	2.0	0.24	ug/kg	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	2.0	0.44	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	2.0	0.36	ug/kg	

Instrument Blank

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S8Q144-IBLK	8Q10609.D	1	08/09/24	AL	n/a	n/a	S8Q144

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC17484-1

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	1.0	0.10	ug/kg	
356-02-5	3:3-FTCA	ND	2.5	0.51	ug/kg	
914637-49-3	5:3-FTCA	ND	13	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	13	1.3	ug/kg	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	102%	10-130%
	13C5-PFPeA	103%	35-130%
	13C5-PFHxA	101%	40-130%
	13C4-PFHpA	104%	40-130%
	13C8-PFOA	102%	40-130%
	13C9-PFNA	98%	40-130%
	13C6-PFDA	121%	40-130%
	13C7-PFUnDA	114%	40-130%
	13C2-PFDoDA	109%	40-130%
	13C2-PFTeDA	118%	20-130%
	13C3-PFBS	107%	40-135%
	13C3-PFHxS	103%	40-130%
	13C8-PFOS	105%	40-130%
	13C8-FOSA	95%	40-130%
	d3-MeFOSA	98%	10-130%
	d5-EtFOSA	97%	10-130%
	d3-MeFOSAA	114%	40-135%
	d5-EtFOSAA	102%	40-150%
	d7-MeFOSE	101%	20-130%
	d9-EtFOSE	96%	15-130%
	13C2-4:2FTS	110%	40-165%
	13C2-6:2FTS	97%	40-215%
	13C2-8:2FTS	106%	40-275%
	13C3-HFPO-DA	114%	40-130%

Instrument Blank

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S8Q146-IBLK	8Q10899.D	1	08/14/24	AL	n/a	n/a	S8Q146

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC17484-2

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	2.0	0.31	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.10	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.10	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.10	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.10	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.10	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.13	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.10	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.10	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.10	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.10	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.16	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.16	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.10	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.18	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.14	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	1.0	0.15	ug/kg	
757124-72-4	4:2-FTS	ND	2.0	0.30	ug/kg	
27619-97-2	6:2-FTS	ND	2.0	0.35	ug/kg	
39108-34-4	8:2-FTS	ND	2.0	0.61	ug/kg	
754-91-6	PFOSA	ND	1.0	0.10	ug/kg	
31506-32-8	MeFOSA	0.19	1.0	0.14	ug/kg	J
4151-50-2	EtFOSA	0.47	1.0	0.10	ug/kg	J
2355-31-9	MeFOSAA	ND	1.0	0.16	ug/kg	
2991-50-6	EtFOSAA	ND	1.0	0.20	ug/kg	
24448-09-7	MeFOSE	ND	5.0	0.64	ug/kg	
1691-99-2	EtFOSE	ND	5.0	0.83	ug/kg	
13252-13-6	HFPO-DA (GenX)	ND	2.0	0.29	ug/kg	
919005-14-4	ADONA	ND	2.0	0.34	ug/kg	
377-73-1	PFMPA	ND	1.0	0.11	ug/kg	
863090-89-5	PFMBA	ND	1.0	0.10	ug/kg	
151772-58-6	NFDHA	ND	2.0	0.24	ug/kg	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	2.0	0.44	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	2.0	0.36	ug/kg	

Instrument Blank

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S8Q146-IBLK	8Q10899.D	1	08/14/24	AL	n/a	n/a	S8Q146

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC17484-2

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	1.0	0.10	ug/kg	
356-02-5	3:3-FTCA	ND	2.5	0.51	ug/kg	
914637-49-3	5:3-FTCA	ND	13	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	13	1.3	ug/kg	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	99%	10-130%
	13C5-PFPeA	95%	35-130%
	13C5-PFHxA	97%	40-130%
	13C4-PFHpA	101%	40-130%
	13C8-PFOA	96%	40-130%
	13C9-PFNA	109%	40-130%
	13C6-PFDA	89%	40-130%
	13C7-PFUnDA	100%	40-130%
	13C2-PFDoDA	92%	40-130%
	13C2-PFTeDA	88%	20-130%
	13C3-PFBS	107%	40-135%
	13C3-PFHxS	105%	40-130%
	13C8-PFOS	107%	40-130%
	13C8-FOSA	117%	40-130%
	d3-MeFOSA	118%	10-130%
	d5-EtFOSA	118%	10-130%
	d3-MeFOSAA	113%	40-135%
	d5-EtFOSAA	120%	40-150%
	d7-MeFOSE	122%	20-130%
	d9-EtFOSE	134%* [a]	15-130%
	13C2-4:2FTS	100%	40-165%
	13C2-6:2FTS	98%	40-215%
	13C2-8:2FTS	106%	40-275%
	13C3-HFPO-DA	94%	40-130%

(a) Outside control limits.

Continuing Calibration Blank

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S8Q146-ICCB	8Q10915.D	1	08/14/24	AL	n/a	n/a	S8Q146

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC17484-2

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	2.0	0.31	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.10	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.10	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.10	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.10	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.10	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.13	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.10	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.10	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.10	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.10	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.16	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.16	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.10	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.18	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.14	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	1.0	0.15	ug/kg	
757124-72-4	4:2-FTS	ND	2.0	0.30	ug/kg	
27619-97-2	6:2-FTS	ND	2.0	0.35	ug/kg	
39108-34-4	8:2-FTS	ND	2.0	0.61	ug/kg	
754-91-6	PFOSA	ND	1.0	0.10	ug/kg	
31506-32-8	MeFOSA	ND	1.0	0.14	ug/kg	
4151-50-2	EtFOSA	ND	1.0	0.10	ug/kg	
2355-31-9	MeFOSAA	ND	1.0	0.16	ug/kg	
2991-50-6	EtFOSAA	ND	1.0	0.20	ug/kg	
24448-09-7	MeFOSE	ND	5.0	0.64	ug/kg	
1691-99-2	EtFOSE	ND	5.0	0.83	ug/kg	
13252-13-6	HFPO-DA (GenX)	ND	2.0	0.29	ug/kg	
919005-14-4	ADONA	ND	2.0	0.34	ug/kg	
377-73-1	PFMPA	ND	1.0	0.11	ug/kg	
863090-89-5	PFMBA	ND	1.0	0.10	ug/kg	
151772-58-6	NFDHA	ND	2.0	0.24	ug/kg	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	2.0	0.44	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	2.0	0.36	ug/kg	

Continuing Calibration Blank

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S8Q146-ICCB	8Q10915.D	1	08/14/24	AL	n/a	n/a	S8Q146

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC17484-2

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	1.0	0.10	ug/kg	
356-02-5	3:3-FTCA	ND	2.5	0.51	ug/kg	
914637-49-3	5:3-FTCA	ND	13	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	13	1.3	ug/kg	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	96%	10-130%
	13C5-PFPeA	97%	35-130%
	13C5-PFHxA	115%	40-130%
	13C4-PFHpA	108%	40-130%
	13C8-PFOA	101%	40-130%
	13C9-PFNA	95%	40-130%
	13C6-PFDA	114%	40-130%
	13C7-PFUnDA	120%	40-130%
	13C2-PFDoDA	110%	40-130%
	13C2-PFTeDA	118%	20-130%
	13C3-PFBS	102%	40-135%
	13C3-PFHxS	103%	40-130%
	13C8-PFOS	98%	40-130%
	13C8-FOSA	105%	40-130%
	d3-MeFOSA	114%	10-130%
	d5-EtFOSA	119%	10-130%
	d3-MeFOSAA	92%	40-135%
	d5-EtFOSAA	94%	40-150%
	d7-MeFOSE	129%	20-130%
	d9-EtFOSE	138%*	15-130%
	13C2-4:2FTS	125%	40-165%
	13C2-6:2FTS	103%	40-215%
	13C2-8:2FTS	97%	40-275%
	13C3-HFPO-DA	103%	40-130%

Instrument Blank

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S8Q143-IBLK	8Q10562.D	1	08/08/24	AL	n/a	n/a	S8Q143

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

OP4608-BS, OP4608-LLBS

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	2.0	0.31	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.10	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.10	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.10	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.10	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.10	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.13	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.10	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.10	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.10	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.10	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.16	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.16	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.10	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.18	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.14	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	1.0	0.15	ug/kg	
757124-72-4	4:2-FTS	ND	2.0	0.30	ug/kg	
27619-97-2	6:2-FTS	ND	2.0	0.35	ug/kg	
39108-34-4	8:2-FTS	ND	2.0	0.61	ug/kg	
754-91-6	PFOSA	ND	1.0	0.10	ug/kg	
31506-32-8	MeFOSA	ND	1.0	0.14	ug/kg	
4151-50-2	EtFOSA	0.34	1.0	0.10	ug/kg	J
2355-31-9	MeFOSAA	ND	1.0	0.16	ug/kg	
2991-50-6	EtFOSAA	ND	1.0	0.20	ug/kg	
24448-09-7	MeFOSE	ND	5.0	0.64	ug/kg	
1691-99-2	EtFOSE	0.89	5.0	0.83	ug/kg	J
13252-13-6	HFPO-DA (GenX)	ND	2.0	0.29	ug/kg	
919005-14-4	ADONA	ND	2.0	0.34	ug/kg	
377-73-1	PFMPA	ND	1.0	0.11	ug/kg	
863090-89-5	PFMBA	ND	1.0	0.10	ug/kg	
151772-58-6	NFDHA	ND	2.0	0.24	ug/kg	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	2.0	0.44	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	2.0	0.36	ug/kg	

Instrument Blank

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S8Q143-IBLK	8Q10562.D	1	08/08/24	AL	n/a	n/a	S8Q143

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

OP4608-BS, OP4608-LLBS

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	1.0	0.10	ug/kg	
356-02-5	3:3-FTCA	ND	2.5	0.51	ug/kg	
914637-49-3	5:3-FTCA	ND	13	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	13	1.3	ug/kg	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	100%	10-130%
	13C5-PFPeA	110%	35-130%
	13C5-PFHxA	95%	40-130%
	13C4-PFHpA	93%	40-130%
	13C8-PFOA	102%	40-130%
	13C9-PFNA	100%	40-130%
	13C6-PFDA	103%	40-130%
	13C7-PFUnDA	111%	40-130%
	13C2-PFDoDA	103%	40-130%
	13C2-PFTeDA	107%	20-130%
	13C3-PFBS	111%	40-135%
	13C3-PFHxS	108%	40-130%
	13C8-PFOS	103%	40-130%
	13C8-FOSA	102%	40-130%
	d3-MeFOSA	96%	10-130%
	d5-EtFOSA	103%	10-130%
	d3-MeFOSAA	101%	40-135%
	d5-EtFOSAA	97%	40-150%
	d7-MeFOSE	99%	20-130%
	d9-EtFOSE	95%	15-130%
	13C2-4:2FTS	102%	40-165%
	13C2-6:2FTS	106%	40-215%
	13C2-8:2FTS	97%	40-275%
	13C3-HFPO-DA	104%	40-130%

Instrument Blank

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S8Q145-IBLK	8Q10813.D	1	08/13/24	AL	n/a	n/a	S8Q145

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

OP4608-BS, OP4608-LLBS

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	2.0	0.31	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.10	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.10	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.10	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.10	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.10	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.13	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.10	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.10	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.10	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.10	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.16	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.16	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.10	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.18	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.14	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	1.0	0.15	ug/kg	
757124-72-4	4:2-FTS	ND	2.0	0.30	ug/kg	
27619-97-2	6:2-FTS	ND	2.0	0.35	ug/kg	
39108-34-4	8:2-FTS	ND	2.0	0.61	ug/kg	
754-91-6	PFOSA	ND	1.0	0.10	ug/kg	
31506-32-8	MeFOSA	0.25	1.0	0.14	ug/kg	J
4151-50-2	EtFOSA	0.47	1.0	0.10	ug/kg	J
2355-31-9	MeFOSAA	ND	1.0	0.16	ug/kg	
2991-50-6	EtFOSAA	ND	1.0	0.20	ug/kg	
24448-09-7	MeFOSE	ND	5.0	0.64	ug/kg	
1691-99-2	EtFOSE	1.6	5.0	0.83	ug/kg	J
13252-13-6	HFPO-DA (GenX)	ND	2.0	0.29	ug/kg	
919005-14-4	ADONA	ND	2.0	0.34	ug/kg	
377-73-1	PFMPA	ND	1.0	0.11	ug/kg	
863090-89-5	PFMBA	ND	1.0	0.10	ug/kg	
151772-58-6	NFDHA	ND	2.0	0.24	ug/kg	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	2.0	0.44	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	2.0	0.36	ug/kg	

Instrument Blank

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S8Q145-IBLK	8Q10813.D	1	08/13/24	AL	n/a	n/a	S8Q145

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

OP4608-BS, OP4608-LLBS

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	1.0	0.10	ug/kg	
356-02-5	3:3-FTCA	ND	2.5	0.51	ug/kg	
914637-49-3	5:3-FTCA	ND	13	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	13	1.3	ug/kg	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	99%	10-130%
	13C5-PFPeA	107%	35-130%
	13C5-PFHxA	100%	40-130%
	13C4-PFHpA	109%	40-130%
	13C8-PFOA	109%	40-130%
	13C9-PFNA	108%	40-130%
	13C6-PFDA	111%	40-130%
	13C7-PFUnDA	112%	40-130%
	13C2-PFDoDA	110%	40-130%
	13C2-PFTeDA	105%	20-130%
	13C3-PFBS	95%	40-135%
	13C3-PFHxS	93%	40-130%
	13C8-PFOS	102%	40-130%
	13C8-FOSA	112%	40-130%
	d3-MeFOSA	105%	10-130%
	d5-EtFOSA	113%	10-130%
	d3-MeFOSAA	107%	40-135%
	d5-EtFOSAA	101%	40-150%
	d7-MeFOSE	118%	20-130%
	d9-EtFOSE	111%	15-130%
	13C2-4:2FTS	132%	40-165%
	13C2-6:2FTS	91%	40-215%
	13C2-8:2FTS	111%	40-275%
	13C3-HFPO-DA	105%	40-130%

Continuing Calibration Blank

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S8Q143-ICCB	8Q10576.D	1	08/08/24	AL	n/a	n/a	S8Q143

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

OP4608-BS, OP4608-LLBS, OP4608-MB

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	2.0	0.31	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.10	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.10	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.10	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.10	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.10	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.13	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.10	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.10	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.10	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.10	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.16	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.16	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.10	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.18	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.14	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	1.0	0.15	ug/kg	
757124-72-4	4:2-FTS	ND	2.0	0.30	ug/kg	
27619-97-2	6:2-FTS	ND	2.0	0.35	ug/kg	
39108-34-4	8:2-FTS	ND	2.0	0.61	ug/kg	
754-91-6	PFOSA	ND	1.0	0.10	ug/kg	
31506-32-8	MeFOSA	ND	1.0	0.14	ug/kg	
4151-50-2	EtFOSA	ND	1.0	0.10	ug/kg	
2355-31-9	MeFOSAA	ND	1.0	0.16	ug/kg	
2991-50-6	EtFOSAA	ND	1.0	0.20	ug/kg	
24448-09-7	MeFOSE	ND	5.0	0.64	ug/kg	
1691-99-2	EtFOSE	ND	5.0	0.83	ug/kg	
13252-13-6	HFPO-DA (GenX)	ND	2.0	0.29	ug/kg	
919005-14-4	ADONA	ND	2.0	0.34	ug/kg	
377-73-1	PFMPA	ND	1.0	0.11	ug/kg	
863090-89-5	PFMBA	ND	1.0	0.10	ug/kg	
151772-58-6	NFDHA	ND	2.0	0.24	ug/kg	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	2.0	0.44	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	2.0	0.36	ug/kg	

Continuing Calibration Blank

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S8Q143-ICCB	8Q10576.D	1	08/08/24	AL	n/a	n/a	S8Q143

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

OP4608-BS, OP4608-LLBS, OP4608-MB

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	1.0	0.10	ug/kg	
356-02-5	3:3-FTCA	ND	2.5	0.51	ug/kg	
914637-49-3	5:3-FTCA	ND	13	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	13	1.3	ug/kg	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	99%	10-130%
	13C5-PFPeA	115%	35-130%
	13C5-PFHxA	99%	40-130%
	13C4-PFHpA	104%	40-130%
	13C8-PFOA	105%	40-130%
	13C9-PFNA	90%	40-130%
	13C6-PFDA	92%	40-130%
	13C7-PFUnDA	102%	40-130%
	13C2-PFDoDA	88%	40-130%
	13C2-PFTeDA	95%	20-130%
	13C3-PFBS	100%	40-135%
	13C3-PFHxS	101%	40-130%
	13C8-PFOS	104%	40-130%
	13C8-FOSA	94%	40-130%
	d3-MeFOSA	91%	10-130%
	d5-EtFOSA	97%	10-130%
	d3-MeFOSAA	99%	40-135%
	d5-EtFOSAA	103%	40-150%
	d7-MeFOSE	91%	20-130%
	d9-EtFOSE	93%	15-130%
	13C2-4:2FTS	106%	40-165%
	13C2-6:2FTS	90%	40-215%
	13C2-8:2FTS	85%	40-275%
	13C3-HFPO-DA	101%	40-130%

Blank Spike Summary

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4608-LLBS	8Q10573.D	1	08/08/24	AL	08/06/24	OP4608	S8Q143

The QC reported here applies to the following samples: **Method:** EPA 1633

FC17484-1, FC17484-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
375-22-4	Perfluorobutanoic acid	1.6	1.7	106	70-140
2706-90-3	Perfluoropentanoic acid	0.8	0.80	100	60-150
307-24-4	Perfluorohexanoic acid	0.4	0.39	98	65-140
375-85-9	Perfluoroheptanoic acid	0.4	0.43	108	65-145
335-67-1	Perfluorooctanoic acid	0.4	0.42	105	70-150
375-95-1	Perfluorononanoic acid	0.4	0.49	123	70-155
335-76-2	Perfluorodecanoic acid	0.4	0.33	83	70-155
2058-94-8	Perfluoroundecanoic acid	0.4	0.43	108	70-155
307-55-1	Perfluorododecanoic acid	0.4	0.40	100	70-150
72629-94-8	Perfluorotridecanoic acid	0.4	0.46	115	65-150
376-06-7	Perfluorotetradecanoic acid	0.4	0.40	100	65-150
375-73-5	Perfluorobutanesulfonic acid	0.355	0.36	101	65-145
2706-91-4	Perfluoropentanesulfonic acid	0.376	0.39	104	55-160
355-46-4	Perfluorohexanesulfonic acid	0.366	0.37	101	60-150
375-92-8	Perfluoroheptanesulfonic acid	0.381	0.37	97	65-155
1763-23-1	Perfluorooctanesulfonic acid	0.371	0.37	100	65-160
68259-12-1	Perfluorononanesulfonic acid	0.385	0.37	96	55-140
335-77-3	Perfluorodecanesulfonic acid	0.386	0.41	106	40-155
79780-39-5	Perfluorododecanesulfonic aci	0.388	0.40	103	25-160
757124-72-4	4:2-FTS	1.5	1.6	107	60-150
27619-97-2	6:2-FTS	1.52	1.7	112	55-200
39108-34-4	8:2-FTS	1.54	1.6	104	70-150
754-91-6	PFOSA	0.4	0.41	103	70-140
31506-32-8	MeFOSA	0.8	0.80	100	70-155
4151-50-2	EtFOSA	0.8	0.74	93	70-140
2355-31-9	MeFOSAA	0.4	0.48	120	65-155
2991-50-6	EtFOSAA	0.4	0.39	98	65-165
24448-09-7	MeFOSE	2	1.8	90	70-140
1691-99-2	EtFOSE	2	1.8	90	70-135
13252-13-6	HFPO-DA (GenX)	0.8	0.88	110	70-145
919005-14-4	ADONA	0.756	0.69	91	70-160
377-73-1	PFMPA	0.8	0.64	80	30-140
863090-89-5	PFMBA	0.8	0.66	83	60-150
151772-58-6	NFDHA	0.8	0.66	83	60-155
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.748	0.67	90	70-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.756	0.69	91	45-160

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4608-LLBS	8Q10573.D	1	08/08/24	AL	08/06/24	OP4608	S8Q143

The QC reported here applies to the following samples: **Method:** EPA 1633

FC17484-1, FC17484-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
113507-82-7	PFEESA	0.712	0.66	93	70-140
356-02-5	3:3-FTCA	2	1.6	80	45-130
914637-49-3	5:3-FTCA	10	9.2	92	60-130
812-70-4	7:3-FTCA	10	9.6	96	60-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	82%	10-130%
	13C5-PFPeA	89%	35-130%
	13C5-PFHxA	82%	40-130%
	13C4-PFHpA	80%	40-130%
	13C8-PFOA	83%	40-130%
	13C9-PFNA	72%	40-130%
	13C6-PFDA	80%	40-130%
	13C7-PFUnDA	79%	40-130%
	13C2-PFDoDA	73%	40-130%
	13C2-PFTeDA	75%	20-130%
	13C3-PFBS	87%	40-135%
	13C3-PFHxS	87%	40-130%
	13C8-PFOS	87%	40-130%
	13C8-FOSA	79%	40-130%
	d3-MeFOSA	79%	10-130%
	d5-EtFOSA	91%	10-130%
	d3-MeFOSAA	82%	40-135%
	d5-EtFOSAA	84%	40-150%
	d7-MeFOSE	75%	20-130%
	d9-EtFOSE	79%	15-130%
	13C2-4:2FTS	81%	40-165%
	13C2-6:2FTS	81%	40-215%
	13C2-8:2FTS	86%	40-275%
	13C3-HFPO-DA	83%	40-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4608-LLBS	8Q10617.D	1	08/09/24	AL	08/06/24	OP4608	S8Q144

The QC reported here applies to the following samples: **Method:** EPA 1633

FC17484-1, FC17484-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
375-22-4	Perfluorobutanoic acid	1.6	1.7	106	70-140
2706-90-3	Perfluoropentanoic acid	0.8	0.73	91	60-150
307-24-4	Perfluorohexanoic acid	0.4	0.42	105	65-140
375-85-9	Perfluoroheptanoic acid	0.4	0.42	105	65-145
335-67-1	Perfluorooctanoic acid	0.4	0.38	95	70-150
375-95-1	Perfluorononanoic acid	0.4	0.34	85	70-155
335-76-2	Perfluorodecanoic acid	0.4	0.44	110	70-155
2058-94-8	Perfluoroundecanoic acid	0.4	0.38	95	70-155
307-55-1	Perfluorododecanoic acid	0.4	0.43	108	70-150
72629-94-8	Perfluorotridecanoic acid	0.4	0.37	93	65-150
376-06-7	Perfluorotetradecanoic acid	0.4	0.37	93	65-150
375-73-5	Perfluorobutanesulfonic acid	0.355	0.34	96	65-145
2706-91-4	Perfluoropentanesulfonic acid	0.376	0.38	101	55-160
355-46-4	Perfluorohexanesulfonic acid	0.366	0.41	112	60-150
375-92-8	Perfluoroheptanesulfonic acid	0.381	0.40	105	65-155
1763-23-1	Perfluorooctanesulfonic acid	0.371	0.38	102	65-160
68259-12-1	Perfluorononanesulfonic acid	0.385	0.37	96	55-140
335-77-3	Perfluorodecanesulfonic acid	0.386	0.38	98	40-155
79780-39-5	Perfluorododecanesulfonic aci	0.388	0.44	113	25-160
757124-72-4	4:2-FTS	1.5	1.7	113	60-150
27619-97-2	6:2-FTS	1.52	1.6	105	55-200
39108-34-4	8:2-FTS	1.54	1.5	98	70-150
754-91-6	PFOSA	0.4	0.42	105	70-140
31506-32-8	MeFOSA	0.8	0.88	110	70-155
4151-50-2	EtFOSA	0.8	0.73	91	70-140
2355-31-9	MeFOSAA	0.4	0.44	110	65-155
2991-50-6	EtFOSAA	0.4	0.52	130	65-165
24448-09-7	MeFOSE	2	2.1	105	70-140
1691-99-2	EtFOSE	2	2.1	105	70-135
13252-13-6	HFPO-DA (GenX)	0.8	1.0	125	70-145
919005-14-4	ADONA	0.756	0.60	79	70-160
377-73-1	PFMPA	0.8	0.71	89	30-140
863090-89-5	PFMBA	0.8	0.75	94	60-150
151772-58-6	NFDHA	0.8	0.60	75	60-155
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.748	0.70	94	70-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.756	0.67	89	45-160

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4608-LLBS	8Q10617.D	1	08/09/24	AL	08/06/24	OP4608	S8Q144

The QC reported here applies to the following samples: **Method:** EPA 1633

FC17484-1, FC17484-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
113507-82-7	PFEESA	0.712	0.69	97	70-140
356-02-5	3:3-FTCA	2	1.6	80	45-130
914637-49-3	5:3-FTCA	10	8.7	87	60-130
812-70-4	7:3-FTCA	10	8.1	81	60-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	83%	10-130%
	13C5-PFPeA	79%	35-130%
	13C5-PFHxA	82%	40-130%
	13C4-PFHpA	80%	40-130%
	13C8-PFOA	87%	40-130%
	13C9-PFNA	82%	40-130%
	13C6-PFDA	86%	40-130%
	13C7-PFUnDA	94%	40-130%
	13C2-PFDoDA	89%	40-130%
	13C2-PFTeDA	89%	20-130%
	13C3-PFBS	82%	40-135%
	13C3-PFHxS	79%	40-130%
	13C8-PFOS	84%	40-130%
	13C8-FOSA	61%	40-130%
	d3-MeFOSA	59%	10-130%
	d5-EtFOSA	72%	10-130%
	d3-MeFOSAA	87%	40-135%
	d5-EtFOSAA	83%	40-150%
	d7-MeFOSE	63%	20-130%
	d9-EtFOSE	66%	15-130%
	13C2-4:2FTS	71%	40-165%
	13C2-6:2FTS	76%	40-215%
	13C2-8:2FTS	75%	40-275%
	13C3-HFPO-DA	91%	40-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4608-LLBS	8Q10819.D	1	08/13/24	AL	08/06/24	OP4608	S8Q145

The QC reported here applies to the following samples: **Method:** EPA 1633

FC17484-1, FC17484-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
375-22-4	Perfluorobutanoic acid	1.6	1.5	94	70-140
2706-90-3	Perfluoropentanoic acid	0.8	0.69	86	60-150
307-24-4	Perfluorohexanoic acid	0.4	0.46	115	65-140
375-85-9	Perfluoroheptanoic acid	0.4	0.42	105	65-145
335-67-1	Perfluorooctanoic acid	0.4	0.44	110	70-150
375-95-1	Perfluorononanoic acid	0.4	0.36	90	70-155
335-76-2	Perfluorodecanoic acid	0.4	0.36	90	70-155
2058-94-8	Perfluoroundecanoic acid	0.4	0.62	155	70-155
307-55-1	Perfluorododecanoic acid	0.4	0.38	95	70-150
72629-94-8	Perfluorotridecanoic acid	0.4	0.44	110	65-150
376-06-7	Perfluorotetradecanoic acid	0.4	0.40	100	65-150
375-73-5	Perfluorobutanesulfonic acid	0.355	0.39	110	65-145
2706-91-4	Perfluoropentanesulfonic acid	0.376	0.33	88	55-160
355-46-4	Perfluorohexanesulfonic acid	0.366	0.45	123	60-150
375-92-8	Perfluoroheptanesulfonic acid	0.381	0.42	110	65-155
1763-23-1	Perfluorooctanesulfonic acid	0.371	0.40	108	65-160
68259-12-1	Perfluorononanesulfonic acid	0.385	0.42	109	55-140
335-77-3	Perfluorodecanesulfonic acid	0.386	0.43	111	40-155
79780-39-5	Perfluorododecanesulfonic aci	0.388	0.46	119	25-160
757124-72-4	4:2-FTS	1.5	1.3	87	60-150
27619-97-2	6:2-FTS	1.52	1.9	125	55-200
39108-34-4	8:2-FTS	1.54	1.6	104	70-150
754-91-6	PFOSA	0.4	0.42	105	70-140
31506-32-8	MeFOSA	0.8	0.90	113	70-155
4151-50-2	EtFOSA	0.8	0.67	84	70-140
2355-31-9	MeFOSAA	0.4	0.41	103	65-155
2991-50-6	EtFOSAA	0.4	0.48	120	65-165
24448-09-7	MeFOSE	2	2.3	115	70-140
1691-99-2	EtFOSE	2	2.0	100	70-135
13252-13-6	HFPO-DA (GenX)	0.8	0.96	120	70-145
919005-14-4	ADONA	0.756	0.73	97	70-160
377-73-1	PFMPA	0.8	0.74	93	30-140
863090-89-5	PFMBA	0.8	0.80	100	60-150
151772-58-6	NFDHA	0.8	1.4	175* [a]	60-155
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.748	0.81	108	70-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.756	0.90	119	45-160

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4608-LLBS	8Q10819.D	1	08/13/24	AL	08/06/24	OP4608	S8Q145

The QC reported here applies to the following samples: **Method:** EPA 1633

FC17484-1, FC17484-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
113507-82-7	PFEESA	0.712	0.76	107	70-140
356-02-5	3:3-FTCA	2	2.2	110	45-130
914637-49-3	5:3-FTCA	10	12.6	126	60-130
812-70-4	7:3-FTCA	10	13.1	131	60-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	82%	10-130%
	13C5-PFPeA	80%	35-130%
	13C5-PFHxA	71%	40-130%
	13C4-PFHpA	77%	40-130%
	13C8-PFOA	87%	40-130%
	13C9-PFNA	99%	40-130%
	13C6-PFDA	97%	40-130%
	13C7-PFUnDA	80%	40-130%
	13C2-PFDoDA	96%	40-130%
	13C2-PFTeDA	95%	20-130%
	13C3-PFBS	79%	40-135%
	13C3-PFHxS	80%	40-130%
	13C8-PFOS	73%	40-130%
	13C8-FOSA	76%	40-130%
	d3-MeFOSA	77%	10-130%
	d5-EtFOSA	94%	10-130%
	d3-MeFOSAA	74%	40-135%
	d5-EtFOSAA	79%	40-150%
	d7-MeFOSE	73%	20-130%
	d9-EtFOSE	78%	15-130%
	13C2-4:2FTS	88%	40-165%
	13C2-6:2FTS	80%	40-215%
	13C2-8:2FTS	73%	40-275%
	13C3-HFPO-DA	71%	40-130%

(a) Outside control limits.

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4608-BS	8Q10572.D	1	08/08/24	AL	08/06/24	OP4608	S8Q143

The QC reported here applies to the following samples: **Method:** EPA 1633

FC17484-1, FC17484-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
375-22-4	Perfluorobutanoic acid	10	10.2	102	70-140
2706-90-3	Perfluoropentanoic acid	5	4.6	92	60-150
307-24-4	Perfluorohexanoic acid	2.5	2.6	104	65-140
375-85-9	Perfluoroheptanoic acid	2.5	2.5	100	65-145
335-67-1	Perfluorooctanoic acid	2.5	2.4	96	70-150
375-95-1	Perfluorononanoic acid	2.5	2.3	92	70-155
335-76-2	Perfluorodecanoic acid	2.5	2.5	100	70-155
2058-94-8	Perfluoroundecanoic acid	2.5	2.3	92	70-155
307-55-1	Perfluorododecanoic acid	2.5	2.3	92	70-150
72629-94-8	Perfluorotridecanoic acid	2.5	2.3	92	65-150
376-06-7	Perfluorotetradecanoic acid	2.5	2.3	92	65-150
375-73-5	Perfluorobutanesulfonic acid	2.22	2.2	99	65-145
2706-91-4	Perfluoropentanesulfonic acid	2.35	2.2	94	55-160
355-46-4	Perfluorohexanesulfonic acid	2.29	2.2	96	60-150
375-92-8	Perfluoroheptanesulfonic acid	2.38	2.3	97	65-155
1763-23-1	Perfluorooctanesulfonic acid	2.32	2.3	99	65-160
68259-12-1	Perfluorononanesulfonic acid	2.41	2.3	96	55-140
335-77-3	Perfluorodecanesulfonic acid	2.41	2.6	108	40-155
79780-39-5	Perfluorododecanesulfonic aci	2.43	2.5	103	25-160
757124-72-4	4:2-FTS	9.38	10.4	111	60-150
27619-97-2	6:2-FTS	9.5	9.2	97	55-200
39108-34-4	8:2-FTS	9.6	10.1	105	70-150
754-91-6	PFOSA	2.5	2.5	100	70-140
31506-32-8	MeFOSA	5	5.0	100	70-155
4151-50-2	EtFOSA	5	4.5	90	70-140
2355-31-9	MeFOSAA	2.5	2.5	100	65-155
2991-50-6	EtFOSAA	2.5	2.5	100	65-165
24448-09-7	MeFOSE	12.5	12.5	100	70-140
1691-99-2	EtFOSE	12.5	11.7	94	70-135
13252-13-6	HFPO-DA (GenX)	5	5.1	102	70-145
919005-14-4	ADONA	4.73	4.5	95	70-160
377-73-1	PFMPA	5	3.7	74	30-140
863090-89-5	PFMBA	5	4.2	84	60-150
151772-58-6	NFDHA	5	4.9	98	60-155
756426-58-1	9Cl-PF3ONS (F-53B Major)	4.68	4.3	92	70-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	4.73	4.5	95	45-160

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4608-BS	8Q10572.D	1	08/08/24	AL	08/06/24	OP4608	S8Q143

The QC reported here applies to the following samples: **Method:** EPA 1633

FC17484-1, FC17484-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
113507-82-7	PFEESA	4.45	4.2	94	70-140
356-02-5	3:3-FTCA	12.5	11.8	94	45-130
914637-49-3	5:3-FTCA	62.5	58.2	93	60-130
812-70-4	7:3-FTCA	62.5	59.0	94	60-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	82%	10-130%
	13C5-PFPeA	92%	35-130%
	13C5-PFHxA	80%	40-130%
	13C4-PFHpA	85%	40-130%
	13C8-PFOA	87%	40-130%
	13C9-PFNA	84%	40-130%
	13C6-PFDA	85%	40-130%
	13C7-PFUnDA	86%	40-130%
	13C2-PFDoDA	89%	40-130%
	13C2-PFTeDA	83%	20-130%
	13C3-PFBS	83%	40-135%
	13C3-PFHxS	85%	40-130%
	13C8-PFOS	83%	40-130%
	13C8-FOSA	79%	40-130%
	d3-MeFOSA	76%	10-130%
	d5-EtFOSA	90%	10-130%
	d3-MeFOSAA	83%	40-135%
	d5-EtFOSAA	86%	40-150%
	d7-MeFOSE	76%	20-130%
	d9-EtFOSE	84%	15-130%
	13C2-4:2FTS	70%	40-165%
	13C2-6:2FTS	84%	40-215%
	13C2-8:2FTS	84%	40-275%
	13C3-HFPO-DA	83%	40-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4608-BS	8Q10616.D	1	08/09/24	AL	08/06/24	OP4608	S8Q144

The QC reported here applies to the following samples: **Method:** EPA 1633

FC17484-1, FC17484-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
375-22-4	Perfluorobutanoic acid	10	9.9	99	70-140
2706-90-3	Perfluoropentanoic acid	5	5.0	100	60-150
307-24-4	Perfluorohexanoic acid	2.5	2.5	100	65-140
375-85-9	Perfluoroheptanoic acid	2.5	2.5	100	65-145
335-67-1	Perfluorooctanoic acid	2.5	2.2	88	70-150
375-95-1	Perfluorononanoic acid	2.5	2.6	104	70-155
335-76-2	Perfluorodecanoic acid	2.5	2.3	92	70-155
2058-94-8	Perfluoroundecanoic acid	2.5	2.5	100	70-155
307-55-1	Perfluorododecanoic acid	2.5	2.6	104	70-150
72629-94-8	Perfluorotridecanoic acid	2.5	2.3	92	65-150
376-06-7	Perfluorotetradecanoic acid	2.5	2.5	100	65-150
375-73-5	Perfluorobutanesulfonic acid	2.22	2.1	95	65-145
2706-91-4	Perfluoropentanesulfonic acid	2.35	2.2	94	55-160
355-46-4	Perfluorohexanesulfonic acid	2.29	2.2	96	60-150
375-92-8	Perfluoroheptanesulfonic acid	2.38	2.3	97	65-155
1763-23-1	Perfluorooctanesulfonic acid	2.32	2.5	108	65-160
68259-12-1	Perfluorononanesulfonic acid	2.41	2.3	96	55-140
335-77-3	Perfluorodecanesulfonic acid	2.41	2.5	104	40-155
79780-39-5	Perfluorododecanesulfonic aci	2.43	2.3	95	25-160
757124-72-4	4:2-FTS	9.38	9.6	102	60-150
27619-97-2	6:2-FTS	9.5	9.8	103	55-200
39108-34-4	8:2-FTS	9.6	8.8	92	70-150
754-91-6	PFOSA	2.5	2.6	104	70-140
31506-32-8	MeFOSA	5	5.0	100	70-155
4151-50-2	EtFOSA	5	4.3	86	70-140
2355-31-9	MeFOSAA	2.5	2.5	100	65-155
2991-50-6	EtFOSAA	2.5	2.2	88	65-165
24448-09-7	MeFOSE	12.5	12.1	97	70-140
1691-99-2	EtFOSE	12.5	13.5	108	70-135
13252-13-6	HFPO-DA (GenX)	5	4.2	84	70-145
919005-14-4	ADONA	4.73	3.5	74	70-160
377-73-1	PFMPA	5	4.3	86	30-140
863090-89-5	PFMBA	5	4.8	96	60-150
151772-58-6	NFDHA	5	4.8	96	60-155
756426-58-1	9Cl-PF3ONS (F-53B Major)	4.68	3.8	81	70-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	4.73	3.7	78	45-160

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4608-BS	8Q10616.D	1	08/09/24	AL	08/06/24	OP4608	S8Q144

The QC reported here applies to the following samples: **Method:** EPA 1633

FC17484-1, FC17484-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
113507-82-7	PFEESA	4.45	4.2	94	70-140
356-02-5	3:3-FTCA	12.5	10.2	82	45-130
914637-49-3	5:3-FTCA	62.5	55.2	88	60-130
812-70-4	7:3-FTCA	62.5	52.3	84	60-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	82%	10-130%
	13C5-PFPeA	86%	35-130%
	13C5-PFHxA	89%	40-130%
	13C4-PFHpA	91%	40-130%
	13C8-PFOA	83%	40-130%
	13C9-PFNA	75%	40-130%
	13C6-PFDA	87%	40-130%
	13C7-PFUnDA	81%	40-130%
	13C2-PFDoDA	79%	40-130%
	13C2-PFTeDA	79%	20-130%
	13C3-PFBS	80%	40-135%
	13C3-PFHxS	82%	40-130%
	13C8-PFOS	78%	40-130%
	13C8-FOSA	63%	40-130%
	d3-MeFOSA	61%	10-130%
	d5-EtFOSA	73%	10-130%
	d3-MeFOSAA	81%	40-135%
	d5-EtFOSAA	84%	40-150%
	d7-MeFOSE	65%	20-130%
	d9-EtFOSE	64%	15-130%
	13C2-4:2FTS	72%	40-165%
	13C2-6:2FTS	69%	40-215%
	13C2-8:2FTS	71%	40-275%
	13C3-HFPO-DA	108%	40-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4608-BS	8Q10818.D	1	08/13/24	AL	08/06/24	OP4608	S8Q145

The QC reported here applies to the following samples: **Method:** EPA 1633

FC17484-1, FC17484-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
375-22-4	Perfluorobutanoic acid	10	10.5	105	70-140
2706-90-3	Perfluoropentanoic acid	5	5.0	100	60-150
307-24-4	Perfluorohexanoic acid	2.5	2.8	112	65-140
375-85-9	Perfluoroheptanoic acid	2.5	2.5	100	65-145
335-67-1	Perfluorooctanoic acid	2.5	2.4	96	70-150
375-95-1	Perfluorononanoic acid	2.5	2.8	112	70-155
335-76-2	Perfluorodecanoic acid	2.5	2.9	116	70-155
2058-94-8	Perfluoroundecanoic acid	2.5	3.2	128	70-155
307-55-1	Perfluorododecanoic acid	2.5	3.0	120	70-150
72629-94-8	Perfluorotridecanoic acid	2.5	2.9	116	65-150
376-06-7	Perfluorotetradecanoic acid	2.5	2.8	112	65-150
375-73-5	Perfluorobutanesulfonic acid	2.22	2.4	108	65-145
2706-91-4	Perfluoropentanesulfonic acid	2.35	2.2	94	55-160
355-46-4	Perfluorohexanesulfonic acid	2.29	1.9	83	60-150
375-92-8	Perfluoroheptanesulfonic acid	2.38	2.4	101	65-155
1763-23-1	Perfluorooctanesulfonic acid	2.32	2.4	103	65-160
68259-12-1	Perfluorononanesulfonic acid	2.41	2.8	116	55-140
335-77-3	Perfluorodecanesulfonic acid	2.41	2.7	112	40-155
79780-39-5	Perfluorododecanesulfonic aci	2.43	2.8	115	25-160
757124-72-4	4:2-FTS	9.38	11.2	119	60-150
27619-97-2	6:2-FTS	9.5	9.6	101	55-200
39108-34-4	8:2-FTS	9.6	8.9	93	70-150
754-91-6	PFOSA	2.5	2.4	96	70-140
31506-32-8	MeFOSA	5	5.4	108	70-155
4151-50-2	EtFOSA	5	4.6	92	70-140
2355-31-9	MeFOSAA	2.5	2.4	96	65-155
2991-50-6	EtFOSAA	2.5	2.5	100	65-165
24448-09-7	MeFOSE	12.5	13.6	109	70-140
1691-99-2	EtFOSE	12.5	14.1	113	70-135
13252-13-6	HFPO-DA (GenX)	5	5.6	112	70-145
919005-14-4	ADONA	4.73	5.5	116	70-160
377-73-1	PFMPA	5	4.6	92	30-140
863090-89-5	PFMBA	5	5.2	104	60-150
151772-58-6	NFDHA	5	6.1	122	60-155
756426-58-1	9Cl-PF3ONS (F-53B Major)	4.68	5.2	111	70-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	4.73	5.4	114	45-160

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4608-BS	8Q10818.D	1	08/13/24	AL	08/06/24	OP4608	S8Q145

The QC reported here applies to the following samples: **Method:** EPA 1633

FC17484-1, FC17484-2

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
113507-82-7	PFEESA	4.45	4.5	101	70-140
356-02-5	3:3-FTCA	12.5	11.2	90	45-130
914637-49-3	5:3-FTCA	62.5	67.1	107	60-130
812-70-4	7:3-FTCA	62.5	78.0	125	60-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	79%	10-130%
	13C5-PFPeA	80%	35-130%
	13C5-PFHxA	79%	40-130%
	13C4-PFHpA	81%	40-130%
	13C8-PFOA	79%	40-130%
	13C9-PFNA	82%	40-130%
	13C6-PFDA	87%	40-130%
	13C7-PFUnDA	78%	40-130%
	13C2-PFDoDA	85%	40-130%
	13C2-PFTeDA	90%	20-130%
	13C3-PFBS	78%	40-135%
	13C3-PFHxS	82%	40-130%
	13C8-PFOS	71%	40-130%
	13C8-FOSA	78%	40-130%
	d3-MeFOSA	76%	10-130%
	d5-EtFOSA	91%	10-130%
	d3-MeFOSAA	77%	40-135%
	d5-EtFOSAA	75%	40-150%
	d7-MeFOSE	84%	20-130%
	d9-EtFOSE	82%	15-130%
	13C2-4:2FTS	72%	40-165%
	13C2-6:2FTS	87%	40-215%
	13C2-8:2FTS	77%	40-275%
	13C3-HFPO-DA	69%	40-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4608-MS	8Q10622.D	1	08/09/24	AL	08/06/24	OP4608	S8Q144
OP4608-MSD	8Q10623.D	1	08/09/24	AL	08/06/24	OP4608	S8Q144
FC17484-1	8Q10621.D	1	08/09/24	AL	08/06/24	OP4608	S8Q144

The QC reported here applies to the following samples: **Method:** EPA 1633

FC17484-1, FC17484-2

CAS No.	Compound	FC17484-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
375-22-4	Perfluorobutanoic acid	ND		10.4	10.5	100	10.3	10.2	99	3	70-140/17
2706-90-3	Perfluoropentanoic acid	0.20	J	5.22	5.3	98	5.17	5.0	93	6	60-150/26
307-24-4	Perfluorohexanoic acid	ND		2.61	2.8	107	2.59	2.5	97	11	65-140/23
375-85-9	Perfluoroheptanoic acid	ND		2.61	2.6	100	2.59	2.4	93	8	65-145/21
335-67-1	Perfluorooctanoic acid	0.13	J	2.61	2.7	98	2.59	2.6	96	4	70-150/23
375-95-1	Perfluorononanoic acid	0.66		2.61	3.3	101	2.59	2.9	87	13	70-155/24
335-76-2	Perfluorodecanoic acid	0.23		2.61	2.7	95	2.59	2.9	103	7	70-155/26
2058-94-8	Perfluoroundecanoic acid	3.3		2.61	6.0	103	2.59	5.7	93	5	70-155/26
307-55-1	Perfluorododecanoic acid	ND		2.61	2.6	100	2.59	2.8	108	7	70-150/25
72629-94-8	Perfluorotridecanoic acid	1.9		2.61	4.2	88	2.59	4.8	112	13	65-150/26
376-06-7	Perfluorotetradecanoic acid	ND		2.61	2.6	100	2.59	2.5	97	4	65-150/24
375-73-5	Perfluorobutanesulfonic acid	ND		2.32	2.2	95	2.29	2.1	92	5	65-145/25
2706-91-4	Perfluoropentanesulfonic acid	ND		2.46	2.4	98	2.43	2.4	99	0	55-160/29
355-46-4	Perfluorohexanesulfonic acid	ND		2.39	2.5	105	2.36	2.4	102	4	60-150/28
375-92-8	Perfluoroheptanesulfonic acid	ND		2.49	2.5	100	2.46	2.2	89	13	65-155/27
1763-23-1	Perfluorooctanesulfonic acid	6.2		2.42	8.6	99	2.4	8.6	100	0	65-160/27
68259-12-1	Perfluorononanesulfonic acid	ND		2.51	2.6	103	2.49	2.4	96	8	55-140/27
335-77-3	Perfluorodecanesulfonic acid	ND		2.52	2.7	107	2.5	2.3	92	16	40-155/31
79780-39-5	Perfluorododecanesulfonic aci	ND		2.53	2.8	111	2.51	2.5	100	11	25-160/40
757124-72-4	4:2-FTS	ND		9.8	10.1	103	9.7	8.8	91	14	60-150/27
27619-97-2	6:2-FTS	ND		9.93	9.7	98	9.83	9.4	96	3	55-200/50
39108-34-4	8:2-FTS	ND		10	9.7	97	9.93	8.5	86	13	70-150/27
754-91-6	PFOSA	ND		2.61	2.7	103	2.59	2.5	97	8	70-140/19
31506-32-8	MeFOSA	ND		5.22	5.1	98	5.17	4.7	91	8	70-155/26
4151-50-2	EtFOSA	ND		5.22	4.7	90	5.17	4.2	81	11	70-140/19
2355-31-9	MeFOSAA	ND		2.61	2.5	96	2.59	2.7	104	8	65-155/31
2991-50-6	EtFOSAA	ND		2.61	2.6	100	2.59	2.4	93	8	65-165/31
24448-09-7	MeFOSE	ND		13.1	12.6	96	12.9	13.7	106	8	70-140/19
1691-99-2	EtFOSE	ND		13.1	13.3	102	12.9	13.3	103	0	70-135/17
13252-13-6	HFPO-DA (GenX)	ND		5.22	4.5	86	5.17	5.0	97	11	70-145/25
919005-14-4	ADONA	ND		4.94	3.6	73	4.89	3.8	78	5	70-160/26
377-73-1	PFMPA	ND		5.22	4.5	86	5.17	4.2	81	7	30-140/25
863090-89-5	PFMBA	ND		5.22	4.7	90	5.17	4.7	91	0	60-150/33
151772-58-6	NFDHA	ND		5.22	5.2	100	5.17	5.2	101	0	60-155/27
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND		4.88	4.3	88	4.84	4.6	95	7	70-150/23
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND		4.94	4.3	87	4.89	4.5	92	5	45-160/31

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FC17484
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4608-MS	8Q10622.D	1	08/09/24	AL	08/06/24	OP4608	S8Q144
OP4608-MSD	8Q10623.D	1	08/09/24	AL	08/06/24	OP4608	S8Q144
FC17484-1	8Q10621.D	1	08/09/24	AL	08/06/24	OP4608	S8Q144

The QC reported here applies to the following samples: **Method:** EPA 1633

FC17484-1, FC17484-2

CAS No.	Compound	FC17484-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
113507-82-7	PFEESA	ND		4.65	4.5	97	4.6	4.3	93	5	70-140/20
356-02-5	3:3-FTCA	ND		13.1	10.4	80	12.9	9.7	75	7	45-130/32
914637-49-3	5:3-FTCA	ND		65.3	49.4	76	64.7	49.0	76	1	60-130/28
812-70-4	7:3-FTCA	ND		65.3	47.7	73	64.7	48.7	75	2	60-150/39

CAS No.	ID Standard Recoveries	MS	MSD	FC17484-1	Limits
	13C4-PFBA	72%	70%	63%	10-130%
	13C5-PFPeA	66%	68%	59%	35-130%
	13C5-PFHxA	65%	68%	62%	40-130%
	13C4-PFHpA	68%	69%	65%	40-130%
	13C8-PFOA	74%	70%	63%	40-130%
	13C9-PFNA	64%	69%	65%	40-130%
	13C6-PFDA	67%	66%	64%	40-130%
	13C7-PFUnDA	64%	72%	66%	40-130%
	13C2-PFDoDA	70%	69%	70%	40-130%
	13C2-PFTeDA	67%	75%	63%	20-130%
	13C3-PFBS	71%	62%	56%	40-135%
	13C3-PFHxS	73%	61%	57%	40-130%
	13C8-PFOS	64%	73%	65%	40-130%
	13C8-FOSA	48%	52%	46%	40-130%
	d3-MeFOSA	47%	51%	47%	10-130%
	d5-EtFOSA	52%	60%	56%	10-130%
	d3-MeFOSAA	72%	78%	65%	40-135%
	d5-EtFOSAA	75%	85%	70%	40-150%
	d7-MeFOSE	47%	50%	46%	20-130%
	d9-EtFOSE	48%	52%	46%	15-130%
	13C2-4:2FTS	66%	65%	54%	40-165%
	13C2-6:2FTS	68%	64%	61%	40-215%
	13C2-8:2FTS	66%	67%	69%	40-275%
	13C3-HFPO-DA	82%	78%	74%	40-130%

* = Outside of Control Limits.

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

GeoEngineers, Inc.

WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

000504.217.00

SGS Job Number: FC18042

Sampling Dates: 08/12/24 - 08/14/24

Report to:

GeoEngineers, Inc
17425 NE Union Hill Rd
Redmond, WA 98052
jletts@geoengineers.com; katakturk@geoengineers.com

ATTN: Jacob Letts

Total number of pages in report: **178**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

Norm Farmer
Technical Director

Client Service contact: Andrea Colby 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001) DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177), AL, AK, AR, CT, IA, KY, MA, MI. MS, ND, NH, NV, OK, OR, IL, UT, VT, WA, WI, WV

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SGS North America Inc.

Sample Summary

GeoEngineers, Inc.

Job No: FC18042

WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA
Project No: 000504.217.00

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
This report contains results reported as ND = Not detected. The following applies:							
Organics ND = Not detected above the MDL							
FC18042-1	08/13/24	10:25	KAMB	08/16/24	SO	Soil	BH-1-1-2
FC18042-3	08/13/24	10:50	KAMB	08/16/24	SO	Soil	BH-1-10-11
FC18042-4	08/14/24	14:15	KAMB	08/16/24	SO	Soil	BH-2-1-2
FC18042-6	08/14/24	11:20	KAMB	08/16/24	SO	Soil	BH-3-1-2
FC18042-7	08/14/24	11:35	KAMB	08/16/24	SO	Soil	BH-3-5-6
FC18042-10	08/12/24	10:07	KAMB	08/16/24	SO	Soil	BH-4-7-8
FC18042-11	08/12/24	10:10	KAMB	08/16/24	SO	Soil	BH-4-13-14
FC18042-12	08/13/24	14:50	KAMB	08/16/24	SO	Soil	BH-5-1-2
FC18042-13	08/13/24	15:10	KAMB	08/16/24	SO	Soil	BH-5-5-6
FC18042-15	08/14/24	08:55	KAMB	08/16/24	SO	Soil	BH-6-1-2
FC18042-16	08/14/24	09:10	KAMB	08/16/24	SO	Soil	BH-6-5-6
FC18042-18	08/12/24	10:38	KAMB	08/16/24	SO	Soil	BH-7-1-2

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Sample Summary
(continued)

GeoEngineers, Inc.

Job No: FC18042

WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA
Project No: 000504.217.00

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FC18042-19	08/12/24	10:48	KAMB	08/16/24	SO	Soil	BH-7-7-8
FC18042-21	08/13/24	11:20	KAMB	08/16/24	SO	Soil	BH-8-1-2
FC18042-22	08/13/24	11:25	KAMB	08/16/24	SO	Soil	BH-8-5-6
FC18042-24	08/13/24	13:30	KAMB	08/16/24	SO	Soil	BH-9-1-2
FC18042-26	08/13/24	14:07	KAMB	08/16/24	SO	Soil	BH-9-14-15
FC18042-27	08/13/24	09:11	KAMB	08/16/24	SO	Soil	BH-10-1-2
FC18042-29	08/13/24	09:35	KAMB	08/16/24	SO	Soil	BH-10-13-14
FC18042-30	08/12/24	14:20	KAMB	08/16/24	SO	Soil	BH-11-1-2
FC18042-32	08/12/24	15:05	KAMB	08/16/24	SO	Soil	BH-11-20-21
FC18042-33	08/12/24	11:30	KAMB	08/16/24	SO	Soil	BH-12-1-2
FC18042-34	08/12/24	11:45	KAMB	08/16/24	SO	Soil	BH-12-5-6
FC18042-36	08/14/24	06:00	KAMB	08/16/24	SO	Soil	SDUP-240814-1
FC18042-37	08/14/24	09:00	KAMB	08/16/24	SO	Soil	SDUP-240814-2

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Sample Summary
(continued)

GeoEngineers, Inc.

Job No: FC18042

WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA
Project No: 000504.217.00

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FC18042-38	08/14/24	11:30	KAMB	08/16/24	AQ	Ground Water	BH-1-240814
FC18042-39	08/12/24	12:15	KAMB	08/16/24	AQ	Ground Water	BH-4-240812
FC18042-41	08/14/24	11:00	KAMB	08/16/24	AQ	Ground Water	BH-6-240814
FC18042-44	08/13/24	09:55	KAMB	08/16/24	AQ	Ground Water	BH-10-240813
FC18042-46	08/12/24	14:30	KAMB	08/16/24	AQ	Ground Water	BH-12-240812
FC18042-47	08/14/24	14:10	KAMB	08/16/24	AQ	Ground Water	WDUP-240814
FC18042-50	08/13/24	16:40	KAMB	08/16/24	AQ	Equipment Blank	RB-240813

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: GeoEngineers, Inc. **Job No:** FC18042

Site: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday **Report Date** 9/13/2024 4:12:05 AM

On 08/16/2024, 30 Sample(s), 0 Trip Blank(s), 1 Equip. Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 4.4 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC18042 was assigned to the project.

Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Semi-volatiles By Method EPA 1633

Matrix: AQ **Batch ID:** OP5158

Sample(s) FC18519-1MS, FC18519-2DUP were used as the QC samples indicated.

Matrix Spike Recovery(s) for Perfluorododecanesulfonic acid are outside control limits. Probable cause is due to matrix interference.

Matrix Spike Recovery(s) for Perfluorododecanesulfonic acid are outside control limits. Probable cause is due to the ratio of spike to sample concentration < 4.

RPD(s) for Duplicate for Perfluoropentanoic acid are outside control limits for sample OP5158-DUP. Probable cause is due to sample non-homogeneity.

Matrix: SO **Batch ID:** OP4934

Sample(s) FC18042-26MS, FC18042-26MSD were used as the QC samples indicated.

Matrix Spike Recovery(s) for Perfluorohexanesulfonic acid, Perfluorooctanesulfonic acid are outside control limits. Outside control limits due to high level in sample relative to spike amount.

Matrix Spike Duplicate Recovery(s) for Perfluorohexanesulfonic acid, Perfluorooctanesulfonic acid are outside control limits. Probable cause is due to matrix interference.

Matrix Spike Recovery(s) for Perfluorooctanesulfonic acid are outside control limits. Outside control limits due to high level in sample relative to spike amount.

Matrix: SO **Batch ID:** OP4946

Sample(s) FC18122-8MS, FC18122-8MSD were used as the QC samples indicated.

General Chemistry By Method SM19 2540G

Matrix: SO **Batch ID:** GN98307

Sample(s) FC18042-3DUP were used as the QC samples for Solids, Percent.

Matrix: SO **Batch ID:** GN98308

Sample(s) FC18295-14DUP were used as the QC samples for Solids, Percent.

SGS North America Inc. - Orlando certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted. Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria. SGS North America Inc.- Orlando is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety.

Narrative prepared by:

_____

Arnold Aldea, Report Generation (signature on file)

Summary of Hits

Job Number: FC18042
Account: GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA
Collected: 08/12/24 thru 08/14/24

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
FC18042-3	**BH-1-10-11**					
No hits reported in this sample.						
FC18042-4	**BH-2-1-2**					
Perfluoropentanoic acid		0.75	0.44	0.11	ug/kg	EPA 1633
Perfluorohexanoic acid		0.40	0.22	0.11	ug/kg	EPA 1633
Perfluoroheptanoic acid		0.24	0.22	0.11	ug/kg	EPA 1633
Perfluorooctanoic acid		0.82	0.22	0.11	ug/kg	EPA 1633
Perfluorononanoic acid		9.1	0.22	0.13	ug/kg	EPA 1633
Perfluorodecanoic acid		0.70	0.22	0.11	ug/kg	EPA 1633
Perfluoroundecanoic acid		13.7	0.22	0.14	ug/kg	EPA 1633
Perfluorododecanoic acid		0.27	0.22	0.11	ug/kg	EPA 1633
Perfluorotridecanoic acid		6.2	0.22	0.11	ug/kg	EPA 1633
Perfluorohexanesulfonic acid		2.7	0.22	0.17	ug/kg	EPA 1633
Perfluoroheptanesulfonic acid		0.64	0.22	0.16	ug/kg	EPA 1633
Perfluorooctanesulfonic acid		67.0	0.44	0.22	ug/kg	EPA 1633
FC18042-6	**BH-3-1-2**					
Perfluoropentanoic acid		0.52	0.42	0.10	ug/kg	EPA 1633
Perfluorohexanoic acid		0.12 J	0.21	0.10	ug/kg	EPA 1633
Perfluorononanoic acid		3.1	0.21	0.12	ug/kg	EPA 1633
Perfluorotridecanoic acid		0.17 J	0.21	0.11	ug/kg	EPA 1633
Perfluorooctanesulfonic acid		2.7	0.21	0.10	ug/kg	EPA 1633
FC18042-7	**BH-3-5-6**					
Perfluorononanoic acid		0.66	0.21	0.12	ug/kg	EPA 1633
Perfluorodecanoic acid		0.20 J	0.21	0.11	ug/kg	EPA 1633
Perfluoroundecanoic acid		0.66	0.21	0.14	ug/kg	EPA 1633
Perfluorooctanesulfonic acid		2.0	0.21	0.11	ug/kg	EPA 1633
FC18042-10	**BH-4-7-8**					
Perfluorooctanoic acid		0.20 J	0.22	0.11	ug/kg	EPA 1633
Perfluorononanoic acid		3.7	0.22	0.13	ug/kg	EPA 1633
Perfluorohexanesulfonic acid		1.3	0.22	0.17	ug/kg	EPA 1633
Perfluoroheptanesulfonic acid		0.28	0.22	0.16	ug/kg	EPA 1633
Perfluorooctanesulfonic acid		9.8	0.22	0.11	ug/kg	EPA 1633
FC18042-11	**BH-4-13-14**					
Perfluorononanoic acid		0.18 J	0.22	0.13	ug/kg	EPA 1633

Summary of Hits

Job Number: FC18042
Account: GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA
Collected: 08/12/24 thru 08/14/24

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
FC18042-12	**BH-5-1-2**					
Perfluoropentanoic acid		0.69	0.43	0.11	ug/kg	EPA 1633
Perfluorohexanoic acid		0.53	0.21	0.11	ug/kg	EPA 1633
Perfluoroheptanoic acid		0.33	0.21	0.11	ug/kg	EPA 1633
Perfluorooctanoic acid		1.1	0.21	0.11	ug/kg	EPA 1633
Perfluorononanoic acid		5.7	0.21	0.12	ug/kg	EPA 1633
Perfluorodecanoic acid		2.3	0.21	0.11	ug/kg	EPA 1633
Perfluoroundecanoic acid		100	2.1	1.4	ug/kg	EPA 1633
Perfluorododecanoic acid		1.8	0.21	0.11	ug/kg	EPA 1633
Perfluorotridecanoic acid		20.1	0.21	0.11	ug/kg	EPA 1633
Perfluorotetradecanoic acid		0.24	0.21	0.11	ug/kg	EPA 1633
Perfluorobutanesulfonic acid		0.22	0.21	0.11	ug/kg	EPA 1633
Perfluoropentanesulfonic acid		0.52	0.21	0.17	ug/kg	EPA 1633
Perfluorohexanesulfonic acid		9.5	0.21	0.17	ug/kg	EPA 1633
Perfluoroheptanesulfonic acid		1.3	0.21	0.16	ug/kg	EPA 1633
Perfluorooctanesulfonic acid		359	2.1	1.1	ug/kg	EPA 1633
Perfluorononanesulfonic acid		4.0	0.21	0.19	ug/kg	EPA 1633
Perfluorodecanesulfonic acid		2.9	0.21	0.15	ug/kg	EPA 1633
8:2-FTS		1.1	0.86	0.64	ug/kg	EPA 1633
PFOSA		3.6	0.21	0.11	ug/kg	EPA 1633
FC18042-13	**BH-5-5-6**					
Perfluorononanoic acid		0.22	0.22	0.12	ug/kg	EPA 1633
Perfluoroundecanoic acid		0.15 J	0.22	0.14	ug/kg	EPA 1633
Perfluorohexanesulfonic acid		0.46	0.22	0.17	ug/kg	EPA 1633
Perfluorooctanesulfonic acid		9.5	0.22	0.11	ug/kg	EPA 1633
FC18042-15	**BH-6-1-2**					
Perfluoropentanoic acid		1.3	0.43	0.11	ug/kg	EPA 1633
Perfluorohexanoic acid		0.63	0.21	0.11	ug/kg	EPA 1633
Perfluoroheptanoic acid		0.25	0.21	0.11	ug/kg	EPA 1633
Perfluorooctanoic acid		0.47	0.21	0.11	ug/kg	EPA 1633
Perfluorononanoic acid		6.7	0.21	0.12	ug/kg	EPA 1633
Perfluorodecanoic acid		0.47	0.21	0.11	ug/kg	EPA 1633
Perfluoroundecanoic acid		1.5	0.21	0.14	ug/kg	EPA 1633
Perfluorotridecanoic acid		0.11 J	0.21	0.11	ug/kg	EPA 1633
Perfluorobutanesulfonic acid		0.17 J	0.21	0.11	ug/kg	EPA 1633
Perfluoropentanesulfonic acid		0.30	0.21	0.17	ug/kg	EPA 1633
Perfluorohexanesulfonic acid		3.2	0.21	0.17	ug/kg	EPA 1633
Perfluoroheptanesulfonic acid		0.27	0.21	0.16	ug/kg	EPA 1633
Perfluorooctanesulfonic acid		327	2.1	1.1	ug/kg	EPA 1633

Summary of Hits

Job Number: FC18042
Account: GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA
Collected: 08/12/24 thru 08/14/24

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
FC18042-16	**BH-6-5-6**					
Perfluoropentanoic acid		0.13 J	0.45	0.11	ug/kg	EPA 1633
Perfluorohexanoic acid		0.18 J	0.23	0.11	ug/kg	EPA 1633
Perfluorooctanoic acid		0.24	0.23	0.11	ug/kg	EPA 1633
Perfluorononanoic acid		2.0	0.23	0.13	ug/kg	EPA 1633
Perfluorobutanesulfonic acid		0.21 J	0.23	0.11	ug/kg	EPA 1633
Perfluoropentanesulfonic acid		0.26	0.23	0.18	ug/kg	EPA 1633
Perfluorohexanesulfonic acid		1.8	0.23	0.18	ug/kg	EPA 1633
Perfluoroheptanesulfonic acid		0.22 J	0.23	0.16	ug/kg	EPA 1633
Perfluorooctanesulfonic acid		33.2	0.23	0.11	ug/kg	EPA 1633
FC18042-18	**BH-7-1-2**					
Perfluoropentanoic acid		0.21 J	0.43	0.11	ug/kg	EPA 1633
Perfluorohexanoic acid		0.12 J	0.22	0.11	ug/kg	EPA 1633
Perfluorooctanoic acid		0.29	0.22	0.11	ug/kg	EPA 1633
Perfluorononanoic acid		5.6	0.22	0.13	ug/kg	EPA 1633
Perfluorohexanesulfonic acid		0.99	0.22	0.17	ug/kg	EPA 1633
Perfluoroheptanesulfonic acid		0.43	0.22	0.16	ug/kg	EPA 1633
Perfluorooctanesulfonic acid		26.7	0.22	0.11	ug/kg	EPA 1633
FC18042-19	**BH-7-7-8**					
Perfluorononanoic acid		1.6	0.22	0.13	ug/kg	EPA 1633
Perfluorohexanesulfonic acid		0.51	0.22	0.18	ug/kg	EPA 1633
Perfluorooctanesulfonic acid		11.3	0.22	0.11	ug/kg	EPA 1633
FC18042-21	**BH-8-1-2**					
Perfluorooctanesulfonic acid		12.5	0.22	0.11	ug/kg	EPA 1633
FC18042-22	**BH-8-5-6**					
Perfluorooctanesulfonic acid		0.62	0.23	0.11	ug/kg	EPA 1633
FC18042-24	**BH-9-1-2**					
Perfluoropentanoic acid		0.90	0.42	0.11	ug/kg	EPA 1633
Perfluorohexanoic acid		0.55	0.21	0.11	ug/kg	EPA 1633
Perfluorooctanoic acid		0.38	0.21	0.11	ug/kg	EPA 1633
Perfluorononanoic acid		5.2	0.21	0.12	ug/kg	EPA 1633
Perfluoroundecanoic acid		0.61	0.21	0.14	ug/kg	EPA 1633
Perfluorotridecanoic acid		0.29	0.21	0.11	ug/kg	EPA 1633

Summary of Hits

Job Number: FC18042
Account: GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA
Collected: 08/12/24 thru 08/14/24

Lab Sample ID / Client Sample ID / Analyte	Result/ Qual	RL	MDL	Units	Method
Perfluorobutanesulfonic acid	0.17 J	0.21	0.11	ug/kg	EPA 1633
Perfluoropentanesulfonic acid	0.38	0.21	0.17	ug/kg	EPA 1633
Perfluorohexanesulfonic acid	5.6	0.21	0.17	ug/kg	EPA 1633
Perfluoroheptanesulfonic acid	0.82	0.21	0.15	ug/kg	EPA 1633
Perfluorooctanesulfonic acid	255	2.1	1.1	ug/kg	EPA 1633
FC18042-26 BH-9-14-15					
Perfluorohexanoic acid	0.25	0.25	0.13	ug/kg	EPA 1633
Perfluorooctanoic acid	0.24 J	0.25	0.13	ug/kg	EPA 1633
Perfluorononanoic acid	0.39	0.25	0.15	ug/kg	EPA 1633
Perfluorobutanesulfonic acid	0.42	0.25	0.13	ug/kg	EPA 1633
Perfluoropentanesulfonic acid	0.60	0.25	0.20	ug/kg	EPA 1633
Perfluorohexanesulfonic acid	4.7	0.25	0.20	ug/kg	EPA 1633
Perfluoroheptanesulfonic acid	0.52	0.25	0.18	ug/kg	EPA 1633
Perfluorooctanesulfonic acid	17.9	0.25	0.13	ug/kg	EPA 1633
FC18042-27 BH-10-1-2					
Perfluoropentanoic acid	0.22 J	0.48	0.12	ug/kg	EPA 1633
Perfluorohexanoic acid	0.31	0.24	0.12	ug/kg	EPA 1633
Perfluorooctanoic acid	0.34	0.24	0.12	ug/kg	EPA 1633
Perfluorononanoic acid	10	0.24	0.14	ug/kg	EPA 1633
Perfluorobutanesulfonic acid	0.29	0.24	0.12	ug/kg	EPA 1633
Perfluoropentanesulfonic acid	0.56	0.24	0.19	ug/kg	EPA 1633
Perfluorohexanesulfonic acid	4.2	0.24	0.19	ug/kg	EPA 1633
Perfluoroheptanesulfonic acid	0.78	0.24	0.18	ug/kg	EPA 1633
Perfluorooctanesulfonic acid	104	0.48	0.24	ug/kg	EPA 1633
FC18042-29 BH-10-13-14					
Perfluorohexanoic acid	0.18 J	0.22	0.11	ug/kg	EPA 1633
Perfluorooctanoic acid	0.19 J	0.22	0.11	ug/kg	EPA 1633
Perfluorononanoic acid	0.82	0.22	0.13	ug/kg	EPA 1633
Perfluorobutanesulfonic acid	0.40	0.22	0.11	ug/kg	EPA 1633
Perfluoropentanesulfonic acid	0.48	0.22	0.17	ug/kg	EPA 1633
Perfluorohexanesulfonic acid	2.7	0.22	0.17	ug/kg	EPA 1633
Perfluoroheptanesulfonic acid	0.18 J	0.22	0.16	ug/kg	EPA 1633
Perfluorooctanesulfonic acid	8.3	0.22	0.11	ug/kg	EPA 1633
FC18042-30 BH-11-1-2					
Perfluoropentanoic acid	0.95	0.43	0.11	ug/kg	EPA 1633
Perfluorohexanoic acid	2.0	0.22	0.11	ug/kg	EPA 1633
Perfluoroheptanoic acid	0.37	0.22	0.11	ug/kg	EPA 1633

Summary of Hits

Job Number: FC18042
Account: GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA
Collected: 08/12/24 thru 08/14/24

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
Perfluorooctanoic acid		1.3	0.22	0.11	ug/kg	EPA 1633
Perfluorononanoic acid		80.1	0.43	0.25	ug/kg	EPA 1633
Perfluorobutanesulfonic acid		2.9	0.22	0.11	ug/kg	EPA 1633
Perfluoropentanesulfonic acid		4.1	0.22	0.17	ug/kg	EPA 1633
Perfluorohexanesulfonic acid		24.0	0.22	0.17	ug/kg	EPA 1633
Perfluoroheptanesulfonic acid		5.7	0.22	0.16	ug/kg	EPA 1633
Perfluorooctanesulfonic acid		25.7	0.22	0.11	ug/kg	EPA 1633
FC18042-32	**BH-11-20-21**					
Perfluorohexanoic acid		0.21 J	0.23	0.12	ug/kg	EPA 1633
Perfluorononanoic acid		0.86	0.23	0.13	ug/kg	EPA 1633
Perfluorobutanesulfonic acid		0.16 J	0.23	0.12	ug/kg	EPA 1633
Perfluoropentanesulfonic acid		0.24	0.23	0.18	ug/kg	EPA 1633
Perfluorohexanesulfonic acid		1.3	0.23	0.18	ug/kg	EPA 1633
Perfluorooctanesulfonic acid		3.1	0.23	0.12	ug/kg	EPA 1633
FC18042-33	**BH-12-1-2**					
Perfluoropentanoic acid		0.23 J	0.46	0.11	ug/kg	EPA 1633
Perfluorohexanoic acid		0.30	0.23	0.11	ug/kg	EPA 1633
Perfluoroheptanoic acid		0.21 J	0.23	0.11	ug/kg	EPA 1633
Perfluorooctanoic acid		0.88	0.23	0.11	ug/kg	EPA 1633
Perfluorononanoic acid		5.6	0.23	0.13	ug/kg	EPA 1633
Perfluorobutanesulfonic acid		0.11 J	0.23	0.11	ug/kg	EPA 1633
Perfluoropentanesulfonic acid		0.21 J	0.23	0.18	ug/kg	EPA 1633
Perfluorohexanesulfonic acid		3.3	0.23	0.18	ug/kg	EPA 1633
FC18042-34	**BH-12-5-6**					
Perfluorooctanoic acid		0.17 J	0.25	0.12	ug/kg	EPA 1633
Perfluorononanoic acid		0.52	0.25	0.14	ug/kg	EPA 1633
Perfluorohexanesulfonic acid		0.41	0.25	0.20	ug/kg	EPA 1633
FC18042-36	**SDUP-240814-1**					
Perfluoropentanoic acid		1.5	0.43	0.11	ug/kg	EPA 1633
Perfluorohexanoic acid		0.76	0.21	0.11	ug/kg	EPA 1633
Perfluoroheptanoic acid		0.32	0.21	0.11	ug/kg	EPA 1633
Perfluorooctanoic acid		0.56	0.21	0.11	ug/kg	EPA 1633
Perfluorononanoic acid		7.1	0.21	0.12	ug/kg	EPA 1633
Perfluorodecanoic acid		0.56	0.21	0.11	ug/kg	EPA 1633
Perfluoroundecanoic acid		1.4	0.21	0.14	ug/kg	EPA 1633
Perfluorobutanesulfonic acid		0.19 J	0.21	0.11	ug/kg	EPA 1633
Perfluoropentanesulfonic acid		0.33	0.21	0.17	ug/kg	EPA 1633

Summary of Hits

Job Number: FC18042
Account: GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA
Collected: 08/12/24 thru 08/14/24

Lab Sample ID / Client Sample ID / Analyte	Result/ Qual	RL	MDL	Units	Method
Perfluorohexanesulfonic acid	3.4	0.21	0.17	ug/kg	EPA 1633
Perfluoroheptanesulfonic acid	0.21	0.21	0.16	ug/kg	EPA 1633
Perfluorooctanesulfonic acid	314	2.2	1.1	ug/kg	EPA 1633
FC18042-37 SDUP-240814-2					
Perfluorononanoic acid	0.61	0.21	0.12	ug/kg	EPA 1633
Perfluorodecanoic acid	0.15 J	0.21	0.11	ug/kg	EPA 1633
Perfluoroundecanoic acid	0.59	0.21	0.14	ug/kg	EPA 1633
Perfluorooctanesulfonic acid	1.8	0.21	0.11	ug/kg	EPA 1633
FC18042-38 BH-1-240814					
Perfluorobutanoic acid	13.1	13	6.7	ng/l	EPA 1633
Perfluoropentanoic acid	6.9	6.7	1.7	ng/l	EPA 1633
Perfluorohexanoic acid	15.3	3.3	0.83	ng/l	EPA 1633
Perfluoroheptanoic acid	15.8	3.3	0.83	ng/l	EPA 1633
Perfluorooctanoic acid	10.5	3.3	0.83	ng/l	EPA 1633
Perfluorononanoic acid	60.0	3.3	1.0	ng/l	EPA 1633
Perfluorodecanoic acid	1.3 J	3.3	0.83	ng/l	EPA 1633
Perfluoroundecanoic acid	10.9	3.3	1.0	ng/l	EPA 1633
Perfluorotridecanoic acid	1.4 J	3.3	1.4	ng/l	EPA 1633
Perfluorobutanesulfonic acid	3.0 J	3.3	1.7	ng/l	EPA 1633
Perfluoropentanesulfonic acid	2.8 J	3.3	1.9	ng/l	EPA 1633
Perfluorohexanesulfonic acid	18.5	3.3	1.7	ng/l	EPA 1633
Perfluorooctanesulfonic acid	68.5	3.3	1.7	ng/l	EPA 1633
FC18042-39 BH-4-240812					
Perfluorobutanoic acid	92.0	8.9	4.4	ng/l	EPA 1633
Perfluoropentanoic acid	343	4.4	1.1	ng/l	EPA 1633
Perfluorohexanoic acid	279	2.2	0.56	ng/l	EPA 1633
Perfluoroheptanoic acid	183	2.2	0.56	ng/l	EPA 1633
Perfluorooctanoic acid	269	2.2	0.56	ng/l	EPA 1633
Perfluorononanoic acid	566	2.2	0.68	ng/l	EPA 1633
Perfluorobutanesulfonic acid	145	2.2	1.1	ng/l	EPA 1633
Perfluoropentanesulfonic acid	164	2.2	1.2	ng/l	EPA 1633
Perfluorohexanesulfonic acid	1080	11	5.6	ng/l	EPA 1633
Perfluoroheptanesulfonic acid	39.3	2.2	1.1	ng/l	EPA 1633
Perfluorooctanesulfonic acid	81.2	2.2	1.1	ng/l	EPA 1633
FC18042-41 BH-6-240814					
Perfluorobutanoic acid	211	130	67	ng/l	EPA 1633
Perfluoropentanoic acid	558	67	17	ng/l	EPA 1633

Summary of Hits

Job Number: FC18042
Account: GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA
Collected: 08/12/24 thru 08/14/24

Lab Sample ID / Client Sample ID / Analyte	Result/ Qual	RL	MDL	Units	Method
Perfluorohexanoic acid	485	33	8.3	ng/l	EPA 1633
Perfluoroheptanoic acid	315	33	8.3	ng/l	EPA 1633
Perfluorooctanoic acid	473	33	8.3	ng/l	EPA 1633
Perfluorononanoic acid	5990	33	10	ng/l	EPA 1633
Perfluorobutanesulfonic acid	343	33	17	ng/l	EPA 1633
Perfluoropentanesulfonic acid	374	33	19	ng/l	EPA 1633
Perfluorohexanesulfonic acid	2710	33	17	ng/l	EPA 1633
Perfluoroheptanesulfonic acid	413	33	17	ng/l	EPA 1633
Perfluorooctanesulfonic acid	31400	170	83	ng/l	EPA 1633
6:2-FTS	308	130	67	ng/l	EPA 1633
FC18042-44 BH-10-240813					
Perfluorobutanoic acid	792	67	33	ng/l	EPA 1633
Perfluoropentanoic acid	2170	33	8.3	ng/l	EPA 1633
Perfluorohexanoic acid	4410	17	4.2	ng/l	EPA 1633
Perfluoroheptanoic acid	1360	17	4.2	ng/l	EPA 1633
Perfluorooctanoic acid	3470	17	4.2	ng/l	EPA 1633
Perfluorononanoic acid	13500	170	51	ng/l	EPA 1633
Perfluorodecanoic acid	29.3	17	4.2	ng/l	EPA 1633
Perfluoroundecanoic acid	8.1 J	17	5.0	ng/l	EPA 1633
Perfluorobutanesulfonic acid	12300	170	83	ng/l	EPA 1633
Perfluoropentanesulfonic acid	12100	170	93	ng/l	EPA 1633
Perfluorohexanesulfonic acid	45500	170	83	ng/l	EPA 1633
Perfluoroheptanesulfonic acid	3580	17	8.3	ng/l	EPA 1633
Perfluorooctanesulfonic acid	48100	170	83	ng/l	EPA 1633
6:2-FTS	544	67	33	ng/l	EPA 1633
FC18042-46 BH-12-240812					
Perfluorobutanoic acid	414	67	33	ng/l	EPA 1633
Perfluoropentanoic acid	1210	33	8.3	ng/l	EPA 1633
Perfluorohexanoic acid	1530	17	4.2	ng/l	EPA 1633
Perfluoroheptanoic acid	710	17	4.2	ng/l	EPA 1633
Perfluorooctanoic acid	1210	17	4.2	ng/l	EPA 1633
Perfluorononanoic acid	3960	17	5.1	ng/l	EPA 1633
Perfluorobutanesulfonic acid	1800	17	8.3	ng/l	EPA 1633
Perfluoropentanesulfonic acid	2530	17	9.3	ng/l	EPA 1633
Perfluorohexanesulfonic acid	10800	83	42	ng/l	EPA 1633
Perfluoroheptanesulfonic acid	486	17	8.3	ng/l	EPA 1633
Perfluorooctanesulfonic acid	7660	83	42	ng/l	EPA 1633
6:2-FTS	804	67	33	ng/l	EPA 1633

Summary of Hits

Job Number: FC18042
Account: GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA
Collected: 08/12/24 thru 08/14/24

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
FC18042-47	**WDUP-240814**					
Perfluorobutanoic acid		13.7	12	6.2	ng/l	EPA 1633
Perfluoropentanoic acid		6.8	6.2	1.5	ng/l	EPA 1633
Perfluorohexanoic acid		14.3	3.1	0.77	ng/l	EPA 1633
Perfluoroheptanoic acid		15.9	3.1	0.77	ng/l	EPA 1633
Perfluorooctanoic acid		10.3	3.1	0.77	ng/l	EPA 1633
Perfluorononanoic acid		57.2	3.1	0.94	ng/l	EPA 1633
Perfluorodecanoic acid		1.5 J	3.1	0.77	ng/l	EPA 1633
Perfluoroundecanoic acid		8.4	3.1	0.92	ng/l	EPA 1633
Perfluorobutanesulfonic acid		3.1	3.1	1.5	ng/l	EPA 1633
Perfluoropentanesulfonic acid		2.9 J	3.1	1.7	ng/l	EPA 1633
Perfluorohexanesulfonic acid		19.9	3.1	1.5	ng/l	EPA 1633
Perfluorooctanesulfonic acid		64.4	3.1	1.5	ng/l	EPA 1633
FC18042-50	**RB-240813**					
No hits reported in this sample.						

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: BH-1-10-11
Lab Sample ID: FC18042-3 **Date Sampled:** 08/13/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 87.3
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7Q9508.D	1	09/06/24 07:47	MV	08/23/24 11:25	OP4934	S7Q147
Run #2							

	Initial Weight	Final Volume
Run #1	5.03 g	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.91	0.57	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	0.46	0.11	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	0.23	0.11	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	0.23	0.11	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	0.23	0.11	ug/kg	
375-95-1	Perfluorononanoic acid	ND	0.23	0.13	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.23	0.11	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	0.23	0.15	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.23	0.11	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.23	0.12	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.23	0.11	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	ND	0.23	0.11	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.23	0.18	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	0.23	0.18	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.23	0.17	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.23	0.11	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.23	0.21	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.23	0.16	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.23	0.17	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.91	0.46	ug/kg	
27619-97-2	6:2-FTS	ND	0.91	0.46	ug/kg	
39108-34-4	8:2-FTS	ND	0.91	0.68	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.23	0.11	ug/kg	
31506-32-8	MeFOSA	ND	0.23	0.15	ug/kg	
4151-50-2	EtFOSA	ND	0.23	0.12	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-1-10-11
Lab Sample ID: FC18042-3 **Date Sampled:** 08/13/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 87.3
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.23	0.18	ug/kg	
2991-50-6	EtFOSAA	ND	0.23	0.22	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.3	1.1	ug/kg	
1691-99-2	EtFOSE	ND	2.3	1.1	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.91	0.33	ug/kg	
919005-14-4	ADONA	ND	0.91	0.38	ug/kg	
377-73-1	PFMPA	ND	0.46	0.23	ug/kg	
863090-89-5	PFMBA	ND	0.46	0.23	ug/kg	
151772-58-6	NFDHA	ND	0.46	0.28	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.91	0.50	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.91	0.46	ug/kg	
113507-82-7	PFEESA	ND	0.46	0.23	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.1	0.58	ug/kg	
914637-49-3	5:3-FTCA	ND	5.7	1.3	ug/kg	
812-70-4	7:3-FTCA	ND	5.7	1.4	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	85%		10-130%
	13C5-PFPeA	79%		35-130%
	13C5-PFHxA	74%		40-130%
	13C4-PFHpA	80%		40-130%
	13C8-PFOA	84%		40-130%
	13C9-PFNA	84%		40-130%
	13C6-PFDA	79%		40-130%
	13C7-PFUnDA	78%		40-130%
	13C2-PFDoDA	77%		40-130%
	13C2-PFTeDA	79%		20-130%
	13C3-PFBS	85%		40-135%
	13C3-PFHxS	81%		40-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-1-10-11
Lab Sample ID: FC18042-3 **Date Sampled:** 08/13/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 87.3
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	85%		40-130%
	13C8-FOSA	85%		40-130%
	d3-MeFOSA	86%		10-130%
	d5-EtFOSA	85%		10-130%
	d3-MeFOSAA	90%		40-135%
	d5-EtFOSAA	92%		40-150%
	d7-MeFOSE	92%		20-130%
	d9-EtFOSE	87%		15-130%
	13C2-4:2FTS	91%		40-165%
	13C2-6:2FTS	97%		40-215%
	13C2-8:2FTS	83%		40-275%
	13C3-HFPO-DA	82%		40-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-2-1-2
Lab Sample ID: FC18042-4 **Date Sampled:** 08/14/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 92.7
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7Q9509.D	1	09/06/24 08:01	MV	08/23/24 11:25	OP4934	S7Q147
Run #2	7Q9545.D	2	09/08/24 17:48	MV	08/23/24 11:25	OP4934	S7Q148

	Initial Weight	Final Volume
Run #1	4.95 g	5.0 ml
Run #2	4.95 g	5.0 ml

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.87	0.54	ug/kg	
2706-90-3	Perfluoropentanoic acid	0.75	0.44	0.11	ug/kg	
307-24-4	Perfluorohexanoic acid	0.40	0.22	0.11	ug/kg	
375-85-9	Perfluoroheptanoic acid	0.24	0.22	0.11	ug/kg	
335-67-1	Perfluorooctanoic acid	0.82	0.22	0.11	ug/kg	
375-95-1	Perfluorononanoic acid	9.1	0.22	0.13	ug/kg	
335-76-2	Perfluorodecanoic acid	0.70	0.22	0.11	ug/kg	
2058-94-8	Perfluoroundecanoic acid	13.7	0.22	0.14	ug/kg	
307-55-1	Perfluorododecanoic acid	0.27	0.22	0.11	ug/kg	
72629-94-8	Perfluorotridecanoic acid	6.2	0.22	0.11	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.22	0.11	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	ND	0.22	0.11	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.22	0.17	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	2.7	0.22	0.17	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.64	0.22	0.16	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	67.0 [a]	0.44	0.22	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.22	0.20	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.22	0.16	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.22	0.16	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.87	0.44	ug/kg	
27619-97-2	6:2-FTS	ND	0.87	0.44	ug/kg	
39108-34-4	8:2-FTS	ND	0.87	0.65	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.22	0.11	ug/kg	
31506-32-8	MeFOSA	ND	0.22	0.15	ug/kg	
4151-50-2	EtFOSA	ND	0.22	0.11	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-2-1-2		
Lab Sample ID:	FC18042-4	**Date Sampled:**	08/14/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	92.7
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.22	0.17	ug/kg	
2991-50-6	EtFOSAA	ND	0.22	0.21	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.2	1.1	ug/kg	
1691-99-2	EtFOSE	ND	2.2	1.1	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.87	0.31	ug/kg	
919005-14-4	ADONA	ND	0.87	0.37	ug/kg	
377-73-1	PFMPA	ND	0.44	0.22	ug/kg	
863090-89-5	PFMBA	ND	0.44	0.22	ug/kg	
151772-58-6	NFDHA	ND	0.44	0.27	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.87	0.48	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.87	0.44	ug/kg	
113507-82-7	PFEESA	ND	0.44	0.22	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.1	0.55	ug/kg	
914637-49-3	5:3-FTCA	ND	5.4	1.3	ug/kg	
812-70-4	7:3-FTCA	ND	5.4	1.4	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	84%	83%	10-130%
	13C5-PFPeA	81%	77%	35-130%
	13C5-PFHxA	76%	75%	40-130%
	13C4-PFHpA	80%	80%	40-130%
	13C8-PFOA	82%	82%	40-130%
	13C9-PFNA	88%	83%	40-130%
	13C6-PFDA	82%	80%	40-130%
	13C7-PFUnDA	83%	80%	40-130%
	13C2-PFDoDA	81%	82%	40-130%
	13C2-PFTeDA	82%	77%	20-130%
	13C3-PFBS	78%	76%	40-135%
	13C3-PFHxS	83%	74%	40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-2-1-2
Lab Sample ID: FC18042-4 **Date Sampled:** 08/14/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 92.7
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	84%	95%	40-130%
	13C8-FOSA	83%	80%	40-130%
	d3-MeFOSA	76%	83%	10-130%
	d5-EtFOSA	79%	89%	10-130%
	d3-MeFOSAA	91%	89%	40-135%
	d5-EtFOSAA	94%	91%	40-150%
	d7-MeFOSE	86%	88%	20-130%
	d9-EtFOSE	84%	95%	15-130%
	13C2-4:2FTS	93%	67%	40-165%
	13C2-6:2FTS	88%	70%	40-215%
	13C2-8:2FTS	85%	68%	40-275%
	13C3-HFPO-DA	83%	78%	40-130%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-3-1-2
Lab Sample ID: FC18042-6 **Date Sampled:** 08/14/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 95.7
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7Q9546.D	1	09/08/24 18:02	MV	08/23/24 11:25	OP4934	S7Q148
Run #2							

	Initial Weight	Final Volume
Run #1	4.98 g	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.84	0.52	ug/kg	
2706-90-3	Perfluoropentanoic acid	0.52	0.42	0.10	ug/kg	
307-24-4	Perfluorohexanoic acid	0.12	0.21	0.10	ug/kg	J
375-85-9	Perfluoroheptanoic acid	ND	0.21	0.10	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	0.21	0.10	ug/kg	
375-95-1	Perfluorononanoic acid	3.1	0.21	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.21	0.10	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	0.21	0.14	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.21	0.10	ug/kg	
72629-94-8	Perfluorotridecanoic acid	0.17	0.21	0.11	ug/kg	J
376-06-7	Perfluorotetradecanoic acid	ND	0.21	0.10	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	ND	0.21	0.10	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.21	0.16	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	0.21	0.17	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.21	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	2.7	0.21	0.10	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.21	0.19	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.21	0.15	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.21	0.16	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.84	0.42	ug/kg	
27619-97-2	6:2-FTS	ND	0.84	0.42	ug/kg	
39108-34-4	8:2-FTS	ND	0.84	0.63	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.21	0.10	ug/kg	
31506-32-8	MeFOSA	ND	0.21	0.14	ug/kg	
4151-50-2	EtFOSA	ND	0.21	0.11	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-3-1-2		
Lab Sample ID:	FC18042-6	**Date Sampled:**	08/14/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	95.7
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.21	0.17	ug/kg	
2991-50-6	EtFOSAA	ND	0.21	0.21	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.1	1.0	ug/kg	
1691-99-2	EtFOSE	ND	2.1	1.0	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.84	0.30	ug/kg	
919005-14-4	ADONA	ND	0.84	0.35	ug/kg	
377-73-1	PFMPA	ND	0.42	0.21	ug/kg	
863090-89-5	PFMBA	ND	0.42	0.21	ug/kg	
151772-58-6	NFDHA	ND	0.42	0.26	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.84	0.46	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.84	0.42	ug/kg	
113507-82-7	PFEESA	ND	0.42	0.21	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.0	0.53	ug/kg	
914637-49-3	5:3-FTCA	ND	5.2	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	5.2	1.3	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	86%		10-130%
	13C5-PFPeA	82%		35-130%
	13C5-PFHxA	78%		40-130%
	13C4-PFHpA	87%		40-130%
	13C8-PFOA	83%		40-130%
	13C9-PFNA	86%		40-130%
	13C6-PFDA	78%		40-130%
	13C7-PFUnDA	80%		40-130%
	13C2-PFDoDA	78%		40-130%
	13C2-PFTeDA	77%		20-130%
	13C3-PFBS	86%		40-135%
	13C3-PFHxS	86%		40-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-3-1-2
Lab Sample ID: FC18042-6 **Date Sampled:** 08/14/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 95.7
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	83%		40-130%
	13C8-FOSA	79%		40-130%
	d3-MeFOSA	67%		10-130%
	d5-EtFOSA	68%		10-130%
	d3-MeFOSAA	76%		40-135%
	d5-EtFOSAA	76%		40-150%
	d7-MeFOSE	80%		20-130%
	d9-EtFOSE	81%		15-130%
	13C2-4:2FTS	81%		40-165%
	13C2-6:2FTS	83%		40-215%
	13C2-8:2FTS	81%		40-275%
	13C3-HFPO-DA	84%		40-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-3-5-6
Lab Sample ID: FC18042-7 **Date Sampled:** 08/14/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 94.4
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7Q9513.D	1	09/06/24 08:57	MV	08/23/24 11:25	OP4934	S7Q147
Run #2							

	Initial Weight	Final Volume
Run #1	4.96 g	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.85	0.53	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	0.43	0.11	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	0.21	0.11	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	0.21	0.11	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	0.21	0.11	ug/kg	
375-95-1	Perfluorononanoic acid	0.66	0.21	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	0.20	0.21	0.11	ug/kg	J
2058-94-8	Perfluoroundecanoic acid	0.66	0.21	0.14	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.21	0.11	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.21	0.11	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.21	0.11	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	ND	0.21	0.11	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.21	0.17	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	0.21	0.17	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.21	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	2.0	0.21	0.11	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.21	0.19	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.21	0.15	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.21	0.16	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.85	0.43	ug/kg	
27619-97-2	6:2-FTS	ND	0.85	0.43	ug/kg	
39108-34-4	8:2-FTS	ND	0.85	0.64	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.21	0.11	ug/kg	
31506-32-8	MeFOSA	ND	0.21	0.15	ug/kg	
4151-50-2	EtFOSA	ND	0.21	0.11	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-3-5-6
Lab Sample ID: FC18042-7 **Date Sampled:** 08/14/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 94.4
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.21	0.17	ug/kg	
2991-50-6	EtFOSAA	ND	0.21	0.21	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.1	1.1	ug/kg	
1691-99-2	EtFOSE	ND	2.1	1.1	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.85	0.31	ug/kg	
919005-14-4	ADONA	ND	0.85	0.36	ug/kg	
377-73-1	PFMPA	ND	0.43	0.21	ug/kg	
863090-89-5	PFMBA	ND	0.43	0.21	ug/kg	
151772-58-6	NFDHA	ND	0.43	0.26	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.85	0.47	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.85	0.43	ug/kg	
113507-82-7	PFEESA	ND	0.43	0.21	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.1	0.54	ug/kg	
914637-49-3	5:3-FTCA	ND	5.3	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	5.3	1.4	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	85%		10-130%
	13C5-PFPeA	83%		35-130%
	13C5-PFHxA	77%		40-130%
	13C4-PFHpA	82%		40-130%
	13C8-PFOA	86%		40-130%
	13C9-PFNA	86%		40-130%
	13C6-PFDA	80%		40-130%
	13C7-PFUnDA	81%		40-130%
	13C2-PFDoDA	78%		40-130%
	13C2-PFTeDA	75%		20-130%
	13C3-PFBS	86%		40-135%
	13C3-PFHxS	86%		40-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-3-5-6
Lab Sample ID: FC18042-7 **Date Sampled:** 08/14/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 94.4
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	85%		40-130%
	13C8-FOSA	81%		40-130%
	d3-MeFOSA	83%		10-130%
	d5-EtFOSA	88%		10-130%
	d3-MeFOSAA	86%		40-135%
	d5-EtFOSAA	87%		40-150%
	d7-MeFOSE	84%		20-130%
	d9-EtFOSE	83%		15-130%
	13C2-4:2FTS	94%		40-165%
	13C2-6:2FTS	90%		40-215%
	13C2-8:2FTS	88%		40-275%
	13C3-HFPO-DA	88%		40-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-4-7-8
Lab Sample ID: FC18042-10 **Date Sampled:** 08/12/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 91.3
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7Q9514.D	1	09/06/24 09:11	MV	08/23/24 11:25	OP4934	S7Q147
Run #2							

	Initial Weight	Final Volume
Run #1	5.01 g	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.87	0.55	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	0.44	0.11	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	0.22	0.11	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	0.22	0.11	ug/kg	
335-67-1	Perfluorooctanoic acid	0.20	0.22	0.11	ug/kg	J
375-95-1	Perfluorononanoic acid	3.7	0.22	0.13	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.22	0.11	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	0.22	0.15	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.22	0.11	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.22	0.11	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.22	0.11	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	ND	0.22	0.11	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.22	0.17	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	1.3	0.22	0.17	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.28	0.22	0.16	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	9.8	0.22	0.11	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.22	0.20	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.22	0.16	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.22	0.16	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.87	0.44	ug/kg	
27619-97-2	6:2-FTS	ND	0.87	0.44	ug/kg	
39108-34-4	8:2-FTS	ND	0.87	0.66	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.22	0.11	ug/kg	
31506-32-8	MeFOSA	ND	0.22	0.15	ug/kg	
4151-50-2	EtFOSA	ND	0.22	0.11	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-4-7-8		
Lab Sample ID:	FC18042-10	**Date Sampled:**	08/12/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	91.3
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.22	0.17	ug/kg	
2991-50-6	EtFOSAA	ND	0.22	0.22	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.2	1.1	ug/kg	
1691-99-2	EtFOSE	ND	2.2	1.1	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.87	0.32	ug/kg	
919005-14-4	ADONA	ND	0.87	0.37	ug/kg	
377-73-1	PFMPA	ND	0.44	0.22	ug/kg	
863090-89-5	PFMBA	ND	0.44	0.22	ug/kg	
151772-58-6	NFDHA	ND	0.44	0.27	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.87	0.48	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.87	0.44	ug/kg	
113507-82-7	PFEESA	ND	0.44	0.22	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.1	0.56	ug/kg	
914637-49-3	5:3-FTCA	ND	5.5	1.3	ug/kg	
812-70-4	7:3-FTCA	ND	5.5	1.4	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	95%		10-130%
	13C5-PFPeA	90%		35-130%
	13C5-PFHxA	85%		40-130%
	13C4-PFHpA	92%		40-130%
	13C8-PFOA	92%		40-130%
	13C9-PFNA	101%		40-130%
	13C6-PFDA	83%		40-130%
	13C7-PFUnDA	88%		40-130%
	13C2-PFDoDA	85%		40-130%
	13C2-PFTeDA	82%		20-130%
	13C3-PFBS	91%		40-135%
	13C3-PFHxS	92%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-4-7-8
Lab Sample ID: FC18042-10 **Date Sampled:** 08/12/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 91.3
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	94%		40-130%
	13C8-FOSA	97%		40-130%
	d3-MeFOSA	96%		10-130%
	d5-EtFOSA	101%		10-130%
	d3-MeFOSAA	101%		40-135%
	d5-EtFOSAA	106%		40-150%
	d7-MeFOSE	102%		20-130%
	d9-EtFOSE	98%		15-130%
	13C2-4:2FTS	110%		40-165%
	13C2-6:2FTS	105%		40-215%
	13C2-8:2FTS	105%		40-275%
	13C3-HFPO-DA	96%		40-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-4-13-14
Lab Sample ID: FC18042-11 **Date Sampled:** 08/12/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 91.7
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7Q9515.D	1	09/06/24 09:25	MV	08/23/24 11:25	OP4934	S7Q147
Run #2							

	Initial Weight	Final Volume
Run #1	4.99 g	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.87	0.55	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	0.44	0.11	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	0.22	0.11	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	0.22	0.11	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	0.22	0.11	ug/kg	
375-95-1	Perfluorononanoic acid	0.18	0.22	0.13	ug/kg	J
335-76-2	Perfluorodecanoic acid	ND	0.22	0.11	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	0.22	0.15	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.22	0.11	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.22	0.11	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.22	0.11	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	ND	0.22	0.11	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.22	0.17	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	0.22	0.17	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.22	0.16	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.22	0.11	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.22	0.20	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.22	0.16	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.22	0.16	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.87	0.44	ug/kg	
27619-97-2	6:2-FTS	ND	0.87	0.44	ug/kg	
39108-34-4	8:2-FTS	ND	0.87	0.66	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.22	0.11	ug/kg	
31506-32-8	MeFOSA	ND	0.22	0.15	ug/kg	
4151-50-2	EtFOSA	ND	0.22	0.11	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-4-13-14
Lab Sample ID: FC18042-11 **Date Sampled:** 08/12/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 91.7
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.22	0.17	ug/kg	
2991-50-6	EtFOSAA	ND	0.22	0.22	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.2	1.1	ug/kg	
1691-99-2	EtFOSE	ND	2.2	1.1	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.87	0.32	ug/kg	
919005-14-4	ADONA	ND	0.87	0.37	ug/kg	
377-73-1	PFMPA	ND	0.44	0.22	ug/kg	
863090-89-5	PFMBA	ND	0.44	0.22	ug/kg	
151772-58-6	NFDHA	ND	0.44	0.27	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.87	0.48	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.87	0.44	ug/kg	
113507-82-7	PFEESA	ND	0.44	0.22	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.1	0.56	ug/kg	
914637-49-3	5:3-FTCA	ND	5.5	1.3	ug/kg	
812-70-4	7:3-FTCA	ND	5.5	1.4	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	95%		10-130%
	13C5-PFPeA	90%		35-130%
	13C5-PFHxA	85%		40-130%
	13C4-PFHpA	90%		40-130%
	13C8-PFOA	94%		40-130%
	13C9-PFNA	92%		40-130%
	13C6-PFDA	88%		40-130%
	13C7-PFUnDA	92%		40-130%
	13C2-PFDoDA	89%		40-130%
	13C2-PFTeDA	86%		20-130%
	13C3-PFBS	93%		40-135%
	13C3-PFHxS	99%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-4-13-14
Lab Sample ID: FC18042-11 **Date Sampled:** 08/12/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 91.7
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	99%		40-130%
	13C8-FOSA	97%		40-130%
	d3-MeFOSA	100%		10-130%
	d5-EtFOSA	103%		10-130%
	d3-MeFOSAA	104%		40-135%
	d5-EtFOSAA	109%		40-150%
	d7-MeFOSE	104%		20-130%
	d9-EtFOSE	101%		15-130%
	13C2-4:2FTS	103%		40-165%
	13C2-6:2FTS	106%		40-215%
	13C2-8:2FTS	95%		40-275%
	13C3-HFPO-DA	94%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-5-1-2
Lab Sample ID: FC18042-12 **Date Sampled:** 08/13/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 92.3
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7Q9516.D	1	09/06/24 09:39	MV	08/23/24 11:25	OP4934	S7Q147
Run #2	7Q9647.D	10	09/09/24 19:42	MV	08/23/24 11:25	OP4934	S7Q149

	Initial Weight	Final Volume
Run #1	5.04 g	5.0 ml
Run #2	5.04 g	5.0 ml

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.86	0.54	ug/kg	
2706-90-3	Perfluoropentanoic acid	0.69	0.43	0.11	ug/kg	
307-24-4	Perfluorohexanoic acid	0.53	0.21	0.11	ug/kg	
375-85-9	Perfluoroheptanoic acid	0.33	0.21	0.11	ug/kg	
335-67-1	Perfluorooctanoic acid	1.1	0.21	0.11	ug/kg	
375-95-1	Perfluorononanoic acid	5.7	0.21	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	2.3	0.21	0.11	ug/kg	
2058-94-8	Perfluoroundecanoic acid	100 [a]	2.1	1.4	ug/kg	
307-55-1	Perfluorododecanoic acid	1.8	0.21	0.11	ug/kg	
72629-94-8	Perfluorotridecanoic acid	20.1	0.21	0.11	ug/kg	
376-06-7	Perfluorotetradecanoic acid	0.24	0.21	0.11	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	0.22	0.21	0.11	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.52	0.21	0.17	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	9.5	0.21	0.17	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	1.3	0.21	0.16	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	359 [a]	2.1	1.1	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	4.0	0.21	0.19	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	2.9	0.21	0.15	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.21	0.16	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.86	0.43	ug/kg	
27619-97-2	6:2-FTS	ND	0.86	0.43	ug/kg	
39108-34-4	8:2-FTS	1.1	0.86	0.64	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	3.6	0.21	0.11	ug/kg	
31506-32-8	MeFOSA	ND	0.21	0.15	ug/kg	
4151-50-2	EtFOSA	ND	0.21	0.11	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-5-1-2
Lab Sample ID: FC18042-12 **Date Sampled:** 08/13/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 92.3
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.21	0.17	ug/kg	
2991-50-6	EtFOSAA	ND	0.21	0.21	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.1	1.1	ug/kg	
1691-99-2	EtFOSE	ND	2.1	1.1	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.86	0.31	ug/kg	
919005-14-4	ADONA	ND	0.86	0.36	ug/kg	
377-73-1	PFMPA	ND	0.43	0.21	ug/kg	
863090-89-5	PFMBA	ND	0.43	0.21	ug/kg	
151772-58-6	NFDHA	ND	0.43	0.26	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.86	0.47	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.86	0.43	ug/kg	
113507-82-7	PFEESA	ND	0.43	0.21	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.1	0.55	ug/kg	
914637-49-3	5:3-FTCA	ND	5.4	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	5.4	1.4	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	86%	86%	10-130%
	13C5-PFPeA	81%	82%	35-130%
	13C5-PFHxA	74%	78%	40-130%
	13C4-PFHpA	82%	90%	40-130%
	13C8-PFOA	87%	90%	40-130%
	13C9-PFNA	86%	94%	40-130%
	13C6-PFDA	86%	98%	40-130%
	13C7-PFUnDA	83%	83%	40-130%
	13C2-PFDoDA	90%	84%	40-130%
	13C2-PFTeDA	86%	85%	20-130%
	13C3-PFBS	86%	88%	40-135%
	13C3-PFHxS	92%	113%	40-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-5-1-2		
Lab Sample ID:	FC18042-12	**Date Sampled:**	08/13/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	92.3
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	97%	84%	40-130%
	13C8-FOSA	96%	74%	40-130%
	d3-MeFOSA	88%	69%	10-130%
	d5-EtFOSA	89%	68%	10-130%
	d3-MeFOSAA	95%	76%	40-135%
	d5-EtFOSAA	104%	78%	40-150%
	d7-MeFOSE	102%	65%	20-130%
	d9-EtFOSE	100%	77%	15-130%
	13C2-4:2FTS	102%	131%	40-165%
	13C2-6:2FTS	96%	112%	40-215%
	13C2-8:2FTS	95%	141%	40-275%
	13C3-HFPO-DA	83%	83%	40-130%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-5-5-6
Lab Sample ID: FC18042-13 **Date Sampled:** 08/13/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 93.7
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7Q9548.D	1	09/08/24 18:30	MV	08/23/24 11:25	OP4934	S7Q148
Run #2							

	Initial Weight	Final Volume
Run #1	4.96 g	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.86	0.54	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	0.43	0.11	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	0.22	0.11	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	0.22	0.11	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	0.22	0.11	ug/kg	
375-95-1	Perfluorononanoic acid	0.22	0.22	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.22	0.11	ug/kg	
2058-94-8	Perfluoroundecanoic acid	0.15	0.22	0.14	ug/kg	J
307-55-1	Perfluorododecanoic acid	ND	0.22	0.11	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.22	0.11	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.22	0.11	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	ND	0.22	0.11	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.22	0.17	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	0.46	0.22	0.17	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.22	0.16	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	9.5	0.22	0.11	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.22	0.19	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.22	0.15	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.22	0.16	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.86	0.43	ug/kg	
27619-97-2	6:2-FTS	ND	0.86	0.43	ug/kg	
39108-34-4	8:2-FTS	ND	0.86	0.65	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.22	0.11	ug/kg	
31506-32-8	MeFOSA	ND	0.22	0.15	ug/kg	
4151-50-2	EtFOSA	ND	0.22	0.11	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-5-5-6		
Lab Sample ID:	FC18042-13	**Date Sampled:**	08/13/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	93.7
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.22	0.17	ug/kg	
2991-50-6	EtFOSAA	ND	0.22	0.21	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.2	1.1	ug/kg	
1691-99-2	EtFOSE	ND	2.2	1.1	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.86	0.31	ug/kg	
919005-14-4	ADONA	ND	0.86	0.36	ug/kg	
377-73-1	PFMPA	ND	0.43	0.22	ug/kg	
863090-89-5	PFMBA	ND	0.43	0.22	ug/kg	
151772-58-6	NFDHA	ND	0.43	0.26	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.86	0.47	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.86	0.43	ug/kg	
113507-82-7	PFEESA	ND	0.43	0.22	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.1	0.55	ug/kg	
914637-49-3	5:3-FTCA	ND	5.4	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	5.4	1.4	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	91%		10-130%
	13C5-PFPeA	86%		35-130%
	13C5-PFHxA	86%		40-130%
	13C4-PFHpA	88%		40-130%
	13C8-PFOA	85%		40-130%
	13C9-PFNA	93%		40-130%
	13C6-PFDA	86%		40-130%
	13C7-PFUnDA	82%		40-130%
	13C2-PFDoDA	81%		40-130%
	13C2-PFTeDA	79%		20-130%
	13C3-PFBS	88%		40-135%
	13C3-PFHxS	87%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-5-5-6		
Lab Sample ID:	FC18042-13	**Date Sampled:**	08/13/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	93.7
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	89%		40-130%
	13C8-FOSA	86%		40-130%
	d3-MeFOSA	86%		10-130%
	d5-EtFOSA	95%		10-130%
	d3-MeFOSAA	83%		40-135%
	d5-EtFOSAA	87%		40-150%
	d7-MeFOSE	94%		20-130%
	d9-EtFOSE	95%		15-130%
	13C2-4:2FTS	78%		40-165%
	13C2-6:2FTS	81%		40-215%
	13C2-8:2FTS	84%		40-275%
	13C3-HFPO-DA	88%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-6-1-2
Lab Sample ID: FC18042-15 **Date Sampled:** 08/14/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 92.8
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7Q9518.D	1	09/06/24 10:07	MV	08/23/24 11:25	OP4934	S7Q147
Run #2	7Q9549.D	10	09/08/24 18:44	MV	08/23/24 11:25	OP4934	S7Q148

	Initial Weight	Final Volume
Run #1	5.04 g	5.0 ml
Run #2	5.04 g	5.0 ml

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.86	0.53	ug/kg	
2706-90-3	Perfluoropentanoic acid	1.3	0.43	0.11	ug/kg	
307-24-4	Perfluorohexanoic acid	0.63	0.21	0.11	ug/kg	
375-85-9	Perfluoroheptanoic acid	0.25	0.21	0.11	ug/kg	
335-67-1	Perfluorooctanoic acid	0.47	0.21	0.11	ug/kg	
375-95-1	Perfluorononanoic acid	6.7	0.21	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	0.47	0.21	0.11	ug/kg	
2058-94-8	Perfluoroundecanoic acid	1.5	0.21	0.14	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.21	0.11	ug/kg	
72629-94-8	Perfluorotridecanoic acid	0.11	0.21	0.11	ug/kg	J
376-06-7	Perfluorotetradecanoic acid	ND	0.21	0.11	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	0.17	0.21	0.11	ug/kg	J
2706-91-4	Perfluoropentanesulfonic acid	0.30	0.21	0.17	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	3.2	0.21	0.17	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.27	0.21	0.16	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	327 [a]	2.1	1.1	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.21	0.19	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.21	0.15	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.21	0.16	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.86	0.43	ug/kg	
27619-97-2	6:2-FTS	ND	0.86	0.43	ug/kg	
39108-34-4	8:2-FTS	ND	0.86	0.64	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.21	0.11	ug/kg	
31506-32-8	MeFOSA	ND	0.21	0.15	ug/kg	
4151-50-2	EtFOSA	ND	0.21	0.11	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-6-1-2		
Lab Sample ID:	FC18042-15	**Date Sampled:**	08/14/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	92.8
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.21	0.17	ug/kg	
2991-50-6	EtFOSAA	ND	0.21	0.21	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.1	1.1	ug/kg	
1691-99-2	EtFOSE	ND	2.1	1.1	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.86	0.31	ug/kg	
919005-14-4	ADONA	ND	0.86	0.36	ug/kg	
377-73-1	PFMPA	ND	0.43	0.21	ug/kg	
863090-89-5	PFMBA	ND	0.43	0.21	ug/kg	
151772-58-6	NFDHA	ND	0.43	0.26	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.86	0.47	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.86	0.43	ug/kg	
113507-82-7	PFEESA	ND	0.43	0.21	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.1	0.54	ug/kg	
914637-49-3	5:3-FTCA	ND	5.3	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	5.3	1.4	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	82%	76%	10-130%
	13C5-PFPeA	77%	75%	35-130%
	13C5-PFHxA	73%	72%	40-130%
	13C4-PFHpA	78%	79%	40-130%
	13C8-PFOA	79%	76%	40-130%
	13C9-PFNA	88%	76%	40-130%
	13C6-PFDA	82%	82%	40-130%
	13C7-PFUnDA	83%	70%	40-130%
	13C2-PFDoDA	80%	75%	40-130%
	13C2-PFTeDA	77%	78%	20-130%
	13C3-PFBS	83%	66%	40-135%
	13C3-PFHxS	82%	81%	40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-6-1-2		
Lab Sample ID:	FC18042-15	**Date Sampled:**	08/14/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	92.8
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	83%	101%	40-130%
	13C8-FOSA	96%	88%	40-130%
	d3-MeFOSA	80%	84%	10-130%
	d5-EtFOSA	82%	74%	10-130%
	d3-MeFOSAA	88%	73%	40-135%
	d5-EtFOSAA	100%	85%	40-150%
	d7-MeFOSE	94%	83%	20-130%
	d9-EtFOSE	94%	105%	15-130%
	13C2-4:2FTS	90%	68%	40-165%
	13C2-6:2FTS	89%	78%	40-215%
	13C2-8:2FTS	85%	83%	40-275%
	13C3-HFPO-DA	81%	74%	40-130%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-6-5-6		
Lab Sample ID:	FC18042-16	**Date Sampled:**	08/14/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	89.1
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7Q9550.D	1	09/08/24 18:58	MV	08/23/24 11:25	OP4934	S7Q148
Run #2							

	Initial Weight	Final Volume
Run #1	4.96 g	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.91	0.57	ug/kg	
2706-90-3	Perfluoropentanoic acid	0.13	0.45	0.11	ug/kg	J
307-24-4	Perfluorohexanoic acid	0.18	0.23	0.11	ug/kg	J
375-85-9	Perfluoroheptanoic acid	ND	0.23	0.11	ug/kg	
335-67-1	Perfluorooctanoic acid	0.24	0.23	0.11	ug/kg	
375-95-1	Perfluorononanoic acid	2.0	0.23	0.13	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.23	0.11	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	0.23	0.15	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.23	0.11	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.23	0.12	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.23	0.11	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	0.21	0.23	0.11	ug/kg	J
2706-91-4	Perfluoropentanesulfonic acid	0.26	0.23	0.18	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	1.8	0.23	0.18	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.22	0.23	0.16	ug/kg	J
1763-23-1	Perfluorooctanesulfonic acid	33.2	0.23	0.11	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.23	0.20	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.23	0.16	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.23	0.17	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.91	0.45	ug/kg	
27619-97-2	6:2-FTS	ND	0.91	0.45	ug/kg	
39108-34-4	8:2-FTS	ND	0.91	0.68	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.23	0.11	ug/kg	
31506-32-8	MeFOSA	ND	0.23	0.15	ug/kg	
4151-50-2	EtFOSA	ND	0.23	0.11	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-6-5-6		
Lab Sample ID:	FC18042-16	**Date Sampled:**	08/14/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	89.1
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.23	0.18	ug/kg	
2991-50-6	EtFOSAA	ND	0.23	0.22	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.3	1.1	ug/kg	
1691-99-2	EtFOSE	ND	2.3	1.1	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.91	0.33	ug/kg	
919005-14-4	ADONA	ND	0.91	0.38	ug/kg	
377-73-1	PFMPA	ND	0.45	0.23	ug/kg	
863090-89-5	PFMBA	ND	0.45	0.23	ug/kg	
151772-58-6	NFDHA	ND	0.45	0.28	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.91	0.50	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.91	0.45	ug/kg	
113507-82-7	PFEESA	ND	0.45	0.23	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.1	0.58	ug/kg	
914637-49-3	5:3-FTCA	ND	5.7	1.3	ug/kg	
812-70-4	7:3-FTCA	ND	5.7	1.4	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	96%		10-130%
	13C5-PFPeA	93%		35-130%
	13C5-PFHxA	93%		40-130%
	13C4-PFHpA	95%		40-130%
	13C8-PFOA	95%		40-130%
	13C9-PFNA	96%		40-130%
	13C6-PFDA	95%		40-130%
	13C7-PFUnDA	97%		40-130%
	13C2-PFDoDA	94%		40-130%
	13C2-PFTeDA	95%		20-130%
	13C3-PFBS	94%		40-135%
	13C3-PFHxS	91%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-6-5-6
Lab Sample ID: FC18042-16 **Date Sampled:** 08/14/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 89.1
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	96%		40-130%
	13C8-FOSA	92%		40-130%
	d3-MeFOSA	93%		10-130%
	d5-EtFOSA	102%		10-130%
	d3-MeFOSAA	92%		40-135%
	d5-EtFOSAA	95%		40-150%
	d7-MeFOSE	99%		20-130%
	d9-EtFOSE	99%		15-130%
	13C2-4:2FTS	94%		40-165%
	13C2-6:2FTS	98%		40-215%
	13C2-8:2FTS	90%		40-275%
	13C3-HFPO-DA	94%		40-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-7-1-2
Lab Sample ID: FC18042-18 **Date Sampled:** 08/12/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 92.9
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7Q9520.D	1	09/06/24 10:35	MV	08/23/24 11:25	OP4934	S7Q147
Run #2							

	Initial Weight	Final Volume
Run #1	4.95 g	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.87	0.54	ug/kg	
2706-90-3	Perfluoropentanoic acid	0.21	0.43	0.11	ug/kg	J
307-24-4	Perfluorohexanoic acid	0.12	0.22	0.11	ug/kg	J
375-85-9	Perfluoroheptanoic acid	ND	0.22	0.11	ug/kg	
335-67-1	Perfluorooctanoic acid	0.29	0.22	0.11	ug/kg	
375-95-1	Perfluorononanoic acid	5.6	0.22	0.13	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.22	0.11	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	0.22	0.14	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.22	0.11	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.22	0.11	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.22	0.11	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	ND	0.22	0.11	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.22	0.17	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	0.99	0.22	0.17	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.43	0.22	0.16	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	26.7	0.22	0.11	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.22	0.20	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.22	0.16	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.22	0.16	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.87	0.43	ug/kg	
27619-97-2	6:2-FTS	ND	0.87	0.43	ug/kg	
39108-34-4	8:2-FTS	ND	0.87	0.65	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.22	0.11	ug/kg	
31506-32-8	MeFOSA	ND	0.22	0.15	ug/kg	
4151-50-2	EtFOSA	ND	0.22	0.11	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-7-1-2		
Lab Sample ID:	FC18042-18	**Date Sampled:**	08/12/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	92.9
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.22	0.17	ug/kg	
2991-50-6	EtFOSAA	ND	0.22	0.21	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.2	1.1	ug/kg	
1691-99-2	EtFOSE	ND	2.2	1.1	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.87	0.31	ug/kg	
919005-14-4	ADONA	ND	0.87	0.37	ug/kg	
377-73-1	PFMPA	ND	0.43	0.22	ug/kg	
863090-89-5	PFMBA	ND	0.43	0.22	ug/kg	
151772-58-6	NFDHA	ND	0.43	0.27	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.87	0.48	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.87	0.43	ug/kg	
113507-82-7	PFEESA	ND	0.43	0.22	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.1	0.55	ug/kg	
914637-49-3	5:3-FTCA	ND	5.4	1.3	ug/kg	
812-70-4	7:3-FTCA	ND	5.4	1.4	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	93%		10-130%
	13C5-PFPeA	89%		35-130%
	13C5-PFHxA	86%		40-130%
	13C4-PFHpA	89%		40-130%
	13C8-PFOA	91%		40-130%
	13C9-PFNA	100%		40-130%
	13C6-PFDA	86%		40-130%
	13C7-PFUnDA	90%		40-130%
	13C2-PFDoDA	89%		40-130%
	13C2-PFTeDA	87%		20-130%
	13C3-PFBS	91%		40-135%
	13C3-PFHxS	95%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-7-1-2		
Lab Sample ID:	FC18042-18	**Date Sampled:**	08/12/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	92.9
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	91%		40-130%
	13C8-FOSA	91%		40-130%
	d3-MeFOSA	87%		10-130%
	d5-EtFOSA	83%		10-130%
	d3-MeFOSAA	97%		40-135%
	d5-EtFOSAA	102%		40-150%
	d7-MeFOSE	96%		20-130%
	d9-EtFOSE	92%		15-130%
	13C2-4:2FTS	101%		40-165%
	13C2-6:2FTS	98%		40-215%
	13C2-8:2FTS	96%		40-275%
	13C3-HFPO-DA	91%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range

J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-7-7-8
Lab Sample ID: FC18042-19 **Date Sampled:** 08/12/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 90.5
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7Q9521.D	1	09/06/24 10:49	MV	08/23/24 11:25	OP4934	S7Q147
Run #2							

	Initial Weight	Final Volume
Run #1	4.98 g	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.89	0.55	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	0.44	0.11	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	0.22	0.11	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	0.22	0.11	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	0.22	0.11	ug/kg	
375-95-1	Perfluorononanoic acid	1.6	0.22	0.13	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.22	0.11	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	0.22	0.15	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.22	0.11	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.22	0.11	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.22	0.11	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	ND	0.22	0.11	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.22	0.17	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	0.51	0.22	0.18	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.22	0.16	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	11.3	0.22	0.11	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.22	0.20	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.22	0.16	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.22	0.17	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.89	0.44	ug/kg	
27619-97-2	6:2-FTS	ND	0.89	0.44	ug/kg	
39108-34-4	8:2-FTS	ND	0.89	0.67	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.22	0.11	ug/kg	
31506-32-8	MeFOSA	ND	0.22	0.15	ug/kg	
4151-50-2	EtFOSA	ND	0.22	0.11	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-7-7-8		
Lab Sample ID:	FC18042-19	**Date Sampled:**	08/12/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	90.5
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.22	0.18	ug/kg	
2991-50-6	EtFOSAA	ND	0.22	0.22	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.2	1.1	ug/kg	
1691-99-2	EtFOSE	ND	2.2	1.1	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.89	0.32	ug/kg	
919005-14-4	ADONA	ND	0.89	0.37	ug/kg	
377-73-1	PFMPA	ND	0.44	0.22	ug/kg	
863090-89-5	PFMBA	ND	0.44	0.22	ug/kg	
151772-58-6	NFDHA	ND	0.44	0.27	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.89	0.49	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.89	0.44	ug/kg	
113507-82-7	PFEESA	ND	0.44	0.22	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.1	0.56	ug/kg	
914637-49-3	5:3-FTCA	ND	5.5	1.3	ug/kg	
812-70-4	7:3-FTCA	ND	5.5	1.4	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	86%		10-130%
	13C5-PFPeA	82%		35-130%
	13C5-PFHxA	78%		40-130%
	13C4-PFHpA	82%		40-130%
	13C8-PFOA	87%		40-130%
	13C9-PFNA	93%		40-130%
	13C6-PFDA	79%		40-130%
	13C7-PFUnDA	79%		40-130%
	13C2-PFDoDA	78%		40-130%
	13C2-PFTeDA	78%		20-130%
	13C3-PFBS	82%		40-135%
	13C3-PFHxS	78%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-7-7-8		
Lab Sample ID:	FC18042-19	**Date Sampled:**	08/12/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	90.5
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	82%		40-130%
	13C8-FOSA	83%		40-130%
	d3-MeFOSA	83%		10-130%
	d5-EtFOSA	88%		10-130%
	d3-MeFOSAA	82%		40-135%
	d5-EtFOSAA	91%		40-150%
	d7-MeFOSE	88%		20-130%
	d9-EtFOSE	86%		15-130%
	13C2-4:2FTS	84%		40-165%
	13C2-6:2FTS	89%		40-215%
	13C2-8:2FTS	84%		40-275%
	13C3-HFPO-DA	86%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-8-1-2		
Lab Sample ID:	FC18042-21	**Date Sampled:**	08/13/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	91.0
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7Q9522.D	1	09/06/24 11:03	MV	08/23/24 11:25	OP4934	S7Q147
Run #2							

	Initial Weight	Final Volume
Run #1	5.01 g	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.88	0.55	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	0.44	0.11	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	0.22	0.11	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	0.22	0.11	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	0.22	0.11	ug/kg	
375-95-1	Perfluorononanoic acid	ND	0.22	0.13	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.22	0.11	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	0.22	0.15	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.22	0.11	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.22	0.11	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.22	0.11	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	ND	0.22	0.11	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.22	0.17	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	0.22	0.17	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.22	0.16	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	12.5	0.22	0.11	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.22	0.20	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.22	0.16	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.22	0.16	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.88	0.44	ug/kg	
27619-97-2	6:2-FTS	ND	0.88	0.44	ug/kg	
39108-34-4	8:2-FTS	ND	0.88	0.66	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.22	0.11	ug/kg	
31506-32-8	MeFOSA	ND	0.22	0.15	ug/kg	
4151-50-2	EtFOSA	ND	0.22	0.11	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-8-1-2		
Lab Sample ID:	FC18042-21	**Date Sampled:**	08/13/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	91.0
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.22	0.17	ug/kg	
2991-50-6	EtFOSAA	ND	0.22	0.22	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.2	1.1	ug/kg	
1691-99-2	EtFOSE	ND	2.2	1.1	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.88	0.32	ug/kg	
919005-14-4	ADONA	ND	0.88	0.37	ug/kg	
377-73-1	PFMPA	ND	0.44	0.22	ug/kg	
863090-89-5	PFMBA	ND	0.44	0.22	ug/kg	
151772-58-6	NFDHA	ND	0.44	0.27	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.88	0.48	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.88	0.44	ug/kg	
113507-82-7	PFEESA	ND	0.44	0.22	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.1	0.56	ug/kg	
914637-49-3	5:3-FTCA	ND	5.5	1.3	ug/kg	
812-70-4	7:3-FTCA	ND	5.5	1.4	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	89%		10-130%
	13C5-PFPeA	85%		35-130%
	13C5-PFHxA	80%		40-130%
	13C4-PFHpA	87%		40-130%
	13C8-PFOA	88%		40-130%
	13C9-PFNA	93%		40-130%
	13C6-PFDA	83%		40-130%
	13C7-PFUnDA	83%		40-130%
	13C2-PFDoDA	81%		40-130%
	13C2-PFTeDA	80%		20-130%
	13C3-PFBS	89%		40-135%
	13C3-PFHxS	98%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-8-1-2
Lab Sample ID: FC18042-21 **Date Sampled:** 08/13/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 91.0
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	93%		40-130%
	13C8-FOSA	91%		40-130%
	d3-MeFOSA	89%		10-130%
	d5-EtFOSA	92%		10-130%
	d3-MeFOSAA	90%		40-135%
	d5-EtFOSAA	97%		40-150%
	d7-MeFOSE	95%		20-130%
	d9-EtFOSE	90%		15-130%
	13C2-4:2FTS	101%		40-165%
	13C2-6:2FTS	98%		40-215%
	13C2-8:2FTS	91%		40-275%
	13C3-HFPO-DA	86%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-8-5-6		
Lab Sample ID:	FC18042-22	**Date Sampled:**	08/13/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	88.0
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7Q9525.D	1	09/06/24 11:45	MV	08/23/24 11:25	OP4934	S7Q147
Run #2							

	Initial Weight	Final Volume
Run #1	5.00 g	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.91	0.57	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	0.45	0.11	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	0.23	0.11	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	0.23	0.11	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	0.23	0.11	ug/kg	
375-95-1	Perfluorononanoic acid	ND	0.23	0.13	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.23	0.11	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	0.23	0.15	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.23	0.11	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.23	0.12	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.23	0.11	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	ND	0.23	0.11	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.23	0.18	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	0.23	0.18	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.23	0.16	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	0.62	0.23	0.11	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.23	0.21	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.23	0.16	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.23	0.17	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.91	0.45	ug/kg	
27619-97-2	6:2-FTS	ND	0.91	0.45	ug/kg	
39108-34-4	8:2-FTS	ND	0.91	0.68	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.23	0.11	ug/kg	
31506-32-8	MeFOSA	ND	0.23	0.15	ug/kg	
4151-50-2	EtFOSA	ND	0.23	0.11	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-8-5-6		
Lab Sample ID:	FC18042-22	**Date Sampled:**	08/13/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	88.0
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.23	0.18	ug/kg	
2991-50-6	EtFOSAA	ND	0.23	0.22	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.3	1.1	ug/kg	
1691-99-2	EtFOSE	ND	2.3	1.1	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.91	0.33	ug/kg	
919005-14-4	ADONA	ND	0.91	0.38	ug/kg	
377-73-1	PFMPA	ND	0.45	0.23	ug/kg	
863090-89-5	PFMBA	ND	0.45	0.23	ug/kg	
151772-58-6	NFDHA	ND	0.45	0.28	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.91	0.50	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.91	0.45	ug/kg	
113507-82-7	PFEESA	ND	0.45	0.23	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.1	0.58	ug/kg	
914637-49-3	5:3-FTCA	ND	5.7	1.3	ug/kg	
812-70-4	7:3-FTCA	ND	5.7	1.4	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	95%		10-130%
	13C5-PFPeA	90%		35-130%
	13C5-PFHxA	87%		40-130%
	13C4-PFHpA	91%		40-130%
	13C8-PFOA	92%		40-130%
	13C9-PFNA	97%		40-130%
	13C6-PFDA	86%		40-130%
	13C7-PFUnDA	89%		40-130%
	13C2-PFDoDA	86%		40-130%
	13C2-PFTeDA	83%		20-130%
	13C3-PFBS	89%		40-135%
	13C3-PFHxS	86%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-8-5-6		
Lab Sample ID:	FC18042-22	**Date Sampled:**	08/13/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	88.0
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	95%		40-130%
	13C8-FOSA	91%		40-130%
	d3-MeFOSA	94%		10-130%
	d5-EtFOSA	93%		10-130%
	d3-MeFOSAA	99%		40-135%
	d5-EtFOSAA	100%		40-150%
	d7-MeFOSE	96%		20-130%
	d9-EtFOSE	90%		15-130%
	13C2-4:2FTS	99%		40-165%
	13C2-6:2FTS	100%		40-215%
	13C2-8:2FTS	97%		40-275%
	13C3-HFPO-DA	94%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-9-1-2
Lab Sample ID: FC18042-24 **Date Sampled:** 08/13/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 95.4
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7Q9526.D	1	09/06/24 11:59	MV	08/23/24 11:25	OP4934	S7Q147
Run #2	7Q9551.D	10	09/08/24 19:12	MV	08/23/24 11:25	OP4934	S7Q148

	Initial Weight	Final Volume
Run #1	4.96 g	5.0 ml
Run #2	4.96 g	5.0 ml

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.85	0.53	ug/kg	
2706-90-3	Perfluoropentanoic acid	0.90	0.42	0.11	ug/kg	
307-24-4	Perfluorohexanoic acid	0.55	0.21	0.11	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	0.21	0.11	ug/kg	
335-67-1	Perfluorooctanoic acid	0.38	0.21	0.11	ug/kg	
375-95-1	Perfluorononanoic acid	5.2	0.21	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.21	0.11	ug/kg	
2058-94-8	Perfluoroundecanoic acid	0.61	0.21	0.14	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.21	0.11	ug/kg	
72629-94-8	Perfluorotridecanoic acid	0.29	0.21	0.11	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.21	0.11	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	0.17	0.21	0.11	ug/kg	J
2706-91-4	Perfluoropentanesulfonic acid	0.38	0.21	0.17	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	5.6	0.21	0.17	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.82	0.21	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	255 [a]	2.1	1.1	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.21	0.19	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.21	0.15	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.21	0.16	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.85	0.42	ug/kg	
27619-97-2	6:2-FTS	ND	0.85	0.42	ug/kg	
39108-34-4	8:2-FTS	ND	0.85	0.63	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.21	0.11	ug/kg	
31506-32-8	MeFOSA	ND	0.21	0.14	ug/kg	
4151-50-2	EtFOSA	ND	0.21	0.11	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-9-1-2		
Lab Sample ID:	FC18042-24	**Date Sampled:**	08/13/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	95.4
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.21	0.17	ug/kg	
2991-50-6	EtFOSAA	ND	0.21	0.21	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.1	1.1	ug/kg	
1691-99-2	EtFOSE	ND	2.1	1.1	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.85	0.31	ug/kg	
919005-14-4	ADONA	ND	0.85	0.36	ug/kg	
377-73-1	PFMPA	ND	0.42	0.21	ug/kg	
863090-89-5	PFMBA	ND	0.42	0.21	ug/kg	
151772-58-6	NFDHA	ND	0.42	0.26	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.85	0.46	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.85	0.42	ug/kg	
113507-82-7	PFEESA	ND	0.42	0.21	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.1	0.54	ug/kg	
914637-49-3	5:3-FTCA	ND	5.3	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	5.3	1.3	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	90%	83%	10-130%
	13C5-PFPeA	86%	81%	35-130%
	13C5-PFHxA	85%	81%	40-130%
	13C4-PFHpA	88%	85%	40-130%
	13C8-PFOA	89%	84%	40-130%
	13C9-PFNA	93%	94%	40-130%
	13C6-PFDA	85%	78%	40-130%
	13C7-PFUnDA	89%	68%	40-130%
	13C2-PFDoDA	89%	73%	40-130%
	13C2-PFTeDA	86%	73%	20-130%
	13C3-PFBS	92%	75%	40-135%
	13C3-PFHxS	92%	86%	40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-9-1-2		
Lab Sample ID:	FC18042-24	**Date Sampled:**	08/13/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	95.4
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	85%	80%	40-130%
	13C8-FOSA	96%	72%	40-130%
	d3-MeFOSA	72%	69%	10-130%
	d5-EtFOSA	70%	53%	10-130%
	d3-MeFOSAA	94%	67%	40-135%
	d5-EtFOSAA	102%	79%	40-150%
	d7-MeFOSE	94%	77%	20-130%
	d9-EtFOSE	89%	59%	15-130%
	13C2-4:2FTS	100%	94%	40-165%
	13C2-6:2FTS	99%	85%	40-215%
	13C2-8:2FTS	96%	89%	40-275%
	13C3-HFPO-DA	90%	82%	40-130%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-9-14-15
Lab Sample ID: FC18042-26 **Date Sampled:** 08/13/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 79.9
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7Q9552.D	1	09/08/24 19:26	MV	08/23/24 11:25	OP4934	S7Q148
Run #2							

	Initial Weight	Final Volume
Run #1	4.95 g	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	1.0	0.63	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	0.51	0.13	ug/kg	
307-24-4	Perfluorohexanoic acid	0.25	0.25	0.13	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	0.25	0.13	ug/kg	
335-67-1	Perfluorooctanoic acid	0.24	0.25	0.13	ug/kg	J
375-95-1	Perfluorononanoic acid	0.39	0.25	0.15	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.25	0.13	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	0.25	0.17	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.25	0.13	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.25	0.13	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.25	0.13	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	0.42	0.25	0.13	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.60	0.25	0.20	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	4.7	0.25	0.20	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.52	0.25	0.18	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	17.9	0.25	0.13	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.25	0.23	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.25	0.18	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.25	0.19	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	1.0	0.51	ug/kg	
27619-97-2	6:2-FTS	ND	1.0	0.51	ug/kg	
39108-34-4	8:2-FTS	ND	1.0	0.76	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.25	0.13	ug/kg	
31506-32-8	MeFOSA	ND	0.25	0.17	ug/kg	
4151-50-2	EtFOSA	ND	0.25	0.13	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-9-14-15		
Lab Sample ID:	FC18042-26	**Date Sampled:**	08/13/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	79.9
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.25	0.20	ug/kg	
2991-50-6	EtFOSAA	ND	0.25	0.25	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.5	1.3	ug/kg	
1691-99-2	EtFOSE	ND	2.5	1.3	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	1.0	0.37	ug/kg	
919005-14-4	ADONA	ND	1.0	0.42	ug/kg	
377-73-1	PFMPA	ND	0.51	0.25	ug/kg	
863090-89-5	PFMBA	ND	0.51	0.25	ug/kg	
151772-58-6	NFDHA	ND	0.51	0.31	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	1.0	0.55	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	1.0	0.51	ug/kg	
113507-82-7	PFEESA	ND	0.51	0.25	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.3	0.64	ug/kg	
914637-49-3	5:3-FTCA	ND	6.3	1.5	ug/kg	
812-70-4	7:3-FTCA	ND	6.3	1.6	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	95%		10-130%
	13C5-PFPeA	89%		35-130%
	13C5-PFHxA	89%		40-130%
	13C4-PFHpA	95%		40-130%
	13C8-PFOA	89%		40-130%
	13C9-PFNA	95%		40-130%
	13C6-PFDA	90%		40-130%
	13C7-PFUnDA	89%		40-130%
	13C2-PFDoDA	89%		40-130%
	13C2-PFTeDA	85%		20-130%
	13C3-PFBS	99%		40-135%
	13C3-PFHxS	101%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-9-14-15		
Lab Sample ID:	FC18042-26	**Date Sampled:**	08/13/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	79.9
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	89%		40-130%
	13C8-FOSA	92%		40-130%
	d3-MeFOSA	97%		10-130%
	d5-EtFOSA	100%		10-130%
	d3-MeFOSAA	89%		40-135%
	d5-EtFOSAA	90%		40-150%
	d7-MeFOSE	97%		20-130%
	d9-EtFOSE	99%		15-130%
	13C2-4:2FTS	98%		40-165%
	13C2-6:2FTS	103%		40-215%
	13C2-8:2FTS	107%		40-275%
	13C3-HFPO-DA	92%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-10-1-2
Lab Sample ID: FC18042-27 **Date Sampled:** 08/13/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 82.0
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7Q9530.D	1	09/06/24 12:55	MV	08/23/24 11:25	OP4934	S7Q147
Run #2	7Q9553.D	2	09/08/24 19:40	MV	08/23/24 11:25	OP4934	S7Q148

	Initial Weight	Final Volume
Run #1	5.03 g	5.0 ml
Run #2	5.03 g	5.0 ml

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.97	0.61	ug/kg	
2706-90-3	Perfluoropentanoic acid	0.22	0.48	0.12	ug/kg	J
307-24-4	Perfluorohexanoic acid	0.31	0.24	0.12	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	0.24	0.12	ug/kg	
335-67-1	Perfluorooctanoic acid	0.34	0.24	0.12	ug/kg	
375-95-1	Perfluorononanoic acid	10	0.24	0.14	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.24	0.12	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	0.24	0.16	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.24	0.12	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.24	0.12	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.24	0.12	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	0.29	0.24	0.12	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.56	0.24	0.19	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	4.2	0.24	0.19	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.78	0.24	0.18	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	104 [a]	0.48	0.24	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.24	0.22	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.24	0.17	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.24	0.18	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.97	0.48	ug/kg	
27619-97-2	6:2-FTS	ND	0.97	0.48	ug/kg	
39108-34-4	8:2-FTS	ND	0.97	0.73	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.24	0.12	ug/kg	
31506-32-8	MeFOSA	ND	0.24	0.16	ug/kg	
4151-50-2	EtFOSA	ND	0.24	0.12	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-10-1-2		
Lab Sample ID:	FC18042-27	**Date Sampled:**	08/13/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	82.0
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.24	0.19	ug/kg	
2991-50-6	EtFOSAA	ND	0.24	0.24	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.4	1.2	ug/kg	
1691-99-2	EtFOSE	ND	2.4	1.2	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.97	0.35	ug/kg	
919005-14-4	ADONA	ND	0.97	0.41	ug/kg	
377-73-1	PFMPA	ND	0.48	0.24	ug/kg	
863090-89-5	PFMBA	ND	0.48	0.24	ug/kg	
151772-58-6	NFDHA	ND	0.48	0.30	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.97	0.53	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.97	0.48	ug/kg	
113507-82-7	PFEESA	ND	0.48	0.24	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.2	0.62	ug/kg	
914637-49-3	5:3-FTCA	ND	6.1	1.4	ug/kg	
812-70-4	7:3-FTCA	ND	6.1	1.5	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	94%	94%	10-130%
	13C5-PFPeA	91%	88%	35-130%
	13C5-PFHxA	88%	87%	40-130%
	13C4-PFHpA	92%	89%	40-130%
	13C8-PFOA	95%	88%	40-130%
	13C9-PFNA	93%	93%	40-130%
	13C6-PFDA	86%	92%	40-130%
	13C7-PFUnDA	90%	83%	40-130%
	13C2-PFDoDA	86%	86%	40-130%
	13C2-PFTeDA	83%	88%	20-130%
	13C3-PFBS	88%	87%	40-135%
	13C3-PFHxS	89%	94%	40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-10-1-2		
Lab Sample ID:	FC18042-27	**Date Sampled:**	08/13/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	82.0
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	90%	103%	40-130%
	13C8-FOSA	94%	98%	40-130%
	d3-MeFOSA	88%	92%	10-130%
	d5-EtFOSA	84%	95%	10-130%
	d3-MeFOSAA	98%	100%	40-135%
	d5-EtFOSAA	102%	100%	40-150%
	d7-MeFOSE	94%	100%	20-130%
	d9-EtFOSE	94%	100%	15-130%
	13C2-4:2FTS	99%	89%	40-165%
	13C2-6:2FTS	100%	94%	40-215%
	13C2-8:2FTS	92%	83%	40-275%
	13C3-HFPO-DA	94%	91%	40-130%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-10-13-14		
Lab Sample ID:	FC18042-29	**Date Sampled:**	08/13/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	91.4
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7Q9554.D	1	09/08/24 19:54	MV	08/23/24 11:25	OP4934	S7Q148
Run #2							

	Initial Weight	Final Volume
Run #1	5.02 g	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.87	0.54	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	0.44	0.11	ug/kg	
307-24-4	Perfluorohexanoic acid	0.18	0.22	0.11	ug/kg	J
375-85-9	Perfluoroheptanoic acid	ND	0.22	0.11	ug/kg	
335-67-1	Perfluorooctanoic acid	0.19	0.22	0.11	ug/kg	J
375-95-1	Perfluorononanoic acid	0.82	0.22	0.13	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.22	0.11	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	0.22	0.14	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.22	0.11	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.22	0.11	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.22	0.11	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	0.40	0.22	0.11	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	0.48	0.22	0.17	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	2.7	0.22	0.17	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.18	0.22	0.16	ug/kg	J
1763-23-1	Perfluorooctanesulfonic acid	8.3	0.22	0.11	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.22	0.20	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.22	0.16	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.22	0.16	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.87	0.44	ug/kg	
27619-97-2	6:2-FTS	ND	0.87	0.44	ug/kg	
39108-34-4	8:2-FTS	ND	0.87	0.65	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.22	0.11	ug/kg	
31506-32-8	MeFOSA	ND	0.22	0.15	ug/kg	
4151-50-2	EtFOSA	ND	0.22	0.11	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-10-13-14		
Lab Sample ID:	FC18042-29	**Date Sampled:**	08/13/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	91.4
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.22	0.17	ug/kg	
2991-50-6	EtFOSAA	ND	0.22	0.21	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.2	1.1	ug/kg	
1691-99-2	EtFOSE	ND	2.2	1.1	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.87	0.31	ug/kg	
919005-14-4	ADONA	ND	0.87	0.37	ug/kg	
377-73-1	PFMPA	ND	0.44	0.22	ug/kg	
863090-89-5	PFMBA	ND	0.44	0.22	ug/kg	
151772-58-6	NFDHA	ND	0.44	0.27	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.87	0.48	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.87	0.44	ug/kg	
113507-82-7	PFEESA	ND	0.44	0.22	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.1	0.55	ug/kg	
914637-49-3	5:3-FTCA	ND	5.4	1.3	ug/kg	
812-70-4	7:3-FTCA	ND	5.4	1.4	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	93%		10-130%
	13C5-PFPeA	88%		35-130%
	13C5-PFHxA	85%		40-130%
	13C4-PFHpA	91%		40-130%
	13C8-PFOA	89%		40-130%
	13C9-PFNA	100%		40-130%
	13C6-PFDA	90%		40-130%
	13C7-PFUnDA	90%		40-130%
	13C2-PFDoDA	88%		40-130%
	13C2-PFTeDA	88%		20-130%
	13C3-PFBS	90%		40-135%
	13C3-PFHxS	89%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-10-13-14		
Lab Sample ID:	FC18042-29	**Date Sampled:**	08/13/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	91.4
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	97%		40-130%
	13C8-FOSA	96%		40-130%
	d3-MeFOSA	98%		10-130%
	d5-EtFOSA	99%		10-130%
	d3-MeFOSAA	92%		40-135%
	d5-EtFOSAA	93%		40-150%
	d7-MeFOSE	107%		20-130%
	d9-EtFOSE	102%		15-130%
	13C2-4:2FTS	94%		40-165%
	13C2-6:2FTS	101%		40-215%
	13C2-8:2FTS	88%		40-275%
	13C3-HFPO-DA	91%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-11-1-2
Lab Sample ID: FC18042-30 **Date Sampled:** 08/12/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 92.2
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7Q9560.D	1	09/08/24 21:18	MV	08/26/24 10:15	OP4946	S7Q148
Run #2	7Q9798.D	2	09/11/24 11:03	MV	08/26/24 10:15	OP4946	S7Q150

	Initial Weight	Final Volume
Run #1	5.03 g	5.0 ml
Run #2	5.03 g	5.0 ml

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.86	0.54	ug/kg	
2706-90-3	Perfluoropentanoic acid	0.95	0.43	0.11	ug/kg	
307-24-4	Perfluorohexanoic acid	2.0	0.22	0.11	ug/kg	
375-85-9	Perfluoroheptanoic acid	0.37	0.22	0.11	ug/kg	
335-67-1	Perfluorooctanoic acid	1.3	0.22	0.11	ug/kg	
375-95-1	Perfluorononanoic acid	80.1 [a]	0.43	0.25	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.22	0.11	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	0.22	0.14	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.22	0.11	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.22	0.11	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.22	0.11	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	2.9	0.22	0.11	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	4.1	0.22	0.17	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	24.0	0.22	0.17	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	5.7	0.22	0.16	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	25.7	0.22	0.11	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.22	0.20	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.22	0.15	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.22	0.16	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.86	0.43	ug/kg	
27619-97-2	6:2-FTS	ND	0.86	0.43	ug/kg	
39108-34-4	8:2-FTS	ND	0.86	0.65	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.22	0.11	ug/kg	
31506-32-8	MeFOSA	ND	0.22	0.15	ug/kg	
4151-50-2	EtFOSA	ND	0.22	0.11	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-11-1-2		
Lab Sample ID:	FC18042-30	**Date Sampled:**	08/12/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	92.2
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.22	0.17	ug/kg	
2991-50-6	EtFOSAA	ND	0.22	0.21	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.2	1.1	ug/kg	
1691-99-2	EtFOSE	ND	2.2	1.1	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.86	0.31	ug/kg	
919005-14-4	ADONA	ND	0.86	0.36	ug/kg	
377-73-1	PFMPA	ND	0.43	0.22	ug/kg	
863090-89-5	PFMBA	ND	0.43	0.22	ug/kg	
151772-58-6	NFDHA	ND	0.43	0.26	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.86	0.47	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.86	0.43	ug/kg	
113507-82-7	PFEESA	ND	0.43	0.22	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.1	0.55	ug/kg	
914637-49-3	5:3-FTCA	ND	5.4	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	5.4	1.4	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	61%	61%	10-130%
	13C5-PFPeA	57%	58%	35-130%
	13C5-PFHxA	56%	55%	40-130%
	13C4-PFHpA	58%	59%	40-130%
	13C8-PFOA	61%	60%	40-130%
	13C9-PFNA	63%	62%	40-130%
	13C6-PFDA	58%	58%	40-130%
	13C7-PFUnDA	55%	57%	40-130%
	13C2-PFDoDA	57%	54%	40-130%
	13C2-PFTeDA	56%	52%	20-130%
	13C3-PFBS	56%	58%	40-135%
	13C3-PFHxS	59%	55%	40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-11-1-2		
Lab Sample ID:	FC18042-30	**Date Sampled:**	08/12/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	92.2
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	72%	64%	40-130%
	13C8-FOSA	68%	59%	40-130%
	d3-MeFOSA	66%	63%	10-130%
	d5-EtFOSA	71%	63%	10-130%
	d3-MeFOSAA	68%	64%	40-135%
	d5-EtFOSAA	70%	63%	40-150%
	d7-MeFOSE	73%	58%	20-130%
	d9-EtFOSE	72%	66%	15-130%
	13C2-4:2FTS	61%	69%	40-165%
	13C2-6:2FTS	58%	70%	40-215%
	13C2-8:2FTS	63%	69%	40-275%
	13C3-HFPO-DA	59%	61%	40-130%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-11-20-21		
Lab Sample ID:	FC18042-32	**Date Sampled:**	08/12/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	85.8
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7Q9649.D	1	09/09/24 20:10	MV	08/26/24 10:15	OP4946	S7Q149
Run #2							

	Initial Weight	Final Volume
Run #1	5.01 g	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.93	0.58	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	0.47	0.12	ug/kg	
307-24-4	Perfluorohexanoic acid	0.21	0.23	0.12	ug/kg	J
375-85-9	Perfluoroheptanoic acid	ND	0.23	0.12	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	0.23	0.12	ug/kg	
375-95-1	Perfluorononanoic acid	0.86	0.23	0.13	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.23	0.12	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	0.23	0.15	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.23	0.12	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.23	0.12	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.23	0.12	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	0.16	0.23	0.12	ug/kg	J
2706-91-4	Perfluoropentanesulfonic acid	0.24	0.23	0.18	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	1.3	0.23	0.18	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.23	0.17	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	3.1	0.23	0.12	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.23	0.21	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.23	0.17	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.23	0.17	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.93	0.47	ug/kg	
27619-97-2	6:2-FTS	ND	0.93	0.47	ug/kg	
39108-34-4	8:2-FTS	ND	0.93	0.70	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.23	0.12	ug/kg	
31506-32-8	MeFOSA	ND	0.23	0.16	ug/kg	
4151-50-2	EtFOSA	ND	0.23	0.12	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-11-20-21		
Lab Sample ID:	FC18042-32	**Date Sampled:**	08/12/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	85.8
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.23	0.18	ug/kg	
2991-50-6	EtFOSAA	ND	0.23	0.23	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.3	1.2	ug/kg	
1691-99-2	EtFOSE	ND	2.3	1.2	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.93	0.34	ug/kg	
919005-14-4	ADONA	ND	0.93	0.39	ug/kg	
377-73-1	PFMPA	ND	0.47	0.23	ug/kg	
863090-89-5	PFMBA	ND	0.47	0.23	ug/kg	
151772-58-6	NFDHA	ND	0.47	0.28	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.93	0.51	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.93	0.47	ug/kg	
113507-82-7	PFEESA	ND	0.47	0.23	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.2	0.59	ug/kg	
914637-49-3	5:3-FTCA	ND	5.8	1.3	ug/kg	
812-70-4	7:3-FTCA	ND	5.8	1.5	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	83%		10-130%
	13C5-PFPeA	79%		35-130%
	13C5-PFHxA	75%		40-130%
	13C4-PFHpA	80%		40-130%
	13C8-PFOA	83%		40-130%
	13C9-PFNA	91%		40-130%
	13C6-PFDA	84%		40-130%
	13C7-PFUnDA	80%		40-130%
	13C2-PFDoDA	78%		40-130%
	13C2-PFTeDA	72%		20-130%
	13C3-PFBS	76%		40-135%
	13C3-PFHxS	80%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-11-20-21		
Lab Sample ID:	FC18042-32	**Date Sampled:**	08/12/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	85.8
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	88%		40-130%
	13C8-FOSA	83%		40-130%
	d3-MeFOSA	84%		10-130%
	d5-EtFOSA	87%		10-130%
	d3-MeFOSAA	90%		40-135%
	d5-EtFOSAA	91%		40-150%
	d7-MeFOSE	88%		20-130%
	d9-EtFOSE	85%		15-130%
	13C2-4:2FTS	88%		40-165%
	13C2-6:2FTS	87%		40-215%
	13C2-8:2FTS	83%		40-275%
	13C3-HFPO-DA	81%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-12-1-2
Lab Sample ID: FC18042-33 **Date Sampled:** 08/12/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 86.9
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7Q9562.D	1	09/08/24 21:46	MV	08/26/24 10:15	OP4946	S7Q148
Run #2							

	Initial Weight	Final Volume
Run #1	5.01 g	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.92	0.57	ug/kg	
2706-90-3	Perfluoropentanoic acid	0.23	0.46	0.11	ug/kg	J
307-24-4	Perfluorohexanoic acid	0.30	0.23	0.11	ug/kg	
375-85-9	Perfluoroheptanoic acid	0.21	0.23	0.11	ug/kg	J
335-67-1	Perfluorooctanoic acid	0.88	0.23	0.11	ug/kg	
375-95-1	Perfluorononanoic acid	5.6	0.23	0.13	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.23	0.11	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	0.23	0.15	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.23	0.11	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.23	0.12	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.23	0.11	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	0.11	0.23	0.11	ug/kg	J
2706-91-4	Perfluoropentanesulfonic acid	0.21	0.23	0.18	ug/kg	J
355-46-4	Perfluorohexanesulfonic acid	3.3	0.23	0.18	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.23	0.17	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.23	0.11	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.23	0.21	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.23	0.16	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.23	0.17	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.92	0.46	ug/kg	
27619-97-2	6:2-FTS	ND	0.92	0.46	ug/kg	
39108-34-4	8:2-FTS	ND	0.92	0.69	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.23	0.11	ug/kg	
31506-32-8	MeFOSA	ND	0.23	0.16	ug/kg	
4151-50-2	EtFOSA	ND	0.23	0.12	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-12-1-2		
Lab Sample ID:	FC18042-33	**Date Sampled:**	08/12/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	86.9
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.23	0.18	ug/kg	
2991-50-6	EtFOSAA	ND	0.23	0.23	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.3	1.1	ug/kg	
1691-99-2	EtFOSE	ND	2.3	1.1	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.92	0.33	ug/kg	
919005-14-4	ADONA	ND	0.92	0.39	ug/kg	
377-73-1	PFMPA	ND	0.46	0.23	ug/kg	
863090-89-5	PFMBA	ND	0.46	0.23	ug/kg	
151772-58-6	NFDHA	ND	0.46	0.28	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.92	0.50	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.92	0.46	ug/kg	
113507-82-7	PFEESA	ND	0.46	0.23	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.1	0.58	ug/kg	
914637-49-3	5:3-FTCA	ND	5.7	1.3	ug/kg	
812-70-4	7:3-FTCA	ND	5.7	1.5	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	78%		10-130%
	13C5-PFPeA	75%		35-130%
	13C5-PFHxA	73%		40-130%
	13C4-PFHpA	77%		40-130%
	13C8-PFOA	78%		40-130%
	13C9-PFNA	81%		40-130%
	13C6-PFDA	79%		40-130%
	13C7-PFUnDA	72%		40-130%
	13C2-PFDoDA	74%		40-130%
	13C2-PFTeDA	72%		20-130%
	13C3-PFBS	84%		40-135%
	13C3-PFHxS	87%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-12-1-2		
Lab Sample ID:	FC18042-33	**Date Sampled:**	08/12/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	86.9
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	83%		40-130%
	13C8-FOSA	82%		40-130%
	d3-MeFOSA	77%		10-130%
	d5-EtFOSA	78%		10-130%
	d3-MeFOSAA	78%		40-135%
	d5-EtFOSAA	81%		40-150%
	d7-MeFOSE	83%		20-130%
	d9-EtFOSE	82%		15-130%
	13C2-4:2FTS	83%		40-165%
	13C2-6:2FTS	87%		40-215%
	13C2-8:2FTS	86%		40-275%
	13C3-HFPO-DA	77%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-12-5-6
Lab Sample ID: FC18042-34 **Date Sampled:** 08/12/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 80.4
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7Q9563.D	1	09/08/24 22:00	MV	08/26/24 10:15	OP4946	S7Q148
Run #2							

	Initial Weight	Final Volume
Run #1	5.01 g	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.99	0.62	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	0.50	0.12	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	0.25	0.12	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	0.25	0.12	ug/kg	
335-67-1	Perfluorooctanoic acid	0.17	0.25	0.12	ug/kg	J
375-95-1	Perfluorononanoic acid	0.52	0.25	0.14	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.25	0.12	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	0.25	0.17	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.25	0.12	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.25	0.13	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.25	0.12	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	ND	0.25	0.12	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.25	0.19	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	0.41	0.25	0.20	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.25	0.18	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.25	0.12	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.25	0.22	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.25	0.18	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.25	0.19	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.99	0.50	ug/kg	
27619-97-2	6:2-FTS	ND	0.99	0.50	ug/kg	
39108-34-4	8:2-FTS	ND	0.99	0.74	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.25	0.12	ug/kg	
31506-32-8	MeFOSA	ND	0.25	0.17	ug/kg	
4151-50-2	EtFOSA	ND	0.25	0.13	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-12-5-6		
Lab Sample ID:	FC18042-34	**Date Sampled:**	08/12/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	80.4
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.25	0.20	ug/kg	
2991-50-6	EtFOSAA	ND	0.25	0.24	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.5	1.2	ug/kg	
1691-99-2	EtFOSE	ND	2.5	1.2	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.99	0.36	ug/kg	
919005-14-4	ADONA	ND	0.99	0.42	ug/kg	
377-73-1	PFMPA	ND	0.50	0.25	ug/kg	
863090-89-5	PFMBA	ND	0.50	0.25	ug/kg	
151772-58-6	NFDHA	ND	0.50	0.30	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.99	0.54	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.99	0.50	ug/kg	
113507-82-7	PFEESA	ND	0.50	0.25	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.2	0.63	ug/kg	
914637-49-3	5:3-FTCA	ND	6.2	1.4	ug/kg	
812-70-4	7:3-FTCA	ND	6.2	1.6	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	81%		10-130%
	13C5-PFPeA	77%		35-130%
	13C5-PFHxA	76%		40-130%
	13C4-PFHpA	81%		40-130%
	13C8-PFOA	81%		40-130%
	13C9-PFNA	86%		40-130%
	13C6-PFDA	76%		40-130%
	13C7-PFUnDA	76%		40-130%
	13C2-PFDoDA	73%		40-130%
	13C2-PFTeDA	73%		20-130%
	13C3-PFBS	79%		40-135%
	13C3-PFHxS	86%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-12-5-6		
Lab Sample ID:	FC18042-34	**Date Sampled:**	08/12/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	80.4
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	87%		40-130%
	13C8-FOSA	85%		40-130%
	d3-MeFOSA	85%		10-130%
	d5-EtFOSA	89%		10-130%
	d3-MeFOSAA	88%		40-135%
	d5-EtFOSAA	90%		40-150%
	d7-MeFOSE	89%		20-130%
	d9-EtFOSE	86%		15-130%
	13C2-4:2FTS	86%		40-165%
	13C2-6:2FTS	86%		40-215%
	13C2-8:2FTS	79%		40-275%
	13C3-HFPO-DA	81%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SDUP-240814-1
Lab Sample ID: FC18042-36 **Date Sampled:** 08/14/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 92.5
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7Q9564.D	1	09/08/24 22:14	MV	08/26/24 10:15	OP4946	S7Q148
Run #2	7Q9799.D	10	09/11/24 11:17	MV	08/26/24 10:15	OP4946	S7Q150

	Initial Weight	Final Volume
Run #1	5.04 g	5.0 ml
Run #2	5.01 g	5.0 ml

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.86	0.54	ug/kg	
2706-90-3	Perfluoropentanoic acid	1.5	0.43	0.11	ug/kg	
307-24-4	Perfluorohexanoic acid	0.76	0.21	0.11	ug/kg	
375-85-9	Perfluoroheptanoic acid	0.32	0.21	0.11	ug/kg	
335-67-1	Perfluorooctanoic acid	0.56	0.21	0.11	ug/kg	
375-95-1	Perfluorononanoic acid	7.1	0.21	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	0.56	0.21	0.11	ug/kg	
2058-94-8	Perfluoroundecanoic acid	1.4	0.21	0.14	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.21	0.11	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.21	0.11	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.21	0.11	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	0.19	0.21	0.11	ug/kg	J
2706-91-4	Perfluoropentanesulfonic acid	0.33	0.21	0.17	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	3.4	0.21	0.17	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	0.21	0.21	0.16	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	314 [a]	2.2	1.1	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.21	0.19	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.21	0.15	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.21	0.16	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.86	0.43	ug/kg	
27619-97-2	6:2-FTS	ND	0.86	0.43	ug/kg	
39108-34-4	8:2-FTS	ND	0.86	0.64	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.21	0.11	ug/kg	
31506-32-8	MeFOSA	ND	0.21	0.15	ug/kg	
4151-50-2	EtFOSA	ND	0.21	0.11	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SDUP-240814-1		
Lab Sample ID:	FC18042-36	**Date Sampled:**	08/14/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	92.5
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.21	0.17	ug/kg	
2991-50-6	EtFOSAA	ND	0.21	0.21	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.1	1.1	ug/kg	
1691-99-2	EtFOSE	ND	2.1	1.1	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.86	0.31	ug/kg	
919005-14-4	ADONA	ND	0.86	0.36	ug/kg	
377-73-1	PFMPA	ND	0.43	0.21	ug/kg	
863090-89-5	PFMBA	ND	0.43	0.21	ug/kg	
151772-58-6	NFDHA	ND	0.43	0.26	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.86	0.47	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.86	0.43	ug/kg	
113507-82-7	PFEESA	ND	0.43	0.21	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.1	0.55	ug/kg	
914637-49-3	5:3-FTCA	ND	5.4	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	5.4	1.4	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	67%	64%	10-130%
	13C5-PFPeA	63%	67%	35-130%
	13C5-PFHxA	61%	63%	40-130%
	13C4-PFHpA	67%	65%	40-130%
	13C8-PFOA	65%	66%	40-130%
	13C9-PFNA	73%	66%	40-130%
	13C6-PFDA	66%	58%	40-130%
	13C7-PFUnDA	64%	60%	40-130%
	13C2-PFDoDA	68%	58%	40-130%
	13C2-PFTeDA	67%	60%	20-130%
	13C3-PFBS	68%	54%	40-135%
	13C3-PFHxS	68%	59%	40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SDUP-240814-1		
Lab Sample ID:	FC18042-36	**Date Sampled:**	08/14/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	92.5
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	70%	80%	40-130%
	13C8-FOSA	73%	67%	40-130%
	d3-MeFOSA	72%	72%	10-130%
	d5-EtFOSA	71%	58%	10-130%
	d3-MeFOSAA	64%	67%	40-135%
	d5-EtFOSAA	76%	65%	40-150%
	d7-MeFOSE	76%	79%	20-130%
	d9-EtFOSE	73%	59%	15-130%
	13C2-4:2FTS	67%	59%	40-165%
	13C2-6:2FTS	73%	61%	40-215%
	13C2-8:2FTS	67%	78%	40-275%
	13C3-HFPO-DA	66%	68%	40-130%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: SDUP-240814-2
Lab Sample ID: FC18042-37 **Date Sampled:** 08/14/24
Matrix: SO - Soil **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** 94.2
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	7Q9651.D	1	09/09/24 20:38	MV	08/26/24 10:15	OP4946	S7Q149
Run #2							

	Initial Weight	Final Volume
Run #1	5.01 g	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.85	0.53	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	0.42	0.11	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	0.21	0.11	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	0.21	0.11	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	0.21	0.11	ug/kg	
375-95-1	Perfluorononanoic acid	0.61	0.21	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	0.15	0.21	0.11	ug/kg	J
2058-94-8	Perfluoroundecanoic acid	0.59	0.21	0.14	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.21	0.11	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.21	0.11	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.21	0.11	ug/kg	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	ND	0.21	0.11	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.21	0.17	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	0.21	0.17	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.21	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	1.8	0.21	0.11	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.21	0.19	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.21	0.15	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.21	0.16	ug/kg	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.85	0.42	ug/kg	
27619-97-2	6:2-FTS	ND	0.85	0.42	ug/kg	
39108-34-4	8:2-FTS	ND	0.85	0.64	ug/kg	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.21	0.11	ug/kg	
31506-32-8	MeFOSA	ND	0.21	0.14	ug/kg	
4151-50-2	EtFOSA	ND	0.21	0.11	ug/kg	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SDUP-240814-2		
Lab Sample ID:	FC18042-37	**Date Sampled:**	08/14/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	94.2
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.21	0.17	ug/kg	
2991-50-6	EtFOSAA	ND	0.21	0.21	ug/kg	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	2.1	1.1	ug/kg	
1691-99-2	EtFOSE	ND	2.1	1.1	ug/kg	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.85	0.31	ug/kg	
919005-14-4	ADONA	ND	0.85	0.36	ug/kg	
377-73-1	PFMPA	ND	0.42	0.21	ug/kg	
863090-89-5	PFMBA	ND	0.42	0.21	ug/kg	
151772-58-6	NFDHA	ND	0.42	0.26	ug/kg	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.85	0.47	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.85	0.42	ug/kg	
113507-82-7	PFEESA	ND	0.42	0.21	ug/kg	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	1.1	0.54	ug/kg	
914637-49-3	5:3-FTCA	ND	5.3	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	5.3	1.3	ug/kg	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	78%		10-130%
	13C5-PFPeA	72%		35-130%
	13C5-PFHxA	68%		40-130%
	13C4-PFHpA	76%		40-130%
	13C8-PFOA	77%		40-130%
	13C9-PFNA	82%		40-130%
	13C6-PFDA	74%		40-130%
	13C7-PFUnDA	74%		40-130%
	13C2-PFDoDA	72%		40-130%
	13C2-PFTeDA	68%		20-130%
	13C3-PFBS	78%		40-135%
	13C3-PFHxS	80%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	SDUP-240814-2		
Lab Sample ID:	FC18042-37	**Date Sampled:**	08/14/24
Matrix:	SO - Soil	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	94.2
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	77%		40-130%
	13C8-FOSA	79%		40-130%
	d3-MeFOSA	78%		10-130%
	d5-EtFOSA	82%		10-130%
	d3-MeFOSAA	76%		40-135%
	d5-EtFOSAA	75%		40-150%
	d7-MeFOSE	82%		20-130%
	d9-EtFOSE	82%		15-130%
	13C2-4:2FTS	88%		40-165%
	13C2-6:2FTS	87%		40-215%
	13C2-8:2FTS	84%		40-275%
	13C3-HFPO-DA	76%		40-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-1-240814
Lab Sample ID: FC18042-38 **Date Sampled:** 08/14/24
Matrix: AQ - Ground Water **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** n/a
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q66021.D	1	09/09/24 21:50	MB	09/05/24 06:50	OP5158	S4Q971
Run #2							

	Initial Volume	Final Volume
Run #1	300 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	13.1	13	6.7	ng/l	
2706-90-3	Perfluoropentanoic acid	6.9	6.7	1.7	ng/l	
307-24-4	Perfluorohexanoic acid	15.3	3.3	0.83	ng/l	
375-85-9	Perfluoroheptanoic acid	15.8	3.3	0.83	ng/l	
335-67-1	Perfluorooctanoic acid	10.5	3.3	0.83	ng/l	
375-95-1	Perfluorononanoic acid	60.0	3.3	1.0	ng/l	
335-76-2	Perfluorodecanoic acid	1.3	3.3	0.83	ng/l	J
2058-94-8	Perfluoroundecanoic acid	10.9	3.3	1.0	ng/l	
307-55-1	Perfluorododecanoic acid	ND	3.3	1.0	ng/l	
72629-94-8	Perfluorotridecanoic acid	1.4	3.3	1.4	ng/l	J
376-06-7	Perfluorotetradecanoic acid	ND	3.3	0.83	ng/l	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	3.0	3.3	1.7	ng/l	J
2706-91-4	Perfluoropentanesulfonic acid	2.8	3.3	1.9	ng/l	J
355-46-4	Perfluorohexanesulfonic acid	18.5	3.3	1.7	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	3.3	1.7	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	68.5	3.3	1.7	ng/l	
68259-12-1	Perfluorononanesulfonic acid	ND	3.3	1.7	ng/l	
335-77-3	Perfluorodecanesulfonic acid	ND	3.3	1.7	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	3.3	1.9	ng/l	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	13	6.7	ng/l	
27619-97-2	6:2-FTS	ND	13	6.7	ng/l	
39108-34-4	8:2-FTS	ND	13	6.9	ng/l	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	3.3	1.7	ng/l	
31506-32-8	MeFOSA	ND	6.7	1.7	ng/l	
4151-50-2	EtFOSA	ND	6.7	1.7	ng/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-1-240814		
Lab Sample ID:	FC18042-38	**Date Sampled:**	08/14/24
Matrix:	AQ - Ground Water	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	3.3	1.7	ng/l	
2991-50-6	EtFOSAA	ND	3.3	2.2	ng/l	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	33	17	ng/l	
1691-99-2	EtFOSE	ND	33	17	ng/l	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	6.7	1.7	ng/l	
919005-14-4	ADONA	ND	13	3.3	ng/l	
377-73-1	PFMPA	ND	6.7	1.7	ng/l	
863090-89-5	PFMBA	ND	6.7	1.9	ng/l	
151772-58-6	NFDHA	ND	6.7	2.0	ng/l	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	13	3.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	13	3.3	ng/l	
113507-82-7	PFEESA	ND	6.7	1.7	ng/l	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	17	8.3	ng/l	
914637-49-3	5:3-FTCA	ND	83	17	ng/l	
812-70-4	7:3-FTCA	ND	83	17	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	96%		10-130%
	13C5-PFPeA	94%		40-130%
	13C5-PFHxA	95%		40-130%
	13C4-PFHpA	93%		40-130%
	13C8-PFOA	94%		40-130%
	13C9-PFNA	90%		40-130%
	13C6-PFDA	89%		40-130%
	13C7-PFUnDA	74%		30-130%
	13C2-PFDoDA	64%		10-130%
	13C2-PFTeDA	60%		10-130%
	13C3-PFBS	91%		40-135%
	13C3-PFHxS	91%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-1-240814		
Lab Sample ID:	FC18042-38	**Date Sampled:**	08/14/24
Matrix:	AQ - Ground Water	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	91%		40-130%
	13C8-FOSA	72%		40-130%
	d3-MeFOSA	54%		10-130%
	d5-EtFOSA	55%		10-130%
	d3-MeFOSAA	81%		40-170%
	d5-EtFOSAA	73%		25-135%
	d7-MeFOSE	52%		10-130%
	d9-EtFOSE	56%		10-130%
	13C2-4:2FTS	106%		40-200%
	13C2-6:2FTS	87%		40-200%
	13C2-8:2FTS	83%		40-300%
	13C3-HFPO-DA	84%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-4-240812		
Lab Sample ID:	FC18042-39	**Date Sampled:**	08/12/24
Matrix:	AQ - Ground Water	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q66022.D	1	09/09/24 22:05	MB	09/05/24 06:50	OP5158	S4Q971
Run #2	4Q66088.D	5	09/10/24 16:54	MB	09/05/24 06:50	OP5158	S4Q972

	Initial Volume	Final Volume
Run #1	450 ml	5.0 ml
Run #2	450 ml	5.0 ml

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	92.0	8.9	4.4	ng/l	
2706-90-3	Perfluoropentanoic acid	343	4.4	1.1	ng/l	
307-24-4	Perfluorohexanoic acid	279	2.2	0.56	ng/l	
375-85-9	Perfluoroheptanoic acid	183	2.2	0.56	ng/l	
335-67-1	Perfluorooctanoic acid	269	2.2	0.56	ng/l	
375-95-1	Perfluorononanoic acid	566	2.2	0.68	ng/l	
335-76-2	Perfluorodecanoic acid	ND	2.2	0.56	ng/l	
2058-94-8	Perfluoroundecanoic acid	ND	2.2	0.67	ng/l	
307-55-1	Perfluorododecanoic acid	ND	2.2	0.67	ng/l	
72629-94-8	Perfluorotridecanoic acid	ND	2.2	0.93	ng/l	
376-06-7	Perfluorotetradecanoic acid	ND	2.2	0.56	ng/l	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	145	2.2	1.1	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	164	2.2	1.2	ng/l	
355-46-4	Perfluorohexanesulfonic acid	1080 [a]	11	5.6	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	39.3	2.2	1.1	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	81.2	2.2	1.1	ng/l	
68259-12-1	Perfluorononanesulfonic acid	ND	2.2	1.1	ng/l	
335-77-3	Perfluorodecanesulfonic acid	ND	2.2	1.1	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	2.2	1.3	ng/l	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	8.9	4.4	ng/l	
27619-97-2	6:2-FTS	ND	8.9	4.4	ng/l	
39108-34-4	8:2-FTS	ND	8.9	4.6	ng/l	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	2.2	1.1	ng/l	
31506-32-8	MeFOSA	ND	4.4	1.1	ng/l	
4151-50-2	EtFOSA	ND	4.4	1.1	ng/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-4-240812		
Lab Sample ID:	FC18042-39	**Date Sampled:**	08/12/24
Matrix:	AQ - Ground Water	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	2.2	1.1	ng/l	
2991-50-6	EtFOSAA	ND	2.2	1.5	ng/l	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	22	11	ng/l	
1691-99-2	EtFOSE	ND	22	11	ng/l	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	4.4	1.1	ng/l	
919005-14-4	ADONA	ND	8.9	2.2	ng/l	
377-73-1	PFMPA	ND	4.4	1.1	ng/l	
863090-89-5	PFMBA	ND	4.4	1.3	ng/l	
151772-58-6	NFDHA	ND	4.4	1.3	ng/l	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	8.9	2.2	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	8.9	2.2	ng/l	
113507-82-7	PFEESA	ND	4.4	1.1	ng/l	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	11	5.6	ng/l	
914637-49-3	5:3-FTCA	ND	56	11	ng/l	
812-70-4	7:3-FTCA	ND	56	11	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	63%	63%	10-130%
	13C5-PFPeA	96%	97%	40-130%
	13C5-PFHxA	97%	102%	40-130%
	13C4-PFHpA	96%	98%	40-130%
	13C8-PFOA	99%	101%	40-130%
	13C9-PFNA	96%	93%	40-130%
	13C6-PFDA	86%	104%	40-130%
	13C7-PFUnDA	74%	76%	30-130%
	13C2-PFDoDA	61%	63%	10-130%
	13C2-PFTeDA	57%	61%	10-130%
	13C3-PFBS	102%	92%	40-135%
	13C3-PFHxS	95%	96%	40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-4-240812		
Lab Sample ID:	FC18042-39	**Date Sampled:**	08/12/24
Matrix:	AQ - Ground Water	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	96%	90%	40-130%
	13C8-FOSA	88%	81%	40-130%
	d3-MeFOSA	62%	57%	10-130%
	d5-EtFOSA	61%	54%	10-130%
	d3-MeFOSAA	87%	80%	40-170%
	d5-EtFOSAA	77%	69%	25-135%
	d7-MeFOSE	57%	47%	10-130%
	d9-EtFOSE	59%	62%	10-130%
	13C2-4:2FTS	125%	104%	40-200%
	13C2-6:2FTS	98%	99%	40-200%
	13C2-8:2FTS	101%	94%	40-300%
	13C3-HFPO-DA	84%	81%	40-130%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-6-240814		
Lab Sample ID:	FC18042-41	**Date Sampled:**	08/14/24
Matrix:	AQ - Ground Water	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q66089.D	1	09/10/24 17:09	MB	09/05/24 06:50	OP5158	S4Q972
Run #2	4Q66090.D	5	09/10/24 17:24	MB	09/05/24 06:50	OP5158	S4Q972

	Initial Volume	Final Volume
Run #1	30.0 ml	5.0 ml
Run #2	30.0 ml	5.0 ml

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	211	130	67	ng/l	
2706-90-3	Perfluoropentanoic acid	558	67	17	ng/l	
307-24-4	Perfluorohexanoic acid	485	33	8.3	ng/l	
375-85-9	Perfluoroheptanoic acid	315	33	8.3	ng/l	
335-67-1	Perfluorooctanoic acid	473	33	8.3	ng/l	
375-95-1	Perfluorononanoic acid	5990	33	10	ng/l	
335-76-2	Perfluorodecanoic acid	ND	33	8.3	ng/l	
2058-94-8	Perfluoroundecanoic acid	ND	33	10	ng/l	
307-55-1	Perfluorododecanoic acid	ND	33	10	ng/l	
72629-94-8	Perfluorotridecanoic acid	ND	33	14	ng/l	
376-06-7	Perfluorotetradecanoic acid	ND	33	8.3	ng/l	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	343	33	17	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	374	33	19	ng/l	
355-46-4	Perfluorohexanesulfonic acid	2710	33	17	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	413	33	17	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	31400 [a]	170	83	ng/l	
68259-12-1	Perfluorononanesulfonic acid	ND	33	17	ng/l	
335-77-3	Perfluorodecanesulfonic acid	ND	33	17	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	33	19	ng/l	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	130	67	ng/l	
27619-97-2	6:2-FTS	308	130	67	ng/l	
39108-34-4	8:2-FTS	ND	130	69	ng/l	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	33	17	ng/l	
31506-32-8	MeFOSA	ND	67	17	ng/l	
4151-50-2	EtFOSA	ND	67	17	ng/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-6-240814		
Lab Sample ID:	FC18042-41	**Date Sampled:**	08/14/24
Matrix:	AQ - Ground Water	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	33	17	ng/l	
2991-50-6	EtFOSAA	ND	33	22	ng/l	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	330	170	ng/l	
1691-99-2	EtFOSE	ND	330	170	ng/l	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	67	17	ng/l	
919005-14-4	ADONA	ND	130	33	ng/l	
377-73-1	PFMPA	ND	67	17	ng/l	
863090-89-5	PFMBA	ND	67	19	ng/l	
151772-58-6	NFDHA	ND	67	20	ng/l	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	130	33	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	130	33	ng/l	
113507-82-7	PFEESA	ND	67	17	ng/l	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	170	83	ng/l	
914637-49-3	5:3-FTCA	ND	830	170	ng/l	
812-70-4	7:3-FTCA	ND	830	170	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	101%	101%	10-130%
	13C5-PFPeA	102%	98%	40-130%
	13C5-PFHxA	102%	99%	40-130%
	13C4-PFHpA	102%	97%	40-130%
	13C8-PFOA	98%	102%	40-130%
	13C9-PFNA	98%	91%	40-130%
	13C6-PFDA	103%	101%	40-130%
	13C7-PFUnDA	106%	99%	30-130%
	13C2-PFDoDA	99%	88%	10-130%
	13C2-PFTeDA	90%	78%	10-130%
	13C3-PFBS	101%	97%	40-135%
	13C3-PFHxS	106%	95%	40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-6-240814		
Lab Sample ID:	FC18042-41	**Date Sampled:**	08/14/24
Matrix:	AQ - Ground Water	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	100%	105%	40-130%
	13C8-FOSA	113%	96%	40-130%
	d3-MeFOSA	100%	76%	10-130%
	d5-EtFOSA	96%	82%	10-130%
	d3-MeFOSAA	98%	91%	40-170%
	d5-EtFOSAA	97%	88%	25-135%
	d7-MeFOSE	104%	79%	10-130%
	d9-EtFOSE	106%	95%	10-130%
	13C2-4:2FTS	118%	113%	40-200%
	13C2-6:2FTS	94%	104%	40-200%
	13C2-8:2FTS	91%	75%	40-300%
	13C3-HFPO-DA	83%	80%	40-130%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-10-240813		
Lab Sample ID:	FC18042-44	**Date Sampled:**	08/13/24
Matrix:	AQ - Ground Water	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q66026.D	1	09/09/24 23:04	MB	09/05/24 06:50	OP5158	S4Q971
Run #2	4Q66091.D	10	09/10/24 17:38	MB	09/05/24 06:50	OP5158	S4Q972

	Initial Volume	Final Volume
Run #1	60.0 ml	5.0 ml
Run #2	60.0 ml	5.0 ml

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	792	67	33	ng/l	
2706-90-3	Perfluoropentanoic acid	2170	33	8.3	ng/l	
307-24-4	Perfluorohexanoic acid	4410	17	4.2	ng/l	
375-85-9	Perfluoroheptanoic acid	1360	17	4.2	ng/l	
335-67-1	Perfluorooctanoic acid	3470	17	4.2	ng/l	
375-95-1	Perfluorononanoic acid	13500 [a]	170	51	ng/l	
335-76-2	Perfluorodecanoic acid	29.3	17	4.2	ng/l	
2058-94-8	Perfluoroundecanoic acid	8.1	17	5.0	ng/l	J
307-55-1	Perfluorododecanoic acid	ND	17	5.0	ng/l	
72629-94-8	Perfluorotridecanoic acid	ND	17	7.0	ng/l	
376-06-7	Perfluorotetradecanoic acid	ND	17	4.2	ng/l	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	12300 [a]	170	83	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	12100 [a]	170	93	ng/l	
355-46-4	Perfluorohexanesulfonic acid	45500 [a]	170	83	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	3580	17	8.3	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	48100 [a]	170	83	ng/l	
68259-12-1	Perfluorononanesulfonic acid	ND	17	8.3	ng/l	
335-77-3	Perfluorodecanesulfonic acid	ND	17	8.3	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	17	9.5	ng/l	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	67	33	ng/l	
27619-97-2	6:2-FTS	544	67	33	ng/l	
39108-34-4	8:2-FTS	ND	67	34	ng/l	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	17	8.3	ng/l	
31506-32-8	MeFOSA	ND	33	8.3	ng/l	
4151-50-2	EtFOSA	ND	33	8.3	ng/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-10-240813		
Lab Sample ID:	FC18042-44	**Date Sampled:**	08/13/24
Matrix:	AQ - Ground Water	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	17	8.3	ng/l	
2991-50-6	EtFOSAA	ND	17	11	ng/l	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	170	83	ng/l	
1691-99-2	EtFOSE	ND	170	83	ng/l	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	33	8.3	ng/l	
919005-14-4	ADONA	ND	67	17	ng/l	
377-73-1	PFMPA	ND	33	8.3	ng/l	
863090-89-5	PFMBA	ND	33	9.5	ng/l	
151772-58-6	NFDHA	ND	33	10	ng/l	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	67	17	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	67	17	ng/l	
113507-82-7	PFEESA	ND	33	8.3	ng/l	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	83	42	ng/l	
914637-49-3	5:3-FTCA	ND	420	83	ng/l	
812-70-4	7:3-FTCA	ND	420	83	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	102%	105%	10-130%
	13C5-PFPeA	107%	100%	40-130%
	13C5-PFHxA	100%	100%	40-130%
	13C4-PFHpA	100%	101%	40-130%
	13C8-PFOA	99%	99%	40-130%
	13C9-PFNA	95%	81%	40-130%
	13C6-PFDA	82%	83%	40-130%
	13C7-PFUnDA	95%	73%	30-130%
	13C2-PFDoDA	89%	65%	10-130%
	13C2-PFTeDA	95%	67%	10-130%
	13C3-PFBS	119%	95%	40-135%
	13C3-PFHxS	91%	94%	40-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-10-240813		
Lab Sample ID:	FC18042-44	**Date Sampled:**	08/13/24
Matrix:	AQ - Ground Water	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	100%	92%	40-130%
	13C8-FOSA	108%	79%	40-130%
	d3-MeFOSA	94%	62%	10-130%
	d5-EtFOSA	96%	72%	10-130%
	d3-MeFOSAA	68%	61%	40-170%
	d5-EtFOSAA	77%	63%	25-135%
	d7-MeFOSE	90%	57%	10-130%
	d9-EtFOSE	98%	81%	10-130%
	13C2-4:2FTS	146%	90%	40-200%
	13C2-6:2FTS	134%	100%	40-200%
	13C2-8:2FTS	102%	57%	40-300%
	13C3-HFPO-DA	100%	83%	40-130%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-12-240812		
Lab Sample ID:	FC18042-46	**Date Sampled:**	08/12/24
Matrix:	AQ - Ground Water	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q66093.D	1	09/10/24 18:08	MB	09/05/24 06:50	OP5158	S4Q972
Run #2	4Q66094.D	5	09/10/24 18:23	MB	09/05/24 06:50	OP5158	S4Q972

	Initial Volume	Final Volume
Run #1	60.0 ml	5.0 ml
Run #2	60.0 ml	5.0 ml

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	414	67	33	ng/l	
2706-90-3	Perfluoropentanoic acid	1210	33	8.3	ng/l	
307-24-4	Perfluorohexanoic acid	1530	17	4.2	ng/l	
375-85-9	Perfluoroheptanoic acid	710	17	4.2	ng/l	
335-67-1	Perfluorooctanoic acid	1210	17	4.2	ng/l	
375-95-1	Perfluorononanoic acid	3960	17	5.1	ng/l	
335-76-2	Perfluorodecanoic acid	ND	17	4.2	ng/l	
2058-94-8	Perfluoroundecanoic acid	ND	17	5.0	ng/l	
307-55-1	Perfluorododecanoic acid	ND	17	5.0	ng/l	
72629-94-8	Perfluorotridecanoic acid	ND	17	7.0	ng/l	
376-06-7	Perfluorotetradecanoic acid	ND	17	4.2	ng/l	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	1800	17	8.3	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	2530	17	9.3	ng/l	
355-46-4	Perfluorohexanesulfonic acid	10800 [a]	83	42	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	486	17	8.3	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	7660 [a]	83	42	ng/l	
68259-12-1	Perfluorononanesulfonic acid	ND	17	8.3	ng/l	
335-77-3	Perfluorodecanesulfonic acid	ND	17	8.3	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	17	9.5	ng/l	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	67	33	ng/l	
27619-97-2	6:2-FTS	804	67	33	ng/l	
39108-34-4	8:2-FTS	ND	67	34	ng/l	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	17	8.3	ng/l	
31506-32-8	MeFOSA	ND	33	8.3	ng/l	
4151-50-2	EtFOSA	ND	33	8.3	ng/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-12-240812		
Lab Sample ID:	FC18042-46	**Date Sampled:**	08/12/24
Matrix:	AQ - Ground Water	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	17	8.3	ng/l	
2991-50-6	EtFOSAA	ND	17	11	ng/l	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	170	83	ng/l	
1691-99-2	EtFOSE	ND	170	83	ng/l	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	33	8.3	ng/l	
919005-14-4	ADONA	ND	67	17	ng/l	
377-73-1	PFMPA	ND	33	8.3	ng/l	
863090-89-5	PFMBA	ND	33	9.5	ng/l	
151772-58-6	NFDHA	ND	33	10	ng/l	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	67	17	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	67	17	ng/l	
113507-82-7	PFEESA	ND	33	8.3	ng/l	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	83	42	ng/l	
914637-49-3	5:3-FTCA	ND	420	83	ng/l	
812-70-4	7:3-FTCA	ND	420	83	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	105%	107%	10-130%
	13C5-PFPeA	107%	104%	40-130%
	13C5-PFHxA	107%	107%	40-130%
	13C4-PFHpA	106%	102%	40-130%
	13C8-PFOA	103%	109%	40-130%
	13C9-PFNA	104%	111%	40-130%
	13C6-PFDA	98%	101%	40-130%
	13C7-PFUnDA	98%	96%	30-130%
	13C2-PFDoDA	90%	87%	10-130%
	13C2-PFTeDA	91%	84%	10-130%
	13C3-PFBS	123%	94%	40-135%
	13C3-PFHxS	106%	92%	40-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-12-240812		
Lab Sample ID:	FC18042-46	**Date Sampled:**	08/12/24
Matrix:	AQ - Ground Water	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	99%	93%	40-130%
	13C8-FOSA	88%	76%	40-130%
	d3-MeFOSA	78%	79%	10-130%
	d5-EtFOSA	79%	77%	10-130%
	d3-MeFOSAA	85%	71%	40-170%
	d5-EtFOSAA	84%	76%	25-135%
	d7-MeFOSE	73%	63%	10-130%
	d9-EtFOSE	80%	82%	10-130%
	13C2-4:2FTS	122%	87%	40-200%
	13C2-6:2FTS	104%	83%	40-200%
	13C2-8:2FTS	100%	69%	40-300%
	13C3-HFPO-DA	90%	89%	40-130%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WDUP-240814		
Lab Sample ID:	FC18042-47	**Date Sampled:**	08/14/24
Matrix:	AQ - Ground Water	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q66095.D	1	09/10/24 18:38	MB	09/05/24 06:50	OP5158	S4Q972
Run #2							

	Initial Volume	Final Volume
Run #1	325 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	13.7	12	6.2	ng/l	
2706-90-3	Perfluoropentanoic acid	6.8	6.2	1.5	ng/l	
307-24-4	Perfluorohexanoic acid	14.3	3.1	0.77	ng/l	
375-85-9	Perfluoroheptanoic acid	15.9	3.1	0.77	ng/l	
335-67-1	Perfluorooctanoic acid	10.3	3.1	0.77	ng/l	
375-95-1	Perfluorononanoic acid	57.2	3.1	0.94	ng/l	
335-76-2	Perfluorodecanoic acid	1.5	3.1	0.77	ng/l	J
2058-94-8	Perfluoroundecanoic acid	8.4	3.1	0.92	ng/l	
307-55-1	Perfluorododecanoic acid	ND	3.1	0.92	ng/l	
72629-94-8	Perfluorotridecanoic acid	ND	3.1	1.3	ng/l	
376-06-7	Perfluorotetradecanoic acid	ND	3.1	0.77	ng/l	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	3.1	3.1	1.5	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	2.9	3.1	1.7	ng/l	J
355-46-4	Perfluorohexanesulfonic acid	19.9	3.1	1.5	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	3.1	1.5	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	64.4	3.1	1.5	ng/l	
68259-12-1	Perfluorononanesulfonic acid	ND	3.1	1.5	ng/l	
335-77-3	Perfluorodecanesulfonic acid	ND	3.1	1.5	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	3.1	1.8	ng/l	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	12	6.2	ng/l	
27619-97-2	6:2-FTS	ND	12	6.2	ng/l	
39108-34-4	8:2-FTS	ND	12	6.3	ng/l	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	3.1	1.5	ng/l	
31506-32-8	MeFOSA	ND	6.2	1.5	ng/l	
4151-50-2	EtFOSA	ND	6.2	1.5	ng/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WDUP-240814		
Lab Sample ID:	FC18042-47	**Date Sampled:**	08/14/24
Matrix:	AQ - Ground Water	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	3.1	1.5	ng/l	
2991-50-6	EtFOSAA	ND	3.1	2.0	ng/l	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	31	15	ng/l	
1691-99-2	EtFOSE	ND	31	15	ng/l	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	6.2	1.5	ng/l	
919005-14-4	ADONA	ND	12	3.1	ng/l	
377-73-1	PFMPA	ND	6.2	1.5	ng/l	
863090-89-5	PFMBA	ND	6.2	1.8	ng/l	
151772-58-6	NFDHA	ND	6.2	1.8	ng/l	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	12	3.1	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	12	3.1	ng/l	
113507-82-7	PFEESA	ND	6.2	1.5	ng/l	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	15	7.7	ng/l	
914637-49-3	5:3-FTCA	ND	77	15	ng/l	
812-70-4	7:3-FTCA	ND	77	15	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	94%		10-130%
	13C5-PFPeA	94%		40-130%
	13C5-PFHxA	97%		40-130%
	13C4-PFHpA	94%		40-130%
	13C8-PFOA	94%		40-130%
	13C9-PFNA	93%		40-130%
	13C6-PFDA	87%		40-130%
	13C7-PFUnDA	77%		30-130%
	13C2-PFDoDA	66%		10-130%
	13C2-PFTeDA	68%		10-130%
	13C3-PFBS	97%		40-135%
	13C3-PFHxS	97%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: WDUP-240814
Lab Sample ID: FC18042-47 **Date Sampled:** 08/14/24
Matrix: AQ - Ground Water **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** n/a
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	85%		40-130%
	13C8-FOSA	82%		40-130%
	d3-MeFOSA	62%		10-130%
	d5-EtFOSA	62%		10-130%
	d3-MeFOSAA	74%		40-170%
	d5-EtFOSAA	67%		25-135%
	d7-MeFOSE	60%		10-130%
	d9-EtFOSE	64%		10-130%
	13C2-4:2FTS	102%		40-200%
	13C2-6:2FTS	85%		40-200%
	13C2-8:2FTS	81%		40-300%
	13C3-HFPO-DA	73%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RB-240813		
Lab Sample ID:	FC18042-50	**Date Sampled:**	08/13/24
Matrix:	AQ - Equipment Blank	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q66029.D	1	09/09/24 23:48	MB	09/05/24 06:50	OP5158	S4Q971
Run #2							

	Initial Volume	Final Volume
Run #1	500 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	8.0	4.0	ng/l	
2706-90-3	Perfluoropentanoic acid	ND	4.0	1.0	ng/l	
307-24-4	Perfluorohexanoic acid	ND	2.0	0.50	ng/l	
375-85-9	Perfluoroheptanoic acid	ND	2.0	0.50	ng/l	
335-67-1	Perfluorooctanoic acid	ND	2.0	0.50	ng/l	
375-95-1	Perfluorononanoic acid	ND	2.0	0.61	ng/l	
335-76-2	Perfluorodecanoic acid	ND	2.0	0.50	ng/l	
2058-94-8	Perfluoroundecanoic acid	ND	2.0	0.60	ng/l	
307-55-1	Perfluorododecanoic acid	ND	2.0	0.60	ng/l	
72629-94-8	Perfluorotridecanoic acid	ND	2.0	0.84	ng/l	
376-06-7	Perfluorotetradecanoic acid	ND	2.0	0.50	ng/l	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	ND	2.0	1.0	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	2.0	1.1	ng/l	
355-46-4	Perfluorohexanesulfonic acid	ND	2.0	1.0	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	2.0	1.0	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	2.0	1.0	ng/l	
68259-12-1	Perfluorononanesulfonic acid	ND	2.0	1.0	ng/l	
335-77-3	Perfluorodecanesulfonic acid	ND	2.0	1.0	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	2.0	1.1	ng/l	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	8.0	4.0	ng/l	
27619-97-2	6:2-FTS	ND	8.0	4.0	ng/l	
39108-34-4	8:2-FTS	ND	8.0	4.1	ng/l	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	2.0	1.0	ng/l	
31506-32-8	MeFOSA	ND	4.0	1.0	ng/l	
4151-50-2	EtFOSA	ND	4.0	1.0	ng/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RB-240813		
Lab Sample ID:	FC18042-50	**Date Sampled:**	08/13/24
Matrix:	AQ - Equipment Blank	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	2.0	1.0	ng/l	
2991-50-6	EtFOSAA	ND	2.0	1.3	ng/l	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	20	10	ng/l	
1691-99-2	EtFOSE	ND	20	10	ng/l	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	4.0	1.0	ng/l	
919005-14-4	ADONA	ND	8.0	2.0	ng/l	
377-73-1	PFMPA	ND	4.0	1.0	ng/l	
863090-89-5	PFMBA	ND	4.0	1.1	ng/l	
151772-58-6	NFDHA	ND	4.0	1.2	ng/l	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	8.0	2.0	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	8.0	2.0	ng/l	
113507-82-7	PFEESA	ND	4.0	1.0	ng/l	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	10	5.0	ng/l	
914637-49-3	5:3-FTCA	ND	50	10	ng/l	
812-70-4	7:3-FTCA	ND	50	10	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	103%		10-130%
	13C5-PFPeA	101%		40-130%
	13C5-PFHxA	103%		40-130%
	13C4-PFHpA	101%		40-130%
	13C8-PFOA	103%		40-130%
	13C9-PFNA	99%		40-130%
	13C6-PFDA	105%		40-130%
	13C7-PFUnDA	108%		30-130%
	13C2-PFDoDA	92%		10-130%
	13C2-PFTeDA	80%		10-130%
	13C3-PFBS	106%		40-135%
	13C3-PFHxS	102%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	RB-240813		
Lab Sample ID:	FC18042-50	**Date Sampled:**	08/13/24
Matrix:	AQ - Equipment Blank	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	104%		40-130%
	13C8-FOSA	79%		40-130%
	d3-MeFOSA	65%		10-130%
	d5-EtFOSA	69%		10-130%
	d3-MeFOSAA	105%		40-170%
	d5-EtFOSAA	96%		25-135%
	d7-MeFOSE	63%		10-130%
	d9-EtFOSE	70%		10-130%
	13C2-4:2FTS	119%		40-200%
	13C2-6:2FTS	105%		40-200%
	13C2-8:2FTS	103%		40-300%
	13C3-HFPO-DA	90%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SGS North America Inc - Orlando

Chain of Custody

4405

Vineland Road, Suite C-15 Orlando, Fl 32811
TEL: 407-425-6700 FAX: 407-425-0707
www.sgs.com

SGS - ORLANDO JOB # : PAGE 1 OF 5

SGS - ORLANDO Quote # SKIFF # FC18042

Client / Reporting Information	Project Information
Company Name: GeoEngineers, Inc.	Project Name: Bailer Hill PFAS Tier 2 Investigation
Address: 2101 4th Ave., Suite 950	Street: 3189 Bailer Hill Rd
City: Seattle State: WA Zip: 98121	City: Friday Harbor State: Washington
Project Contact: Jacob Letts Email: jletts@geoengineers.com	Project #: 00504-217-00
Phone #:	Fax #
Sampler(s) Name(s) (Printed) Sampler 1: Meredith Bush Sampler 2: Katy Atakturk	Client Purchase Order #

Analytical Information: PFAS by EPA 1633; Hold

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid

SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION DATE	TIME	SAMPLED BY:	MATRIX	CONTAINER INFORMATION TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZnAc	DI WATER	MEOH	PFAS by EPA 1633	Hold	LAB USE ONLY
1	BH-1-1-2	8/13/24	1025	MB	SO	1											X	
2	BH-1-5-6	↓	1030	↓	↓	↓											↓	
3	BH-1-10-11	↓	1050	↓	↓	↓											↓	
4	BH-2-1-2	8/14/24	1415	MB	SO	1											↓	
5	BH-2-5-6	↓	1425	↓	↓	↓											↓	
6	BH-3-1-2	8/14/24	1120	MB	SO	1											↓	
7	BH-3-5-6	↓	1135	↓	↓	↓											↓	
8	BH-3-14-15	↓	1155	↓	↓	↓											↓	
9	BH-4-1-2	8/12/24	1004	MB	SO	1											↓	
10	BH-4-7-8	↓	1007	↓	↓	↓											↓	
11	BH-4-13-14	↓	1010	↓	↓	↓											↓	
12	BH-5-1-2	8/13/24	1450	MB	SO	1											↓	

Turnaround Time (Business days)

10 Day (Business) Approved By: / Date:
7 Day
5 Day
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other STANDARD
Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [ ] FULLT1 (EPA LEVEL 4)
- [x] EDD'S

*See Note in Comments

Comments / Remarks

also email Katy Atakturk (katakturk@geoengineers.com)

INITIAL ASSESSMENT 2B
LABEL VERIFICATION 2B

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1	Katy A	8/15/24 1100	2 8/16/24 930	3		4
5	Relinquished by/Affiliation	Date Time:	6 Received By/Affiliation	7 Relinquished By/Affiliation	Date Time:	8 Received By/Affiliation

Lab Use Only : Cooler Temperature (s) Celsius (corrected): 4.2 4.2 TR#1

http://www.sgs.com/en/terms-and-conditions

SGS_COC_Draft Rev 031318

5.1 5

FC18042: Chain of Custody
Page 1 of 7

SGS North America Inc - Orlando

Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, Fl 32811
TEL: 407-425-6700 FAX: 407-425-0707
www.sgs.com

SGS - ORLANDO JOB # : PAGE 2 OF 5

SGS - ORLANDO Quote # SKIFF # FC18042

Client / Reporting Information

Company Name: GeoEngineers, Inc.
Address: 2101 4th Ave., Suite 950
City: Seattle State: WA Zip: 98121
Project Contact: Jacob Letts Email: jletts@geoengineers.com
Phone #:
Sampler(s) Name(s) (Printed)
Sampler 1: Meredith Bush Sampler 2: Katy Atakturk

Project Information

Project Name: Bailer Hill PFAS Tier 2 Investigation
Street: 3189 Bailer Hill Rd
City: Friday Harbor State: Washington
Project #: 00504-217-00
Fax #:
Client Purchase Order #:

Analytical Information

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid

SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION DATE	TIME	SAMPLED BY	MATRIX	CONTAINER INFORMATION: TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZnAc	DI WATER	MEOH	PFAS by EPA 1633	Hold	LAB USE ONLY
13	BH-5-5-6	8/13/24	1510	MB	SO	1											X	
14	BH-5-19-20	↓	1532															
15	BH-6-1-2	8/14/24	0855															
16	BH-6-5-6	↓	0910															
17	BH-6-14-15	↓	0932															
18	BH-7-1-2	8/12/24	1038															
19	BH-7-7-8	↓	1048															
20	BH-7-12-13	↓	1058															
21	BH-8-1-2	8/13/24	1120															
22	BH-8-5-6	↓	1125															
23	BH-8-15-16	↓	1145															
24	BH-9-1-2	8/13/24	1330	↓	↓	↓											↓	

Turnaround Time (Business days)

10 Day (Business) Approved By: / Date:
7 Day
5 Day
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other STANDARD
Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

☐ COMMERCIAL "A" (RESULTS ONLY)
☐ COMMERCIAL "B" (RESULTS PLUS QC)
☐ REDT1 (EPA LEVEL 3)
☐ FULLT1 (EPA LEVEL 4)
☒ EDD'S

*See Note in Comments

Comments / Remarks

also email Katy Atakturk (katakturk@geoengineers.com)

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1	Katy	8/15/24 1100	2 JBL 8/16/24 930	3		4
5	Relinquished by/Affiliation	Date Time:	6 Received By/Affiliation	7 Relinquished By/Affiliation	Date Time:	8 Received By/Affiliation

Lab Use Only : Cooler Temperature (s) Celsius (corrected):

http://www.sgs.com/en/terms-and-conditions

SGS_COC_Draft Rev 031318

5.1 5

SGS North America Inc - Orlando

Chain of Custody

4405

Vineland Road, Suite C-15 Orlando, FL 32811
TEL. 407-425-6700 FAX: 407-425-0707
www.sgs.com

SGS - ORLANDO JOB # :

SGS - ORLANDO Quote #

SKIFF # FC18042

Client / Reporting Information			Project Information		
Company Name: GeoEngineers, Inc.			Project Name. Bailer Hill PFAS Tier 2 Investigation		
Address: 2101 4th Ave., Suite 950			Street 3189 Bailer Hill Rd		
City: Seattle	State: WA	Zip: 98121	City Friday Harbor	State Washington	
Project Contact: Jacob Letts	Email: jletts@geoengineers.com		Project # 00504-217-00		
Phone #:			Fax #		
Sampler(s) Name(s) (Printed) Sampler 1: Meredith Bush	Sampler 2: Katy Atakturk		Client Purchase Order #		

Analytical Information

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid

SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION DATE	COLLECTION TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	CONTAINER INFORMATION: OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NAOH+ZNAC	DI WATER	MECH	PFAS by EPA 1633	Hold	LAB USE ONLY
25	BH-9-5-6	8/13/24	1340	MB	SO	1											X	
26	BH-9-14-15	↓	1407															
27	BH-10-1-2	8/15/24	0911															
28	BH-10-5-6		0920															
29	BH-10-13-14	↓	0935															
30	BH-11-1-2	8/12/24	1420															
31	BH-11-5-6		1430															
32	BH-11-20-21	↓	1505															
33	BH-12-1-2	8/12/24	1130															
34	BH-12-5-6		1145															
35	BH-12-19-20	↓	1210															
36	SDUP-240814-1	8/14/24	0600	↓	↓	↓											↓	

Turnaround Time (Business days)		Data Deliverable Information	Comments / Remarks
10 Day (Business)	Approved By: / Date:	☐ COMMERCIAL "A" (RESULTS ONLY)	also email Katy Atakturk (katakturk@geoengineers.com)
7 Day		☐ COMMERCIAL "B" (RESULTS PLUS QC)	
5 Day		☐ REDT1 (EPA LEVEL 3)	
3 Day *RUSH*		☐ FULLT1 (EPA LEVEL 4)	
2 Day *RUSH*		☒ EDD'S	
1 Day *RUSH*		*See Note in Comments	
Other	STANDARD		
Rush T/A Data Available VIA Email or Lablink			

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
	8/15/24 1100	2 8/16/24 930	3		4
Relinquished by/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
5		6	7		8

Lab Use Only : Cooler Temperature (s) Celsius (corrected):

http://www.sgs.com/en/terms-and-conditions

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Chain of Custody

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www.sgs.com

SGS - ORLANDO JOB # : PAGE 4 OF 5

SGS - ORLANDO Quote # SKIFF # FC18042

Client / Reporting Information	Project Information
Company Name: GeoEngineers, Inc.	Project Name: Bailer Hill PFAS Tier 2 Investigation
Address: 2101 4th Ave., Suite 950	Street: 3189 Bailer Hill Rd
City: Seattle State: WA Zip: 98121	City: Friday Harbor State: Washington
Project Contact: Jacob Letts Email: jletts@geoengineers.com	Project #: 00504-217-00
Phone #:	Fax #
Sampler(s) Name(s) (Printed) Sampler 1: Meredith Bush Sampler 2: Katy Atakturk	Client Purchase Order #

Analytical Information: PFAS by EPA 1633; Hold

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid

SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION DATE	TIME	SAMPLED BY:	MATRIX	CONTAINER INFORMATION: TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZnAc	DI WATER	MEOH	PFAS by EPA 1633	Hold	LAB USE ONLY
37	SDUP-240814-2	8/14/24	0000	MB	SO	1											X	
38	BH-1-240814	8/14/24	1130	KA	GW	3												
39	BH-4-240812	8/12/24	1215	KA	GW	3												
40	BH-5-240814	8/14/24	0950	KA	GW	2												
41	BH-6-240814	8/14/24	1100	KA	GW	2												
42	BH-8-240813	8/13/24	1205	KA	GW	3												
43	BH-9-240813	8/13/24	1320	KA	GW	3												
44	BH-10-240813	8/13/24	0955	KA	GW	1												
45	BH-11-240812	8/12/24	1540	KA	GW	3												
46	BH-12-240812	8/12/24	1480	KA	GW	3												
47	WDUP-240814	8/14/24	1410	KA	GW	3												
48	FB-240812	8/12/24	1600	MB	WW	3											V	

Turnaround Time (Business days)

- 10 Day (Business) — Approved By: / Date:
- 7 Day
- 5 Day
- 3 Day *RUSH*
- 2 Day *RUSH*
- 1 Day *RUSH*
- Other: STANDARD

Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [ ] FULLT1 (EPA LEVEL 4)
- [X] EDD'S

*See Note in Comments

Comments / Remarks

also email Katy Atakturk (katakturk@geoengineers.com)

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1	Katy A	8/15/24 1100	2 3BM 8/16/24 930	3		4
5	Relinquished by/Affiliation	Date Time:	6 Received By/Affiliation	7 Relinquished By/Affiliation	Date Time:	8 Received By/Affiliation

Lab Use Only : Cooler Temperature (s) Celsius (corrected):

http://www.sgs.com/en/terms-and-conditions

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SGS North America Inc - Orlando

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4405 Vineland Road, Suite C-15 Orlando, Fl 32811
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www.sgs.com

SGS - ORLANDO JOB # : PAGE 5 OF 5

SGS - ORLANDO Quote # SKIFF # FC18042

Client / Reporting Information		Project Information	
Company Name: GeoEngineers, Inc.		Project Name: Bailer Hill PFAS Tier 2 Investigation	
Address: 2101 4th Ave., Suite 950		Street: 3189 Bailer Hill Rd	
City: Seattle	State: WA Zip: 98121	City: Friday Harbor	State: Washington
Project Contact: Jacob Letts	Email: jletts@geoengineers.com	Project #: 00504-217-00	
Phone #:		Fax #	
Sampler(s) Name(s) (Printed) Sampler 1: Meredith Bush Sampler 2: Katy Atakturk		Client Purchase Order #	

Analytical Information: PFAS by EPA 1633; Hold

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid

SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION DATE	COLLECTION TIME	SAMPLED BY:	CONTAINER INFORMATION MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZnAc	DI WATER	MECH	PFAS by EPA 1633	Hold	LAB USE ONLY
49	FB-240814	8/14/24	1610	MB	WW	3											X	
50	RB-240815	8/13/24	1640															
51	RB-240814	8/14/24	1545															
52	TB-240814-1	8/14/24	1600															
53	TB-240814-2	8/14/24	1615	↓	↓	↓											↓	
	MB																	

Turnaround Time (Business days)

- 10 Day (Business) — Approved By: / Date:
- 7 Day
- 5 Day
- 3 Day *RUSH*
- 2 Day *RUSH*
- 1 Day *RUSH*
- Other: STANDARD

Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [ ] FULLT1 (EPA LEVEL 4)
- [X] EDD'S

*See Note in Comments

Comments / Remarks

also email Katy Atakturk (katakturk@geoengineers.com)

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1	8/15/24 1100	2 8/16/24 930	3		4
Relinquished by/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
5		6	7		8

Lab Use Only : Cooler Temperature (s) Celsius (corrected):

http://www.sgs.com/en/terms-and-conditions

SGS_COC_Draft Rev 031318

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FC18042: Chain of Custody
Page 5 of 7

SGS - Orlando Sample Receipt Summary

Job Number: fc18042 **Client:** GEOENGINEERS **Project:** BAILER HILL PFAS TIER 2 INVESTIGATIO

Date / Time Received: 8/16/2024 9:30:00 AM **Delivery Method:** FEDEX **Airbill #'s:** 791487456673

Cooler Temps (Raw Measured) °C: Cooler 1: (4.2); Cooler 2: (4.6);

Cooler Temps (Corrected) °C: Cooler 1: (4.0); Cooler 2: (4.4);

Cooler Information	Y	or	N
1. Custody Seals Present:	☑		☐
2. Custody Seals Intact:	☑		☐
3. Temp criteria achieved:	☑		☐
4. Cooler temp verification:	IR Gun		
5. Cooler media:	Ice (Bag)		

Trip Blank Information	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑

	W	or	S	N/A
3. Type of TB Received	☐		☐	☑

Sample Information	Y	or	N	N/A
1. Sample labels present on bottles:	☑		☐	
2. Samples presented properly	☑		☐	
3. Sufficient volume/containers recv'd for analysis	☑		☐	
4. Condition of sample:	Intact			
5. Sample recv'd within HT	☑		☐	
6. Dates/Times/IDs on COC match sample label	☑		☐	
7. VOCs have headspace	☐		☐	☑
8. Bottles received for unspecified tests	☐		☑	
9. Compositing instructions clear	☐		☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☑
11. % Solids Jar Received?	☑		☐	☐
12. Residual Chlorine Present?	☐		☐	☑

Misc Information

Number of Encores: 25 Gram 5 Gram

Number of Lab Filtered Metals:

Test Strip Lot #s: pH 0-3: 226422 pH 10-12: Other: (Specify) pH 1.0 - 12.0 222221

Residual Chlorine Test Strip Lot #

Comments

Sample Receipt Summary 112723 EK Technician: ZANEB Date: 8/16/2024 3:31:16 PM Reviewer: Date:

Job Change Order: FC18042

Requested Date:	8/20/2024	**Received Date:**	8/16/2024
Account Name:	GeoEngineers, Inc.	**Due Date:**	8/20/2024
Project Description:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights	**Deliverable:**	FULT2
C/O Initiated By:	ANDREA_C **PM:** AC	**TAT (Days):**	21

==========

Sample #: FC18042-3,4,6,7,10-13,15,16,18,19 **Dept:** SVOA

Client ID: **TAT:** 21

Change: Please analye the samples for LCID1633LIST40

==========

Sample #: FC18042-21,22,24,26,27,29,30,32-34 **Dept:** SVOA

Client ID: **TAT:** 21

Change: Please analyze the samples for LCID1633LIST40

==========

Sample #: FC18042-36-39,41,44,46,47,50 **Dept:** SVOA

Client ID: **TAT:** 21

Change: Please analyze the samples for LCID1633LIST40.

FC18042: Chain of Custody
Page 7 of 7

Above Changes Per: Katy Atakturk **Date/Time:** 8/20/2024

To Client: This Change Order is confirmation of the revisions, previously discussed with the Client Service Representative.

Page 1 of 1

MS Semi-volatiles

6

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4934-MB	7Q9507.D	1	09/06/24	MV	08/23/24	OP4934	S7Q147

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-3, FC18042-4, FC18042-6, FC18042-7, FC18042-10, FC18042-11, FC18042-12, FC18042-13, FC18042-15, FC18042-16, FC18042-18, FC18042-19, FC18042-21, FC18042-22, FC18042-24, FC18042-26, FC18042-27, FC18042-29

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.80	0.50	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	0.40	0.10	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	0.20	0.10	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	0.20	0.10	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	0.20	0.10	ug/kg	
375-95-1	Perfluorononanoic acid	ND	0.20	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.20	0.10	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	0.20	0.13	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.20	0.10	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.20	0.10	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.20	0.10	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	0.20	0.10	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.20	0.16	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	0.20	0.16	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.20	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.20	0.10	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.20	0.18	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.20	0.14	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.20	0.15	ug/kg	
757124-72-4	4:2-FTS	ND	0.80	0.40	ug/kg	
27619-97-2	6:2-FTS	ND	0.80	0.40	ug/kg	
39108-34-4	8:2-FTS	ND	0.80	0.60	ug/kg	
754-91-6	PFOSA	ND	0.20	0.10	ug/kg	
31506-32-8	MeFOSA	ND	0.20	0.14	ug/kg	
4151-50-2	EtFOSA	ND	0.20	0.10	ug/kg	
2355-31-9	MeFOSAA	ND	0.20	0.16	ug/kg	
2991-50-6	EtFOSAA	ND	0.20	0.20	ug/kg	
24448-09-7	MeFOSE	ND	2.0	1.0	ug/kg	
1691-99-2	EtFOSE	ND	2.0	1.0	ug/kg	
13252-13-6	HFPO-DA (GenX)	ND	0.80	0.29	ug/kg	
919005-14-4	ADONA	ND	0.80	0.34	ug/kg	
377-73-1	PFMPA	ND	0.40	0.20	ug/kg	
863090-89-5	PFMBA	ND	0.40	0.20	ug/kg	
151772-58-6	NFDHA	ND	0.40	0.24	ug/kg	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.80	0.44	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.80	0.40	ug/kg	

Method Blank Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4934-MB	7Q9507.D	1	09/06/24	MV	08/23/24	OP4934	S7Q147

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-3, FC18042-4, FC18042-6, FC18042-7, FC18042-10, FC18042-11, FC18042-12, FC18042-13, FC18042-15, FC18042-16, FC18042-18, FC18042-19, FC18042-21, FC18042-22, FC18042-24, FC18042-26, FC18042-27, FC18042-29

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.40	0.20	ug/kg	
356-02-5	3:3-FTCA	ND	1.0	0.51	ug/kg	
914637-49-3	5:3-FTCA	ND	5.0	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	5.0	1.3	ug/kg	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	96%	10-130%
	13C5-PFPeA	94%	35-130%
	13C5-PFHxA	89%	40-130%
	13C4-PFHpA	95%	40-130%
	13C8-PFOA	92%	40-130%
	13C9-PFNA	96%	40-130%
	13C6-PFDA	92%	40-130%
	13C7-PFUnDA	93%	40-130%
	13C2-PFDoDA	90%	40-130%
	13C2-PFTeDA	88%	20-130%
	13C3-PFBS	92%	40-135%
	13C3-PFHxS	95%	40-130%
	13C8-PFOS	99%	40-130%
	13C8-FOSA	97%	40-130%
	d3-MeFOSA	97%	10-130%
	d5-EtFOSA	102%	10-130%
	d3-MeFOSAA	105%	40-135%
	d5-EtFOSAA	103%	40-150%
	d7-MeFOSE	104%	20-130%
	d9-EtFOSE	101%	15-130%
	13C2-4:2FTS	109%	40-165%
	13C2-6:2FTS	98%	40-215%
	13C2-8:2FTS	102%	40-275%
	13C3-HFPO-DA	100%	40-130%

Method Blank Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4946-MB	7Q9559.D	1	09/08/24	MV	08/26/24	OP4946	S7Q148

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-30, FC18042-32, FC18042-33, FC18042-34, FC18042-36, FC18042-37

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.80	0.50	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	0.40	0.10	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	0.20	0.10	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	0.20	0.10	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	0.20	0.10	ug/kg	
375-95-1	Perfluorononanoic acid	ND	0.20	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	0.20	0.10	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	0.20	0.13	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	0.20	0.10	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	0.20	0.10	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	0.20	0.10	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	0.20	0.10	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.20	0.16	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	0.20	0.16	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.20	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.20	0.10	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	0.20	0.18	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	0.20	0.14	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.20	0.15	ug/kg	
757124-72-4	4:2-FTS	ND	0.80	0.40	ug/kg	
27619-97-2	6:2-FTS	ND	0.80	0.40	ug/kg	
39108-34-4	8:2-FTS	ND	0.80	0.60	ug/kg	
754-91-6	PFOSA	ND	0.20	0.10	ug/kg	
31506-32-8	MeFOSA	ND	0.20	0.14	ug/kg	
4151-50-2	EtFOSA	ND	0.20	0.10	ug/kg	
2355-31-9	MeFOSAA	ND	0.20	0.16	ug/kg	
2991-50-6	EtFOSAA	ND	0.20	0.20	ug/kg	
24448-09-7	MeFOSE	ND	2.0	1.0	ug/kg	
1691-99-2	EtFOSE	ND	2.0	1.0	ug/kg	
13252-13-6	HFPO-DA (GenX)	ND	0.80	0.29	ug/kg	
919005-14-4	ADONA	ND	0.80	0.34	ug/kg	
377-73-1	PFMPA	ND	0.40	0.20	ug/kg	
863090-89-5	PFMBA	ND	0.40	0.20	ug/kg	
151772-58-6	NFDHA	ND	0.40	0.24	ug/kg	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.80	0.44	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.80	0.40	ug/kg	

Method Blank Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4946-MB	7Q9559.D	1	09/08/24	MV	08/26/24	OP4946	S7Q148

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-30, FC18042-32, FC18042-33, FC18042-34, FC18042-36, FC18042-37

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.40	0.20	ug/kg	
356-02-5	3:3-FTCA	ND	1.0	0.51	ug/kg	
914637-49-3	5:3-FTCA	ND	5.0	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	5.0	1.3	ug/kg	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	77%	10-130%
	13C5-PFPeA	73%	35-130%
	13C5-PFHxA	71%	40-130%
	13C4-PFHpA	76%	40-130%
	13C8-PFOA	77%	40-130%
	13C9-PFNA	83%	40-130%
	13C6-PFDA	78%	40-130%
	13C7-PFUnDA	72%	40-130%
	13C2-PFDoDA	72%	40-130%
	13C2-PFTeDA	71%	20-130%
	13C3-PFBS	71%	40-135%
	13C3-PFHxS	75%	40-130%
	13C8-PFOS	68%	40-130%
	13C8-FOSA	69%	40-130%
	d3-MeFOSA	70%	10-130%
	d5-EtFOSA	69%	10-130%
	d3-MeFOSAA	71%	40-135%
	d5-EtFOSAA	74%	40-150%
	d7-MeFOSE	73%	20-130%
	d9-EtFOSE	73%	15-130%
	13C2-4:2FTS	72%	40-165%
	13C2-6:2FTS	75%	40-215%
	13C2-8:2FTS	75%	40-275%
	13C3-HFPO-DA	76%	40-130%

Method Blank Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5158-MB	4Q66020.D	1	09/09/24	MB	09/05/24	OP5158	S4Q971

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-38, FC18042-39, FC18042-41, FC18042-44, FC18042-46, FC18042-47, FC18042-50

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0080	0.0040	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.0010	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0020	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0020	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.0010	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.0010	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.0010	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0020	0.0010	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0020	0.0010	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0020	0.0011	ug/l	
757124-72-4	4:2-FTS	ND	0.0080	0.0040	ug/l	
27619-97-2	6:2-FTS	ND	0.0080	0.0040	ug/l	
39108-34-4	8:2-FTS	ND	0.0080	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0020	0.0010	ug/l	
31506-32-8	MeFOSA	ND	0.0040	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0040	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0020	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0020	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.020	0.010	ug/l	
1691-99-2	EtFOSE	ND	0.020	0.010	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
377-73-1	PFMPA	ND	0.0040	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

Method Blank Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5158-MB	4Q66020.D	1	09/09/24	MB	09/05/24	OP5158	S4Q971

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-38, FC18042-39, FC18042-41, FC18042-44, FC18042-46, FC18042-47, FC18042-50

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0040	0.0010	ug/l	
356-02-5	3:3-FTCA	ND	0.010	0.0050	ug/l	
914637-49-3	5:3-FTCA	ND	0.050	0.010	ug/l	
812-70-4	7:3-FTCA	ND	0.050	0.010	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	110%	10-130%
	13C5-PFPeA	109%	40-130%
	13C5-PFHxA	108%	40-130%
	13C4-PFHpA	110%	40-130%
	13C8-PFOA	106%	40-130%
	13C9-PFNA	106%	40-130%
	13C6-PFDA	107%	40-130%
	13C7-PFUnDA	104%	30-130%
	13C2-PFDoDA	96%	10-130%
	13C2-PFTeDA	84%	10-130%
	13C3-PFBS	113%	40-135%
	13C3-PFHxS	108%	40-130%
	13C8-PFOS	106%	40-130%
	13C8-FOSA	81%	40-130%
	d3-MeFOSA	64%	10-130%
	d5-EtFOSA	68%	10-130%
	d3-MeFOSAA	104%	40-170%
	d5-EtFOSAA	103%	25-135%
	d7-MeFOSE	69%	10-130%
	d9-EtFOSE	74%	10-130%
	13C2-4:2FTS	120%	40-200%
	13C2-6:2FTS	114%	40-200%
	13C2-8:2FTS	104%	40-300%
	13C3-HFPO-DA	102%	40-130%

Instrument Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q146-IBLK	7Q9350.D	1	09/04/24	MV	n/a	n/a	S7Q146

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-3, FC18042-4, FC18042-6, FC18042-7, FC18042-10, FC18042-11, FC18042-12, FC18042-13, FC18042-15, FC18042-16, FC18042-18, FC18042-19, FC18042-21, FC18042-22, FC18042-24, FC18042-26, FC18042-27, FC18042-29, FC18042-30, FC18042-32, FC18042-33, FC18042-34, FC18042-36, FC18042-37

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	2.0	0.31	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.10	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.10	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.10	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.10	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.10	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.13	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.10	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.10	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.10	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.10	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.16	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.16	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.10	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.18	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.14	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	1.0	0.15	ug/kg	
757124-72-4	4:2-FTS	ND	2.0	0.30	ug/kg	
27619-97-2	6:2-FTS	ND	2.0	0.35	ug/kg	
39108-34-4	8:2-FTS	ND	2.0	0.61	ug/kg	
754-91-6	PFOSA	ND	1.0	0.10	ug/kg	
31506-32-8	MeFOSA	ND	1.0	0.14	ug/kg	
4151-50-2	EtFOSA	ND	1.0	0.10	ug/kg	
2355-31-9	MeFOSAA	ND	1.0	0.16	ug/kg	
2991-50-6	EtFOSAA	ND	1.0	0.20	ug/kg	
24448-09-7	MeFOSE	ND	5.0	0.64	ug/kg	
1691-99-2	EtFOSE	ND	5.0	0.83	ug/kg	
13252-13-6	HFPO-DA (GenX)	ND	2.0	0.29	ug/kg	
919005-14-4	ADONA	ND	2.0	0.34	ug/kg	
377-73-1	PFMPA	ND	1.0	0.11	ug/kg	
863090-89-5	PFMBA	ND	1.0	0.10	ug/kg	
151772-58-6	NFDHA	ND	2.0	0.24	ug/kg	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	2.0	0.44	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	2.0	0.36	ug/kg	

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Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q146-IBLK	7Q9350.D	1	09/04/24	MV	n/a	n/a	S7Q146

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-3, FC18042-4, FC18042-6, FC18042-7, FC18042-10, FC18042-11, FC18042-12, FC18042-13, FC18042-15, FC18042-16, FC18042-18, FC18042-19, FC18042-21, FC18042-22, FC18042-24, FC18042-26, FC18042-27, FC18042-29, FC18042-30, FC18042-32, FC18042-33, FC18042-34, FC18042-36, FC18042-37

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	1.0	0.10	ug/kg	
356-02-5	3:3-FTCA	ND	2.5	0.51	ug/kg	
914637-49-3	5:3-FTCA	ND	13	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	13	1.3	ug/kg	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	99%	10-130%
	13C5-PFPeA	102%	35-130%
	13C5-PFHxA	100%	40-130%
	13C4-PFHpA	101%	40-130%
	13C8-PFOA	98%	40-130%
	13C9-PFNA	103%	40-130%
	13C6-PFDA	102%	40-130%
	13C7-PFUnDA	107%	40-130%
	13C2-PFDoDA	102%	40-130%
	13C2-PFTeDA	100%	20-130%
	13C3-PFBS	96%	40-135%
	13C3-PFHxS	102%	40-130%
	13C8-PFOS	97%	40-130%
	13C8-FOSA	100%	40-130%
	d3-MeFOSA	98%	10-130%
	d5-EtFOSA	101%	10-130%
	d3-MeFOSAA	104%	40-135%
	d5-EtFOSAA	98%	40-150%
	d7-MeFOSE	97%	20-130%
	d9-EtFOSE	99%	15-130%
	13C2-4:2FTS	100%	40-165%
	13C2-6:2FTS	99%	40-215%
	13C2-8:2FTS	91%	40-275%
	13C3-HFPO-DA	99%	40-130%

Instrument Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q147-IBLK	7Q9445.D	1	09/05/24	MV	n/a	n/a	S7Q147

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-3, FC18042-4, FC18042-7, FC18042-10, FC18042-11, FC18042-12, FC18042-15, FC18042-18, FC18042-19, FC18042-21, FC18042-22, FC18042-24, FC18042-27

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	2.0	0.31	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.10	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.10	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.10	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.10	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.10	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.13	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.10	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.10	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.10	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.10	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.16	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.16	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.10	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.18	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.14	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	1.0	0.15	ug/kg	
757124-72-4	4:2-FTS	ND	2.0	0.30	ug/kg	
27619-97-2	6:2-FTS	ND	2.0	0.35	ug/kg	
39108-34-4	8:2-FTS	ND	2.0	0.61	ug/kg	
754-91-6	PFOSA	ND	1.0	0.10	ug/kg	
31506-32-8	MeFOSA	ND	1.0	0.14	ug/kg	
4151-50-2	EtFOSA	ND	1.0	0.10	ug/kg	
2355-31-9	MeFOSAA	ND	1.0	0.16	ug/kg	
2991-50-6	EtFOSAA	ND	1.0	0.20	ug/kg	
24448-09-7	MeFOSE	ND	5.0	0.64	ug/kg	
1691-99-2	EtFOSE	ND	5.0	0.83	ug/kg	
13252-13-6	HFPO-DA (GenX)	ND	2.0	0.29	ug/kg	
919005-14-4	ADONA	ND	2.0	0.34	ug/kg	
377-73-1	PFMPA	ND	1.0	0.11	ug/kg	
863090-89-5	PFMBA	ND	1.0	0.10	ug/kg	
151772-58-6	NFDHA	ND	2.0	0.24	ug/kg	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	2.0	0.44	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	2.0	0.36	ug/kg	

Instrument Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q147-IBLK	7Q9445.D	1	09/05/24	MV	n/a	n/a	S7Q147

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-3, FC18042-4, FC18042-7, FC18042-10, FC18042-11, FC18042-12, FC18042-15, FC18042-18, FC18042-19, FC18042-21, FC18042-22, FC18042-24, FC18042-27

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	1.0	0.10	ug/kg	
356-02-5	3:3-FTCA	ND	2.5	0.51	ug/kg	
914637-49-3	5:3-FTCA	ND	13	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	13	1.3	ug/kg	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	101%	10-130%
	13C5-PFPeA	101%	35-130%
	13C5-PFHxA	98%	40-130%
	13C4-PFHpA	99%	40-130%
	13C8-PFOA	97%	40-130%
	13C9-PFNA	105%	40-130%
	13C6-PFDA	109%	40-130%
	13C7-PFUnDA	103%	40-130%
	13C2-PFDoDA	103%	40-130%
	13C2-PFTeDA	99%	20-130%
	13C3-PFBS	99%	40-135%
	13C3-PFHxS	102%	40-130%
	13C8-PFOS	98%	40-130%
	13C8-FOSA	98%	40-130%
	d3-MeFOSA	99%	10-130%
	d5-EtFOSA	103%	10-130%
	d3-MeFOSAA	107%	40-135%
	d5-EtFOSAA	103%	40-150%
	d7-MeFOSE	97%	20-130%
	d9-EtFOSE	100%	15-130%
	13C2-4:2FTS	112%	40-165%
	13C2-6:2FTS	106%	40-215%
	13C2-8:2FTS	102%	40-275%
	13C3-HFPO-DA	102%	40-130%

Instrument Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q148-IBLK	7Q9542.D	1	09/08/24	MV	n/a	n/a	S7Q148

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-4, FC18042-6, FC18042-13, FC18042-15, FC18042-16, FC18042-24, FC18042-26, FC18042-27, FC18042-29, FC18042-30, FC18042-33, FC18042-34, FC18042-36

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	2.0	0.31	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.10	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.10	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.10	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.10	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.10	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.13	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.10	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.10	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.10	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.10	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.16	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.16	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.10	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.18	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.14	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	1.0	0.15	ug/kg	
757124-72-4	4:2-FTS	ND	2.0	0.30	ug/kg	
27619-97-2	6:2-FTS	ND	2.0	0.35	ug/kg	
39108-34-4	8:2-FTS	ND	2.0	0.61	ug/kg	
754-91-6	PFOSA	ND	1.0	0.10	ug/kg	
31506-32-8	MeFOSA	ND	1.0	0.14	ug/kg	
4151-50-2	EtFOSA	ND	1.0	0.10	ug/kg	
2355-31-9	MeFOSAA	ND	1.0	0.16	ug/kg	
2991-50-6	EtFOSAA	ND	1.0	0.20	ug/kg	
24448-09-7	MeFOSE	ND	5.0	0.64	ug/kg	
1691-99-2	EtFOSE	ND	5.0	0.83	ug/kg	
13252-13-6	HFPO-DA (GenX)	ND	2.0	0.29	ug/kg	
919005-14-4	ADONA	ND	2.0	0.34	ug/kg	
377-73-1	PFMPA	ND	1.0	0.11	ug/kg	
863090-89-5	PFMBA	ND	1.0	0.10	ug/kg	
151772-58-6	NFDHA	ND	2.0	0.24	ug/kg	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	2.0	0.44	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	2.0	0.36	ug/kg	

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Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q148-IBLK	7Q9542.D	1	09/08/24	MV	n/a	n/a	S7Q148

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-4, FC18042-6, FC18042-13, FC18042-15, FC18042-16, FC18042-24, FC18042-26, FC18042-27, FC18042-29, FC18042-30, FC18042-33, FC18042-34, FC18042-36

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	1.0	0.10	ug/kg	
356-02-5	3:3-FTCA	ND	2.5	0.51	ug/kg	
914637-49-3	5:3-FTCA	ND	13	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	13	1.3	ug/kg	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	101%	10-130%
	13C5-PFPeA	98%	35-130%
	13C5-PFHxA	96%	40-130%
	13C4-PFHpA	101%	40-130%
	13C8-PFOA	100%	40-130%
	13C9-PFNA	108%	40-130%
	13C6-PFDA	96%	40-130%
	13C7-PFUnDA	94%	40-130%
	13C2-PFDoDA	94%	40-130%
	13C2-PFTeDA	89%	20-130%
	13C3-PFBS	110%	40-135%
	13C3-PFHxS	111%	40-130%
	13C8-PFOS	111%	40-130%
	13C8-FOSA	97%	40-130%
	d3-MeFOSA	96%	10-130%
	d5-EtFOSA	102%	10-130%
	d3-MeFOSAA	96%	40-135%
	d5-EtFOSAA	96%	40-150%
	d7-MeFOSE	105%	20-130%
	d9-EtFOSE	104%	15-130%
	13C2-4:2FTS	92%	40-165%
	13C2-6:2FTS	93%	40-215%
	13C2-8:2FTS	90%	40-275%
	13C3-HFPO-DA	98%	40-130%

Instrument Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q149-IBLK	7Q9627.D	1	09/09/24	MV	n/a	n/a	S7Q149

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-12, FC18042-32, FC18042-37

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	2.0	0.31	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.10	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.10	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.10	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.10	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.10	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.13	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.10	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.10	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.10	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.10	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.16	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.16	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.10	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.18	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.14	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	1.0	0.15	ug/kg	
757124-72-4	4:2-FTS	ND	2.0	0.30	ug/kg	
27619-97-2	6:2-FTS	ND	2.0	0.35	ug/kg	
39108-34-4	8:2-FTS	ND	2.0	0.61	ug/kg	
754-91-6	PFOSA	ND	1.0	0.10	ug/kg	
31506-32-8	MeFOSA	ND	1.0	0.14	ug/kg	
4151-50-2	EtFOSA	ND	1.0	0.10	ug/kg	
2355-31-9	MeFOSAA	ND	1.0	0.16	ug/kg	
2991-50-6	EtFOSAA	ND	1.0	0.20	ug/kg	
24448-09-7	MeFOSE	ND	5.0	0.64	ug/kg	
1691-99-2	EtFOSE	ND	5.0	0.83	ug/kg	
13252-13-6	HFPO-DA (GenX)	ND	2.0	0.29	ug/kg	
919005-14-4	ADONA	ND	2.0	0.34	ug/kg	
377-73-1	PFMPA	ND	1.0	0.11	ug/kg	
863090-89-5	PFMBA	ND	1.0	0.10	ug/kg	
151772-58-6	NFDHA	ND	2.0	0.24	ug/kg	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	2.0	0.44	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	2.0	0.36	ug/kg	

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Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q149-IBLK	7Q9627.D	1	09/09/24	MV	n/a	n/a	S7Q149

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-12, FC18042-32, FC18042-37

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	1.0	0.10	ug/kg	
356-02-5	3:3-FTCA	ND	2.5	0.51	ug/kg	
914637-49-3	5:3-FTCA	ND	13	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	13	1.3	ug/kg	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	102%	10-130%
	13C5-PFPeA	99%	35-130%
	13C5-PFHxA	99%	40-130%
	13C4-PFHpA	103%	40-130%
	13C8-PFOA	100%	40-130%
	13C9-PFNA	104%	40-130%
	13C6-PFDA	98%	40-130%
	13C7-PFUnDA	97%	40-130%
	13C2-PFDoDA	93%	40-130%
	13C2-PFTeDA	90%	20-130%
	13C3-PFBS	103%	40-135%
	13C3-PFHxS	97%	40-130%
	13C8-PFOS	104%	40-130%
	13C8-FOSA	100%	40-130%
	d3-MeFOSA	98%	10-130%
	d5-EtFOSA	104%	10-130%
	d3-MeFOSAA	104%	40-135%
	d5-EtFOSAA	108%	40-150%
	d7-MeFOSE	100%	20-130%
	d9-EtFOSE	104%	15-130%
	13C2-4:2FTS	101%	40-165%
	13C2-6:2FTS	114%	40-215%
	13C2-8:2FTS	104%	40-275%
	13C3-HFPO-DA	104%	40-130%

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Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q971-IBLK	4Q65998.D	1	09/09/24	MB	n/a	n/a	S4Q971

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-38, FC18042-39, FC18042-41, FC18042-44, FC18042-46, FC18042-47, FC18042-50

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-4	4:2-FTS	ND	0.020	0.0032	ug/l	
27619-97-2	6:2-FTS	ND	0.020	0.0035	ug/l	
39108-34-4	8:2-FTS	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

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Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q971-IBLK	4Q65998.D	1	09/09/24	MB	n/a	n/a	S4Q971

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-38, FC18042-39, FC18042-41, FC18042-44, FC18042-46, FC18042-47, FC18042-50

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3-FTCA	ND	0.020	0.0045	ug/l	
914637-49-3	5:3-FTCA	ND	0.10	0.0087	ug/l	
812-70-4	7:3-FTCA	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	100%	10-130%
	13C5-PFPeA	99%	40-130%
	13C5-PFHxA	99%	40-130%
	13C4-PFHpA	99%	40-130%
	13C8-PFOA	102%	40-130%
	13C9-PFNA	97%	40-130%
	13C6-PFDA	101%	40-130%
	13C7-PFUnDA	104%	30-130%
	13C2-PFDoDA	96%	10-130%
	13C2-PFTeDA	97%	10-130%
	13C3-PFBS	95%	40-135%
	13C3-PFHxS	95%	40-130%
	13C8-PFOS	99%	40-130%
	13C8-FOSA	92%	40-130%
	d3-MeFOSA	92%	10-130%
	d5-EtFOSA	97%	10-130%
	d3-MeFOSAA	94%	40-170%
	d5-EtFOSAA	102%	25-135%
	d7-MeFOSE	93%	10-130%
	d9-EtFOSE	99%	10-130%
	13C2-4:2FTS	92%	40-200%
	13C2-6:2FTS	100%	40-200%
	13C2-8:2FTS	88%	40-300%
	13C3-HFPO-DA	98%	40-130%

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Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q150-IBLK	7Q9705.D	1	09/10/24	MV	n/a	n/a	S7Q150

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-30, FC18042-36

CAS No.	Compound	Result	RL	MDL	Units	Q
375-95-1	Perfluorononanoic acid	ND	1.0	0.12	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.10	ug/kg	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	102%	10-130%
	13C5-PFPeA	98%	35-130%
	13C5-PFHxA	95%	40-130%
	13C4-PFHpA	102%	40-130%
	13C8-PFOA	102%	40-130%
	13C9-PFNA	103%	40-130%
	13C6-PFDA	103%	40-130%
	13C7-PFUnDA	97%	40-130%
	13C2-PFDoDA	97%	40-130%
	13C2-PFTeDA	92%	20-130%
	13C3-PFBS	104%	40-135%
	13C3-PFHxS	102%	40-130%
	13C8-PFOS	110%	40-130%
	13C8-FOSA	106%	40-130%
	d3-MeFOSA	100%	10-130%
	d5-EtFOSA	103%	10-130%
	d3-MeFOSAA	115%	40-135%
	d5-EtFOSAA	111%	40-150%
	d7-MeFOSE	102%	20-130%
	d9-EtFOSE	107%	15-130%
	13C2-4:2FTS	107%	40-165%
	13C2-6:2FTS	111%	40-215%
	13C2-8:2FTS	109%	40-275%
	13C3-HFPO-DA	102%	40-130%

Instrument Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q972-IBLK	4Q66085.D	1	09/10/24	MB	n/a	n/a	S4Q972

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-39, FC18042-41, FC18042-44, FC18042-46, FC18042-47

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-4	4:2-FTS	ND	0.020	0.0032	ug/l	
27619-97-2	6:2-FTS	ND	0.020	0.0035	ug/l	
39108-34-4	8:2-FTS	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Instrument Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q972-IBLK	4Q66085.D	1	09/10/24	MB	n/a	n/a	S4Q972

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-39, FC18042-41, FC18042-44, FC18042-46, FC18042-47

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3-FTCA	ND	0.020	0.0045	ug/l	
914637-49-3	5:3-FTCA	ND	0.10	0.0087	ug/l	
812-70-4	7:3-FTCA	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	100%	10-130%
	13C5-PFPeA	97%	40-130%
	13C5-PFHxA	97%	40-130%
	13C4-PFHpA	96%	40-130%
	13C8-PFOA	99%	40-130%
	13C9-PFNA	99%	40-130%
	13C6-PFDA	103%	40-130%
	13C7-PFUnDA	100%	30-130%
	13C2-PFDoDA	99%	10-130%
	13C2-PFTeDA	96%	10-130%
	13C3-PFBS	96%	40-135%
	13C3-PFHxS	95%	40-130%
	13C8-PFOS	102%	40-130%
	13C8-FOSA	100%	40-130%
	d3-MeFOSA	94%	10-130%
	d5-EtFOSA	95%	10-130%
	d3-MeFOSAA	98%	40-170%
	d5-EtFOSAA	100%	25-135%
	d7-MeFOSE	98%	10-130%
	d9-EtFOSE	96%	10-130%
	13C2-4:2FTS	117%	40-200%
	13C2-6:2FTS	110%	40-200%
	13C2-8:2FTS	97%	40-300%
	13C3-HFPO-DA	81%	40-130%

Continuing Calibration Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q147-ICCB	7Q9500.D	1	09/06/24	MV	n/a	n/a	S7Q147

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-3, FC18042-4

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	2.0	0.31	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.10	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.10	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.10	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.10	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.10	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.13	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.10	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.10	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.10	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.10	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.16	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.16	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.10	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.18	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.14	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	1.0	0.15	ug/kg	
757124-72-4	4:2-FTS	ND	2.0	0.30	ug/kg	
27619-97-2	6:2-FTS	ND	2.0	0.35	ug/kg	
39108-34-4	8:2-FTS	ND	2.0	0.61	ug/kg	
754-91-6	PFOSA	ND	1.0	0.10	ug/kg	
31506-32-8	MeFOSA	ND	1.0	0.14	ug/kg	
4151-50-2	EtFOSA	ND	1.0	0.10	ug/kg	
2355-31-9	MeFOSAA	ND	1.0	0.16	ug/kg	
2991-50-6	EtFOSAA	ND	1.0	0.20	ug/kg	
24448-09-7	MeFOSE	ND	5.0	0.64	ug/kg	
1691-99-2	EtFOSE	ND	5.0	0.83	ug/kg	
13252-13-6	HFPO-DA (GenX)	ND	2.0	0.29	ug/kg	
919005-14-4	ADONA	ND	2.0	0.34	ug/kg	
377-73-1	PFMPA	ND	1.0	0.11	ug/kg	
863090-89-5	PFMBA	ND	1.0	0.10	ug/kg	
151772-58-6	NFDHA	ND	2.0	0.24	ug/kg	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	2.0	0.44	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	2.0	0.36	ug/kg	

Continuing Calibration Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q147-ICCB	7Q9500.D	1	09/06/24	MV	n/a	n/a	S7Q147

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-3, FC18042-4

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	1.0	0.10	ug/kg	
356-02-5	3:3-FTCA	ND	2.5	0.51	ug/kg	
914637-49-3	5:3-FTCA	ND	13	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	13	1.3	ug/kg	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	101%	10-130%
	13C5-PFPeA	99%	35-130%
	13C5-PFHxA	93%	40-130%
	13C4-PFHpA	98%	40-130%
	13C8-PFOA	101%	40-130%
	13C9-PFNA	109%	40-130%
	13C6-PFDA	99%	40-130%
	13C7-PFUnDA	100%	40-130%
	13C2-PFDoDA	98%	40-130%
	13C2-PFTeDA	91%	20-130%
	13C3-PFBS	99%	40-135%
	13C3-PFHxS	101%	40-130%
	13C8-PFOS	104%	40-130%
	13C8-FOSA	99%	40-130%
	d3-MeFOSA	97%	10-130%
	d5-EtFOSA	102%	10-130%
	d3-MeFOSAA	111%	40-135%
	d5-EtFOSAA	106%	40-150%
	d7-MeFOSE	101%	20-130%
	d9-EtFOSE	99%	15-130%
	13C2-4:2FTS	106%	40-165%
	13C2-6:2FTS	111%	40-215%
	13C2-8:2FTS	97%	40-275%
	13C3-HFPO-DA	106%	40-130%

Continuing Calibration Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q147-ICCB	7Q9512.D	1	09/06/24	MV	n/a	n/a	S7Q147

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-7, FC18042-10, FC18042-11, FC18042-12, FC18042-15, FC18042-18, FC18042-19, FC18042-21

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	2.0	0.31	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.10	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.10	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.10	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.10	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.10	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.13	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.10	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.10	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.10	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.10	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.16	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.16	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.10	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.18	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.14	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	1.0	0.15	ug/kg	
757124-72-4	4:2-FTS	ND	2.0	0.30	ug/kg	
27619-97-2	6:2-FTS	ND	2.0	0.35	ug/kg	
39108-34-4	8:2-FTS	ND	2.0	0.61	ug/kg	
754-91-6	PFOSA	ND	1.0	0.10	ug/kg	
31506-32-8	MeFOSA	ND	1.0	0.14	ug/kg	
4151-50-2	EtFOSA	ND	1.0	0.10	ug/kg	
2355-31-9	MeFOSAA	ND	1.0	0.16	ug/kg	
2991-50-6	EtFOSAA	ND	1.0	0.20	ug/kg	
24448-09-7	MeFOSE	ND	5.0	0.64	ug/kg	
1691-99-2	EtFOSE	ND	5.0	0.83	ug/kg	
13252-13-6	HFPO-DA (GenX)	ND	2.0	0.29	ug/kg	
919005-14-4	ADONA	ND	2.0	0.34	ug/kg	
377-73-1	PFMPA	ND	1.0	0.11	ug/kg	
863090-89-5	PFMBA	ND	1.0	0.10	ug/kg	
151772-58-6	NFDHA	ND	2.0	0.24	ug/kg	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	2.0	0.44	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	2.0	0.36	ug/kg	

Continuing Calibration Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q147-ICCB	7Q9512.D	1	09/06/24	MV	n/a	n/a	S7Q147

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-7, FC18042-10, FC18042-11, FC18042-12, FC18042-15, FC18042-18, FC18042-19, FC18042-21

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	1.0	0.10	ug/kg	
356-02-5	3:3-FTCA	ND	2.5	0.51	ug/kg	
914637-49-3	5:3-FTCA	ND	13	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	13	1.3	ug/kg	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	102%	10-130%
	13C5-PFPeA	100%	35-130%
	13C5-PFHxA	94%	40-130%
	13C4-PFHpA	100%	40-130%
	13C8-PFOA	102%	40-130%
	13C9-PFNA	105%	40-130%
	13C6-PFDA	98%	40-130%
	13C7-PFUnDA	100%	40-130%
	13C2-PFDoDA	97%	40-130%
	13C2-PFTeDA	88%	20-130%
	13C3-PFBS	98%	40-135%
	13C3-PFHxS	106%	40-130%
	13C8-PFOS	112%	40-130%
	13C8-FOSA	101%	40-130%
	d3-MeFOSA	100%	10-130%
	d5-EtFOSA	105%	10-130%
	d3-MeFOSAA	111%	40-135%
	d5-EtFOSAA	110%	40-150%
	d7-MeFOSE	105%	20-130%
	d9-EtFOSE	100%	15-130%
	13C2-4:2FTS	102%	40-165%
	13C2-6:2FTS	106%	40-215%
	13C2-8:2FTS	101%	40-275%
	13C3-HFPO-DA	102%	40-130%

Continuing Calibration Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q147-ICCB	7Q9524.D	1	09/06/24	MV	n/a	n/a	S7Q147

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-22, FC18042-24, FC18042-27

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	2.0	0.31	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.10	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.10	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.10	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.10	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.10	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.13	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.10	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.10	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.10	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.10	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.16	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.16	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.10	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.18	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.14	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	1.0	0.15	ug/kg	
757124-72-4	4:2-FTS	ND	2.0	0.30	ug/kg	
27619-97-2	6:2-FTS	ND	2.0	0.35	ug/kg	
39108-34-4	8:2-FTS	ND	2.0	0.61	ug/kg	
754-91-6	PFOSA	ND	1.0	0.10	ug/kg	
31506-32-8	MeFOSA	ND	1.0	0.14	ug/kg	
4151-50-2	EtFOSA	ND	1.0	0.10	ug/kg	
2355-31-9	MeFOSAA	ND	1.0	0.16	ug/kg	
2991-50-6	EtFOSAA	ND	1.0	0.20	ug/kg	
24448-09-7	MeFOSE	ND	5.0	0.64	ug/kg	
1691-99-2	EtFOSE	ND	5.0	0.83	ug/kg	
13252-13-6	HFPO-DA (GenX)	ND	2.0	0.29	ug/kg	
919005-14-4	ADONA	ND	2.0	0.34	ug/kg	
377-73-1	PFMPA	ND	1.0	0.11	ug/kg	
863090-89-5	PFMBA	ND	1.0	0.10	ug/kg	
151772-58-6	NFDHA	ND	2.0	0.24	ug/kg	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	2.0	0.44	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	2.0	0.36	ug/kg	

Continuing Calibration Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q147-ICCB	7Q9524.D	1	09/06/24	MV	n/a	n/a	S7Q147

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-22, FC18042-24, FC18042-27

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	1.0	0.10	ug/kg	
356-02-5	3:3-FTCA	ND	2.5	0.51	ug/kg	
914637-49-3	5:3-FTCA	ND	13	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	13	1.3	ug/kg	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	102%	10-130%
	13C5-PFPeA	98%	35-130%
	13C5-PFHxA	94%	40-130%
	13C4-PFHpA	99%	40-130%
	13C8-PFOA	102%	40-130%
	13C9-PFNA	104%	40-130%
	13C6-PFDA	101%	40-130%
	13C7-PFUnDA	97%	40-130%
	13C2-PFDoDA	95%	40-130%
	13C2-PFTeDA	89%	20-130%
	13C3-PFBS	104%	40-135%
	13C3-PFHxS	106%	40-130%
	13C8-PFOS	100%	40-130%
	13C8-FOSA	97%	40-130%
	d3-MeFOSA	97%	10-130%
	d5-EtFOSA	101%	10-130%
	d3-MeFOSAA	109%	40-135%
	d5-EtFOSAA	108%	40-150%
	d7-MeFOSE	96%	20-130%
	d9-EtFOSE	96%	15-130%
	13C2-4:2FTS	108%	40-165%
	13C2-6:2FTS	111%	40-215%
	13C2-8:2FTS	103%	40-275%
	13C3-HFPO-DA	98%	40-130%

Continuing Calibration Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q147-ICCB	7Q9533.D	1	09/06/24	MV	n/a	n/a	S7Q147

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-22, FC18042-24, FC18042-27

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	2.0	0.31	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.10	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.10	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.10	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.10	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.10	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.13	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.10	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.10	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.10	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.10	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.16	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.16	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.10	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.18	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.14	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	1.0	0.15	ug/kg	
757124-72-4	4:2-FTS	ND	2.0	0.30	ug/kg	
27619-97-2	6:2-FTS	ND	2.0	0.35	ug/kg	
39108-34-4	8:2-FTS	ND	2.0	0.61	ug/kg	
754-91-6	PFOSA	ND	1.0	0.10	ug/kg	
31506-32-8	MeFOSA	ND	1.0	0.14	ug/kg	
4151-50-2	EtFOSA	ND	1.0	0.10	ug/kg	
2355-31-9	MeFOSAA	ND	1.0	0.16	ug/kg	
2991-50-6	EtFOSAA	ND	1.0	0.20	ug/kg	
24448-09-7	MeFOSE	ND	5.0	0.64	ug/kg	
1691-99-2	EtFOSE	ND	5.0	0.83	ug/kg	
13252-13-6	HFPO-DA (GenX)	ND	2.0	0.29	ug/kg	
919005-14-4	ADONA	ND	2.0	0.34	ug/kg	
377-73-1	PFMPA	ND	1.0	0.11	ug/kg	
863090-89-5	PFMBA	ND	1.0	0.10	ug/kg	
151772-58-6	NFDHA	ND	2.0	0.24	ug/kg	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	2.0	0.44	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	2.0	0.36	ug/kg	

Continuing Calibration Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q147-ICCB	7Q9533.D	1	09/06/24	MV	n/a	n/a	S7Q147

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-22, FC18042-24, FC18042-27

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	1.0	0.10	ug/kg	
356-02-5	3:3-FTCA	ND	2.5	0.51	ug/kg	
914637-49-3	5:3-FTCA	ND	13	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	13	1.3	ug/kg	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	102%	10-130%
	13C5-PFPeA	103%	35-130%
	13C5-PFHxA	101%	40-130%
	13C4-PFHpA	103%	40-130%
	13C8-PFOA	102%	40-130%
	13C9-PFNA	106%	40-130%
	13C6-PFDA	104%	40-130%
	13C7-PFUnDA	103%	40-130%
	13C2-PFDoDA	94%	40-130%
	13C2-PFTeDA	93%	20-130%
	13C3-PFBS	99%	40-135%
	13C3-PFHxS	96%	40-130%
	13C8-PFOS	100%	40-130%
	13C8-FOSA	96%	40-130%
	d3-MeFOSA	92%	10-130%
	d5-EtFOSA	96%	10-130%
	d3-MeFOSAA	103%	40-135%
	d5-EtFOSAA	104%	40-150%
	d7-MeFOSE	94%	20-130%
	d9-EtFOSE	93%	15-130%
	13C2-4:2FTS	108%	40-165%
	13C2-6:2FTS	107%	40-215%
	13C2-8:2FTS	100%	40-275%
	13C3-HFPO-DA	108%	40-130%

Continuing Calibration Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q148-ICCB	7Q9556.D	1	09/08/24	MV	n/a	n/a	S7Q148

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-30, FC18042-33, FC18042-34, FC18042-36

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	2.0	0.31	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.10	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.10	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.10	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.10	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.10	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.13	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.10	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.10	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.10	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.10	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.16	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.16	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.10	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.18	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.14	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	1.0	0.15	ug/kg	
757124-72-4	4:2-FTS	ND	2.0	0.30	ug/kg	
27619-97-2	6:2-FTS	ND	2.0	0.35	ug/kg	
39108-34-4	8:2-FTS	ND	2.0	0.61	ug/kg	
754-91-6	PFOSA	ND	1.0	0.10	ug/kg	
31506-32-8	MeFOSA	ND	1.0	0.14	ug/kg	
4151-50-2	EtFOSA	ND	1.0	0.10	ug/kg	
2355-31-9	MeFOSAA	ND	1.0	0.16	ug/kg	
2991-50-6	EtFOSAA	ND	1.0	0.20	ug/kg	
24448-09-7	MeFOSE	ND	5.0	0.64	ug/kg	
1691-99-2	EtFOSE	ND	5.0	0.83	ug/kg	
13252-13-6	HFPO-DA (GenX)	ND	2.0	0.29	ug/kg	
919005-14-4	ADONA	ND	2.0	0.34	ug/kg	
377-73-1	PFMPA	ND	1.0	0.11	ug/kg	
863090-89-5	PFMBA	ND	1.0	0.10	ug/kg	
151772-58-6	NFDHA	ND	2.0	0.24	ug/kg	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	2.0	0.44	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	2.0	0.36	ug/kg	

Continuing Calibration Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q148-ICCB	7Q9556.D	1	09/08/24	MV	n/a	n/a	S7Q148

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-30, FC18042-33, FC18042-34, FC18042-36

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	1.0	0.10	ug/kg	
356-02-5	3:3-FTCA	ND	2.5	0.51	ug/kg	
914637-49-3	5:3-FTCA	ND	13	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	13	1.3	ug/kg	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	101%	10-130%
	13C5-PFPeA	97%	35-130%
	13C5-PFHxA	95%	40-130%
	13C4-PFHpA	100%	40-130%
	13C8-PFOA	101%	40-130%
	13C9-PFNA	112%	40-130%
	13C6-PFDA	102%	40-130%
	13C7-PFUnDA	98%	40-130%
	13C2-PFDoDA	97%	40-130%
	13C2-PFTeDA	95%	20-130%
	13C3-PFBS	107%	40-135%
	13C3-PFHxS	107%	40-130%
	13C8-PFOS	110%	40-130%
	13C8-FOSA	104%	40-130%
	d3-MeFOSA	101%	10-130%
	d5-EtFOSA	108%	10-130%
	d3-MeFOSAA	108%	40-135%
	d5-EtFOSAA	108%	40-150%
	d7-MeFOSE	105%	20-130%
	d9-EtFOSE	108%	15-130%
	13C2-4:2FTS	108%	40-165%
	13C2-6:2FTS	105%	40-215%
	13C2-8:2FTS	96%	40-275%
	13C3-HFPO-DA	102%	40-130%

Continuing Calibration Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q149-ICCB	7Q9641.D	1	09/09/24	MV	n/a	n/a	S7Q149

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-12, FC18042-32, FC18042-37

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	2.0	0.31	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.10	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.10	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.10	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.10	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.10	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.13	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.10	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.10	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.10	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.10	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.16	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.16	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.10	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.18	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.14	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	1.0	0.15	ug/kg	
757124-72-4	4:2-FTS	ND	2.0	0.30	ug/kg	
27619-97-2	6:2-FTS	ND	2.0	0.35	ug/kg	
39108-34-4	8:2-FTS	ND	2.0	0.61	ug/kg	
754-91-6	PFOSA	ND	1.0	0.10	ug/kg	
31506-32-8	MeFOSA	ND	1.0	0.14	ug/kg	
4151-50-2	EtFOSA	ND	1.0	0.10	ug/kg	
2355-31-9	MeFOSAA	ND	1.0	0.16	ug/kg	
2991-50-6	EtFOSAA	ND	1.0	0.20	ug/kg	
24448-09-7	MeFOSE	ND	5.0	0.64	ug/kg	
1691-99-2	EtFOSE	ND	5.0	0.83	ug/kg	
13252-13-6	HFPO-DA (GenX)	ND	2.0	0.29	ug/kg	
919005-14-4	ADONA	ND	2.0	0.34	ug/kg	
377-73-1	PFMPA	ND	1.0	0.11	ug/kg	
863090-89-5	PFMBA	ND	1.0	0.10	ug/kg	
151772-58-6	NFDHA	ND	2.0	0.24	ug/kg	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	2.0	0.44	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	2.0	0.36	ug/kg	

Continuing Calibration Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q149-ICCB	7Q9641.D	1	09/09/24	MV	n/a	n/a	S7Q149

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-12, FC18042-32, FC18042-37

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	1.0	0.10	ug/kg	
356-02-5	3:3-FTCA	ND	2.5	0.51	ug/kg	
914637-49-3	5:3-FTCA	ND	13	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	13	1.3	ug/kg	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	102%	10-130%
	13C5-PFPeA	98%	35-130%
	13C5-PFHxA	94%	40-130%
	13C4-PFHpA	99%	40-130%
	13C8-PFOA	104%	40-130%
	13C9-PFNA	108%	40-130%
	13C6-PFDA	99%	40-130%
	13C7-PFUnDA	96%	40-130%
	13C2-PFDoDA	96%	40-130%
	13C2-PFTeDA	92%	20-130%
	13C3-PFBS	104%	40-135%
	13C3-PFHxS	110%	40-130%
	13C8-PFOS	98%	40-130%
	13C8-FOSA	97%	40-130%
	d3-MeFOSA	93%	10-130%
	d5-EtFOSA	99%	10-130%
	d3-MeFOSAA	105%	40-135%
	d5-EtFOSAA	108%	40-150%
	d7-MeFOSE	95%	20-130%
	d9-EtFOSE	95%	15-130%
	13C2-4:2FTS	106%	40-165%
	13C2-6:2FTS	112%	40-215%
	13C2-8:2FTS	98%	40-275%
	13C3-HFPO-DA	99%	40-130%

Continuing Calibration Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q971-ICCB	4Q66013.D	1	09/09/24	MB	n/a	n/a	S4Q971

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-38, FC18042-39

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-4	4:2-FTS	ND	0.020	0.0032	ug/l	
27619-97-2	6:2-FTS	ND	0.020	0.0035	ug/l	
39108-34-4	8:2-FTS	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q971-ICCB	4Q66013.D	1	09/09/24	MB	n/a	n/a	S4Q971

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-38, FC18042-39

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3-FTCA	ND	0.020	0.0045	ug/l	
914637-49-3	5:3-FTCA	ND	0.10	0.0087	ug/l	
812-70-4	7:3-FTCA	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	100%	10-130%
	13C5-PFPeA	100%	40-130%
	13C5-PFHxA	100%	40-130%
	13C4-PFHpA	100%	40-130%
	13C8-PFOA	102%	40-130%
	13C9-PFNA	104%	40-130%
	13C6-PFDA	100%	40-130%
	13C7-PFUnDA	104%	30-130%
	13C2-PFDoDA	99%	10-130%
	13C2-PFTeDA	99%	10-130%
	13C3-PFBS	104%	40-135%
	13C3-PFHxS	103%	40-130%
	13C8-PFOS	96%	40-130%
	13C8-FOSA	95%	40-130%
	d3-MeFOSA	91%	10-130%
	d5-EtFOSA	90%	10-130%
	d3-MeFOSAA	103%	40-170%
	d5-EtFOSAA	104%	25-135%
	d7-MeFOSE	95%	10-130%
	d9-EtFOSE	95%	10-130%
	13C2-4:2FTS	105%	40-200%
	13C2-6:2FTS	90%	40-200%
	13C2-8:2FTS	105%	40-300%
	13C3-HFPO-DA	94%	40-130%

Continuing Calibration Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q971-ICCB	4Q66025.D	1	09/09/24	MB	n/a	n/a	S4Q971

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-44, FC18042-50

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-4	4:2-FTS	ND	0.020	0.0032	ug/l	
27619-97-2	6:2-FTS	ND	0.020	0.0035	ug/l	
39108-34-4	8:2-FTS	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q971-ICCB	4Q66025.D	1	09/09/24	MB	n/a	n/a	S4Q971

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-44, FC18042-50

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3-FTCA	ND	0.020	0.0045	ug/l	
914637-49-3	5:3-FTCA	ND	0.10	0.0087	ug/l	
812-70-4	7:3-FTCA	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	101%	10-130%
	13C5-PFPeA	99%	40-130%
	13C5-PFHxA	97%	40-130%
	13C4-PFHpA	100%	40-130%
	13C8-PFOA	102%	40-130%
	13C9-PFNA	101%	40-130%
	13C6-PFDA	99%	40-130%
	13C7-PFUnDA	101%	30-130%
	13C2-PFDoDA	95%	10-130%
	13C2-PFTeDA	96%	10-130%
	13C3-PFBS	102%	40-135%
	13C3-PFHxS	99%	40-130%
	13C8-PFOS	103%	40-130%
	13C8-FOSA	99%	40-130%
	d3-MeFOSA	97%	10-130%
	d5-EtFOSA	103%	10-130%
	d3-MeFOSAA	105%	40-170%
	d5-EtFOSAA	98%	25-135%
	d7-MeFOSE	98%	10-130%
	d9-EtFOSE	98%	10-130%
	13C2-4:2FTS	116%	40-200%
	13C2-6:2FTS	100%	40-200%
	13C2-8:2FTS	108%	40-300%
	13C3-HFPO-DA	92%	40-130%

Continuing Calibration Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q150-ICCB	7Q9794.D	1	09/11/24	MV	n/a	n/a	S7Q150

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-30, FC18042-36

CAS No.	Compound	Result	RL	MDL	Units	Q
375-95-1	Perfluorononanoic acid	ND	1.0	0.12	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.10	ug/kg	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	102%	10-130%
	13C5-PFPeA	100%	35-130%
	13C5-PFHxA	97%	40-130%
	13C4-PFHpA	103%	40-130%
	13C8-PFOA	104%	40-130%
	13C9-PFNA	108%	40-130%
	13C6-PFDA	99%	40-130%
	13C7-PFUnDA	102%	40-130%
	13C2-PFDoDA	96%	40-130%
	13C2-PFTeDA	91%	20-130%
	13C3-PFBS	100%	40-135%
	13C3-PFHxS	105%	40-130%
	13C8-PFOS	111%	40-130%
	13C8-FOSA	103%	40-130%
	d3-MeFOSA	100%	10-130%
	d5-EtFOSA	105%	10-130%
	d3-MeFOSAA	108%	40-135%
	d5-EtFOSAA	113%	40-150%
	d7-MeFOSE	97%	20-130%
	d9-EtFOSE	92%	15-130%
	13C2-4:2FTS	107%	40-165%
	13C2-6:2FTS	109%	40-215%
	13C2-8:2FTS	103%	40-275%
	13C3-HFPO-DA	103%	40-130%

Continuing Calibration Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q148-ICCB	7Q9568.D	1	09/08/24	MV	n/a	n/a	S7Q148

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

OP4946-MS, OP4946-MSD

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	2.0	0.31	ug/kg	
2706-90-3	Perfluoropentanoic acid	ND	1.0	0.10	ug/kg	
307-24-4	Perfluorohexanoic acid	ND	1.0	0.10	ug/kg	
375-85-9	Perfluoroheptanoic acid	ND	1.0	0.10	ug/kg	
335-67-1	Perfluorooctanoic acid	ND	1.0	0.10	ug/kg	
375-95-1	Perfluorononanoic acid	ND	1.0	0.12	ug/kg	
335-76-2	Perfluorodecanoic acid	ND	1.0	0.10	ug/kg	
2058-94-8	Perfluoroundecanoic acid	ND	1.0	0.13	ug/kg	
307-55-1	Perfluorododecanoic acid	ND	1.0	0.10	ug/kg	
72629-94-8	Perfluorotridecanoic acid	ND	1.0	0.10	ug/kg	
376-06-7	Perfluorotetradecanoic acid	ND	1.0	0.10	ug/kg	
375-73-5	Perfluorobutanesulfonic acid	ND	1.0	0.10	ug/kg	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.0	0.16	ug/kg	
355-46-4	Perfluorohexanesulfonic acid	ND	1.0	0.16	ug/kg	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.0	0.15	ug/kg	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.0	0.10	ug/kg	
68259-12-1	Perfluorononanesulfonic acid	ND	1.0	0.18	ug/kg	
335-77-3	Perfluorodecanesulfonic acid	ND	1.0	0.14	ug/kg	
79780-39-5	Perfluorododecanesulfonic aci	ND	1.0	0.15	ug/kg	
757124-72-4	4:2-FTS	ND	2.0	0.30	ug/kg	
27619-97-2	6:2-FTS	ND	2.0	0.35	ug/kg	
39108-34-4	8:2-FTS	ND	2.0	0.61	ug/kg	
754-91-6	PFOSA	ND	1.0	0.10	ug/kg	
31506-32-8	MeFOSA	ND	1.0	0.14	ug/kg	
4151-50-2	EtFOSA	ND	1.0	0.10	ug/kg	
2355-31-9	MeFOSAA	ND	1.0	0.16	ug/kg	
2991-50-6	EtFOSAA	ND	1.0	0.20	ug/kg	
24448-09-7	MeFOSE	ND	5.0	0.64	ug/kg	
1691-99-2	EtFOSE	ND	5.0	0.83	ug/kg	
13252-13-6	HFPO-DA (GenX)	ND	2.0	0.29	ug/kg	
919005-14-4	ADONA	ND	2.0	0.34	ug/kg	
377-73-1	PFMPA	ND	1.0	0.11	ug/kg	
863090-89-5	PFMBA	ND	1.0	0.10	ug/kg	
151772-58-6	NFDHA	ND	2.0	0.24	ug/kg	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	2.0	0.44	ug/kg	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	2.0	0.36	ug/kg	

Continuing Calibration Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q148-ICCB	7Q9568.D	1	09/08/24	MV	n/a	n/a	S7Q148

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

OP4946-MS, OP4946-MSD

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	1.0	0.10	ug/kg	
356-02-5	3:3-FTCA	ND	2.5	0.51	ug/kg	
914637-49-3	5:3-FTCA	ND	13	1.2	ug/kg	
812-70-4	7:3-FTCA	ND	13	1.3	ug/kg	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	102%	10-130%
	13C5-PFPeA	100%	35-130%
	13C5-PFHxA	95%	40-130%
	13C4-PFHpA	103%	40-130%
	13C8-PFOA	101%	40-130%
	13C9-PFNA	108%	40-130%
	13C6-PFDA	101%	40-130%
	13C7-PFUnDA	97%	40-130%
	13C2-PFDoDA	91%	40-130%
	13C2-PFTeDA	87%	20-130%
	13C3-PFBS	101%	40-135%
	13C3-PFHxS	102%	40-130%
	13C8-PFOS	102%	40-130%
	13C8-FOSA	102%	40-130%
	d3-MeFOSA	99%	10-130%
	d5-EtFOSA	103%	10-130%
	d3-MeFOSAA	110%	40-135%
	d5-EtFOSAA	109%	40-150%
	d7-MeFOSE	100%	20-130%
	d9-EtFOSE	101%	15-130%
	13C2-4:2FTS	100%	40-165%
	13C2-6:2FTS	103%	40-215%
	13C2-8:2FTS	96%	40-275%
	13C3-HFPO-DA	104%	40-130%

Continuing Calibration Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q971-ICCB	4Q66037.D	1	09/10/24	MB	n/a	n/a	S4Q971

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

OP5158-DUP, OP5158-MS

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-4	4:2-FTS	ND	0.020	0.0032	ug/l	
27619-97-2	6:2-FTS	ND	0.020	0.0035	ug/l	
39108-34-4	8:2-FTS	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q971-ICCB	4Q66037.D	1	09/10/24	MB	n/a	n/a	S4Q971

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

OP5158-DUP, OP5158-MS

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3-FTCA	ND	0.020	0.0045	ug/l	
914637-49-3	5:3-FTCA	ND	0.10	0.0087	ug/l	
812-70-4	7:3-FTCA	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	101%	10-130%
	13C5-PFPeA	101%	40-130%
	13C5-PFHxA	101%	40-130%
	13C4-PFHpA	102%	40-130%
	13C8-PFOA	99%	40-130%
	13C9-PFNA	97%	40-130%
	13C6-PFDA	105%	40-130%
	13C7-PFUnDA	106%	30-130%
	13C2-PFDoDA	101%	10-130%
	13C2-PFTeDA	103%	10-130%
	13C3-PFBS	100%	40-135%
	13C3-PFHxS	103%	40-130%
	13C8-PFOS	96%	40-130%
	13C8-FOSA	90%	40-130%
	d3-MeFOSA	91%	10-130%
	d5-EtFOSA	96%	10-130%
	d3-MeFOSAA	99%	40-170%
	d5-EtFOSAA	98%	25-135%
	d7-MeFOSE	91%	10-130%
	d9-EtFOSE	94%	10-130%
	13C2-4:2FTS	115%	40-200%
	13C2-6:2FTS	112%	40-200%
	13C2-8:2FTS	111%	40-300%
	13C3-HFPO-DA	93%	40-130%

Blank Spike Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4934-LLBS	7Q9506.D	1	09/06/24	MV	08/23/24	OP4934	S7Q147

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-3, FC18042-4, FC18042-6, FC18042-7, FC18042-10, FC18042-11, FC18042-12, FC18042-13, FC18042-15, FC18042-16, FC18042-18, FC18042-19, FC18042-21, FC18042-22, FC18042-24, FC18042-26, FC18042-27, FC18042-29

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
375-22-4	Perfluorobutanoic acid	1.6	1.2	75	70-140
2706-90-3	Perfluoropentanoic acid	0.8	0.68	85	60-150
307-24-4	Perfluorohexanoic acid	0.4	0.33	83	65-140
375-85-9	Perfluoroheptanoic acid	0.4	0.32	80	65-145
335-67-1	Perfluorooctanoic acid	0.4	0.33	83	70-150
375-95-1	Perfluorononanoic acid	0.4	0.32	80	70-155
335-76-2	Perfluorodecanoic acid	0.4	0.35	88	70-155
2058-94-8	Perfluoroundecanoic acid	0.4	0.37	93	70-155
307-55-1	Perfluorododecanoic acid	0.4	0.35	88	70-150
72629-94-8	Perfluorotridecanoic acid	0.4	0.33	83	65-150
376-06-7	Perfluorotetradecanoic acid	0.4	0.35	88	65-150
375-73-5	Perfluorobutanesulfonic acid	0.355	0.31	87	65-145
2706-91-4	Perfluoropentanesulfonic acid	0.376	0.27	72	55-160
355-46-4	Perfluorohexanesulfonic acid	0.366	0.27	74	60-150
375-92-8	Perfluoroheptanesulfonic acid	0.381	0.33	87	65-155
1763-23-1	Perfluorooctanesulfonic acid	0.371	0.33	89	65-160
68259-12-1	Perfluorononanesulfonic acid	0.385	0.31	81	55-140
335-77-3	Perfluorodecanesulfonic acid	0.386	0.32	83	40-155
79780-39-5	Perfluorododecanesulfonic aci	0.388	0.30	77	25-160
757124-72-4	4:2-FTS	1.5	1.0	67	60-150
27619-97-2	6:2-FTS	1.52	1.3	86	55-200
39108-34-4	8:2-FTS	1.54	1.6	104	70-150
754-91-6	PFOSA	0.4	0.33	83	70-140
31506-32-8	MeFOSA	0.8	0.66	83	70-155
4151-50-2	EtFOSA	0.8	0.57	71	70-140
2355-31-9	MeFOSAA	0.4	0.33	83	65-155
2991-50-6	EtFOSAA	0.4	0.30	75	65-165
24448-09-7	MeFOSE	2	1.8	90	70-140
1691-99-2	EtFOSE	2	1.8	90	70-135
13252-13-6	HFPO-DA (GenX)	0.8	0.63	79	70-145
919005-14-4	ADONA	0.756	0.58	77	70-160
377-73-1	PFMPA	0.8	0.58	73	30-140
863090-89-5	PFMBA	0.8	0.59	74	60-150
151772-58-6	NFDHA	0.8	0.72	90	60-155
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.748	0.53	71	70-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.756	0.56	74	45-160

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4934-LLBS	7Q9506.D	1	09/06/24	MV	08/23/24	OP4934	S7Q147

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-3, FC18042-4, FC18042-6, FC18042-7, FC18042-10, FC18042-11, FC18042-12, FC18042-13, FC18042-15, FC18042-16, FC18042-18, FC18042-19, FC18042-21, FC18042-22, FC18042-24, FC18042-26, FC18042-27, FC18042-29

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
113507-82-7	PFEESA	0.712	0.57	80	70-140
356-02-5	3:3-FTCA	2	1.4	70	45-130
914637-49-3	5:3-FTCA	10	7.3	73	60-130
812-70-4	7:3-FTCA	10	7.5	75	60-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	89%	10-130%
	13C5-PFPeA	87%	35-130%
	13C5-PFHxA	84%	40-130%
	13C4-PFHpA	87%	40-130%
	13C8-PFOA	86%	40-130%
	13C9-PFNA	90%	40-130%
	13C6-PFDA	83%	40-130%
	13C7-PFUnDA	83%	40-130%
	13C2-PFDoDA	82%	40-130%
	13C2-PFTeDA	77%	20-130%
	13C3-PFBS	85%	40-135%
	13C3-PFHxS	87%	40-130%
	13C8-PFOS	86%	40-130%
	13C8-FOSA	90%	40-130%
	d3-MeFOSA	91%	10-130%
	d5-EtFOSA	96%	10-130%
	d3-MeFOSAA	99%	40-135%
	d5-EtFOSAA	99%	40-150%
	d7-MeFOSE	96%	20-130%
	d9-EtFOSE	92%	15-130%
	13C2-4:2FTS	91%	40-165%
	13C2-6:2FTS	94%	40-215%
	13C2-8:2FTS	80%	40-275%
	13C3-HFPO-DA	92%	40-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4946-LLBS	7Q9558.D	1	09/08/24	MV	08/26/24	OP4946	S7Q148

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-30, FC18042-32, FC18042-33, FC18042-34, FC18042-36, FC18042-37

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
375-22-4	Perfluorobutanoic acid	1.6	1.3	81	70-140
2706-90-3	Perfluoropentanoic acid	0.8	0.72	90	60-150
307-24-4	Perfluorohexanoic acid	0.4	0.35	88	65-140
375-85-9	Perfluoroheptanoic acid	0.4	0.37	93	65-145
335-67-1	Perfluorooctanoic acid	0.4	0.32	80	70-150
375-95-1	Perfluorononanoic acid	0.4	0.35	88	70-155
335-76-2	Perfluorodecanoic acid	0.4	0.40	100	70-155
2058-94-8	Perfluoroundecanoic acid	0.4	0.38	95	70-155
307-55-1	Perfluorododecanoic acid	0.4	0.34	85	70-150
72629-94-8	Perfluorotridecanoic acid	0.4	0.34	85	65-150
376-06-7	Perfluorotetradecanoic acid	0.4	0.36	90	65-150
375-73-5	Perfluorobutanesulfonic acid	0.355	0.33	93	65-145
2706-91-4	Perfluoropentanesulfonic acid	0.376	0.37	98	55-160
355-46-4	Perfluorohexanesulfonic acid	0.366	0.35	96	60-150
375-92-8	Perfluoroheptanesulfonic acid	0.381	0.32	84	65-155
1763-23-1	Perfluorooctanesulfonic acid	0.371	0.31	84	65-160
68259-12-1	Perfluorononanesulfonic acid	0.385	0.33	86	55-140
335-77-3	Perfluorodecanesulfonic acid	0.386	0.33	85	40-155
79780-39-5	Perfluorododecanesulfonic aci	0.388	0.33	85	25-160
757124-72-4	4:2-FTS	1.5	1.3	87	60-150
27619-97-2	6:2-FTS	1.52	1.4	92	55-200
39108-34-4	8:2-FTS	1.54	1.3	85	70-150
754-91-6	PFOSA	0.4	0.37	93	70-140
31506-32-8	MeFOSA	0.8	0.68	85	70-155
4151-50-2	EtFOSA	0.8	0.65	81	70-140
2355-31-9	MeFOSAA	0.4	0.36	90	65-155
2991-50-6	EtFOSAA	0.4	0.35	88	65-165
24448-09-7	MeFOSE	2	1.8	90	70-140
1691-99-2	EtFOSE	2	2.1	105	70-135
13252-13-6	HFPO-DA (GenX)	0.8	0.67	84	70-145
919005-14-4	ADONA	0.756	0.63	83	70-160
377-73-1	PFMPA	0.8	0.63	79	30-140
863090-89-5	PFMBA	0.8	0.65	81	60-150
151772-58-6	NFDHA	0.8	0.73	91	60-155
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.748	0.58	78	70-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.756	0.65	86	45-160

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4946-LLBS	7Q9558.D	1	09/08/24	MV	08/26/24	OP4946	S7Q148

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-30, FC18042-32, FC18042-33, FC18042-34, FC18042-36, FC18042-37

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
113507-82-7	PFEESA	0.712	0.58	81	70-140
356-02-5	3:3-FTCA	2	1.5	75	45-130
914637-49-3	5:3-FTCA	10	7.9	79	60-130
812-70-4	7:3-FTCA	10	7.9	79	60-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	79%	10-130%
	13C5-PFPeA	75%	35-130%
	13C5-PFHxA	75%	40-130%
	13C4-PFHpA	76%	40-130%
	13C8-PFOA	79%	40-130%
	13C9-PFNA	82%	40-130%
	13C6-PFDA	77%	40-130%
	13C7-PFUnDA	77%	40-130%
	13C2-PFDoDA	76%	40-130%
	13C2-PFTeDA	75%	20-130%
	13C3-PFBS	77%	40-135%
	13C3-PFHxS	75%	40-130%
	13C8-PFOS	85%	40-130%
	13C8-FOSA	79%	40-130%
	d3-MeFOSA	81%	10-130%
	d5-EtFOSA	82%	10-130%
	d3-MeFOSAA	79%	40-135%
	d5-EtFOSAA	87%	40-150%
	d7-MeFOSE	86%	20-130%
	d9-EtFOSE	78%	15-130%
	13C2-4:2FTS	80%	40-165%
	13C2-6:2FTS	79%	40-215%
	13C2-8:2FTS	87%	40-275%
	13C3-HFPO-DA	76%	40-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5158-LLBS	4Q66019.D	1	09/09/24	MB	09/05/24	OP5158	S4Q971

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-38, FC18042-39, FC18042-41, FC18042-44, FC18042-46, FC18042-47, FC18042-50

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.016	0.0145	91	70-140
2706-90-3	Perfluoropentanoic acid	0.008	0.0074	93	65-135
307-24-4	Perfluorohexanoic acid	0.004	0.0036	90	70-145
375-85-9	Perfluoroheptanoic acid	0.004	0.0037	93	70-150
335-67-1	Perfluorooctanoic acid	0.004	0.0037	93	70-150
375-95-1	Perfluorononanoic acid	0.004	0.0038	95	70-150
335-76-2	Perfluorodecanoic acid	0.004	0.0035	88	70-140
2058-94-8	Perfluoroundecanoic acid	0.004	0.0036	90	70-145
307-55-1	Perfluorododecanoic acid	0.004	0.0036	90	70-140
72629-94-8	Perfluorotridecanoic acid	0.004	0.0035	88	65-140
376-06-7	Perfluorotetradecanoic acid	0.004	0.0034	85	60-140
375-73-5	Perfluorobutanesulfonic acid	0.00355	0.0033	93	60-145
2706-91-4	Perfluoropentanesulfonic acid	0.00376	0.0034	90	65-140
355-46-4	Perfluorohexanesulfonic acid	0.00366	0.0035	96	65-145
375-92-8	Perfluoroheptanesulfonic acid	0.00381	0.0038	100	70-150
1763-23-1	Perfluorooctanesulfonic acid	0.00371	0.0030	81	55-150
68259-12-1	Perfluorononanesulfonic acid	0.00385	0.0034	88	65-145
335-77-3	Perfluorodecanesulfonic acid	0.00386	0.0033	85	60-145
79780-39-5	Perfluorododecanesulfonic aci	0.00388	0.0030	77	50-145
757124-72-4	4:2-FTS	0.015	0.0133	89	70-145
27619-97-2	6:2-FTS	0.0152	0.0156	103	65-155
39108-34-4	8:2-FTS	0.0154	0.0141	92	60-150
754-91-6	PFOSA	0.004	0.0036	90	70-145
31506-32-8	MeFOSA	0.008	0.0075	94	60-150
4151-50-2	EtFOSA	0.008	0.0073	91	65-145
2355-31-9	MeFOSAA	0.004	0.0035	88	50-140
2991-50-6	EtFOSAA	0.004	0.0043	108	70-145
24448-09-7	MeFOSE	0.02	0.0184	92	70-145
1691-99-2	EtFOSE	0.02	0.0241	121	70-135
13252-13-6	HFPO-DA (GenX)	0.008	0.0073	91	70-140
919005-14-4	ADONA	0.00756	0.0074	98	65-145
377-73-1	PFMPA	0.008	0.0072	90	55-140
863090-89-5	PFMBA	0.008	0.0072	90	60-150
151772-58-6	NFDHA	0.008	0.0074	93	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.00748	0.0070	94	70-155
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.00756	0.0067	89	55-160

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5158-LLBS	4Q66019.D	1	09/09/24	MB	09/05/24	OP5158	S4Q971

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-38, FC18042-39, FC18042-41, FC18042-44, FC18042-46, FC18042-47, FC18042-50

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.00712	0.0065	91	70-140
356-02-5	3:3-FTCA	0.02	0.0150	75	65-130
914637-49-3	5:3-FTCA	0.1	0.0817	82	70-135
812-70-4	7:3-FTCA	0.1	0.0875	88	50-145

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	102%	10-130%
	13C5-PFPeA	107%	40-130%
	13C5-PFHxA	105%	40-130%
	13C4-PFHpA	104%	40-130%
	13C8-PFOA	102%	40-130%
	13C9-PFNA	105%	40-130%
	13C6-PFDA	104%	40-130%
	13C7-PFUnDA	105%	30-130%
	13C2-PFDoDA	95%	10-130%
	13C2-PFTeDA	84%	10-130%
	13C3-PFBS	104%	40-135%
	13C3-PFHxS	107%	40-130%
	13C8-PFOS	103%	40-130%
	13C8-FOSA	57%	40-130%
	d3-MeFOSA	51%	10-130%
	d5-EtFOSA	54%	10-130%
	d3-MeFOSAA	102%	40-170%
	d5-EtFOSAA	102%	25-135%
	d7-MeFOSE	41%	10-130%
	d9-EtFOSE	47%	10-130%
	13C2-4:2FTS	115%	40-200%
	13C2-6:2FTS	104%	40-200%
	13C2-8:2FTS	111%	40-300%
	13C3-HFPO-DA	101%	40-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4934-BS	7Q9505.D	1	09/06/24	MV	08/23/24	OP4934	S7Q147

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-3, FC18042-4, FC18042-6, FC18042-7, FC18042-10, FC18042-11, FC18042-12, FC18042-13, FC18042-15, FC18042-16, FC18042-18, FC18042-19, FC18042-21, FC18042-22, FC18042-24, FC18042-26, FC18042-27, FC18042-29

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
375-22-4	Perfluorobutanoic acid	10	8.8	88	70-140
2706-90-3	Perfluoropentanoic acid	5	5.1	102	60-150
307-24-4	Perfluorohexanoic acid	2.5	2.5	100	65-140
375-85-9	Perfluoroheptanoic acid	2.5	2.4	96	65-145
335-67-1	Perfluorooctanoic acid	2.5	2.3	92	70-150
375-95-1	Perfluorononanoic acid	2.5	2.4	96	70-155
335-76-2	Perfluorodecanoic acid	2.5	2.5	100	70-155
2058-94-8	Perfluoroundecanoic acid	2.5	2.5	100	70-155
307-55-1	Perfluorododecanoic acid	2.5	2.4	96	70-150
72629-94-8	Perfluorotridecanoic acid	2.5	2.4	96	65-150
376-06-7	Perfluorotetradecanoic acid	2.5	2.6	104	65-150
375-73-5	Perfluorobutanesulfonic acid	2.22	2.2	99	65-145
2706-91-4	Perfluoropentanesulfonic acid	2.35	2.2	94	55-160
355-46-4	Perfluorohexanesulfonic acid	2.29	2.0	88	60-150
375-92-8	Perfluoroheptanesulfonic acid	2.38	2.2	92	65-155
1763-23-1	Perfluorooctanesulfonic acid	2.32	1.9	82	65-160
68259-12-1	Perfluorononanesulfonic acid	2.41	2.3	96	55-140
335-77-3	Perfluorodecanesulfonic acid	2.41	2.1	87	40-155
79780-39-5	Perfluorododecanesulfonic aci	2.43	2.2	91	25-160
757124-72-4	4:2-FTS	9.38	9.6	102	60-150
27619-97-2	6:2-FTS	9.5	9.3	98	55-200
39108-34-4	8:2-FTS	9.6	10.2	106	70-150
754-91-6	PFOSA	2.5	2.2	88	70-140
31506-32-8	MeFOSA	5	4.3	86	70-155
4151-50-2	EtFOSA	5	4.2	84	70-140
2355-31-9	MeFOSAA	2.5	2.3	92	65-155
2991-50-6	EtFOSAA	2.5	2.2	88	65-165
24448-09-7	MeFOSE	12.5	11.4	91	70-140
1691-99-2	EtFOSE	12.5	11.7	94	70-135
13252-13-6	HFPO-DA (GenX)	5	4.6	92	70-145
919005-14-4	ADONA	4.73	4.3	91	70-160
377-73-1	PFMPA	5	4.3	86	30-140
863090-89-5	PFMBA	5	4.5	90	60-150
151772-58-6	NFDHA	5	5.4	108	60-155
756426-58-1	9Cl-PF3ONS (F-53B Major)	4.68	4.2	90	70-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	4.73	4.4	93	45-160

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4934-BS	7Q9505.D	1	09/06/24	MV	08/23/24	OP4934	S7Q147

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-3, FC18042-4, FC18042-6, FC18042-7, FC18042-10, FC18042-11, FC18042-12, FC18042-13, FC18042-15, FC18042-16, FC18042-18, FC18042-19, FC18042-21, FC18042-22, FC18042-24, FC18042-26, FC18042-27, FC18042-29

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
113507-82-7	PFEESA	4.45	4.3	97	70-140
356-02-5	3:3-FTCA	12.5	10.4	83	45-130
914637-49-3	5:3-FTCA	62.5	55.4	89	60-130
812-70-4	7:3-FTCA	62.5	57.6	92	60-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	91%	10-130%
	13C5-PFPeA	86%	35-130%
	13C5-PFHxA	81%	40-130%
	13C4-PFHpA	86%	40-130%
	13C8-PFOA	88%	40-130%
	13C9-PFNA	96%	40-130%
	13C6-PFDA	86%	40-130%
	13C7-PFUnDA	90%	40-130%
	13C2-PFDoDA	89%	40-130%
	13C2-PFTeDA	85%	20-130%
	13C3-PFBS	86%	40-135%
	13C3-PFHxS	89%	40-130%
	13C8-PFOS	87%	40-130%
	13C8-FOSA	89%	40-130%
	d3-MeFOSA	89%	10-130%
	d5-EtFOSA	89%	10-130%
	d3-MeFOSAA	92%	40-135%
	d5-EtFOSAA	97%	40-150%
	d7-MeFOSE	93%	20-130%
	d9-EtFOSE	91%	15-130%
	13C2-4:2FTS	87%	40-165%
	13C2-6:2FTS	95%	40-215%
	13C2-8:2FTS	90%	40-275%
	13C3-HFPO-DA	88%	40-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4946-BS	7Q9557.D	1	09/08/24	MV	08/26/24	OP4946	S7Q148

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-30, FC18042-32, FC18042-33, FC18042-34, FC18042-36, FC18042-37

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
375-22-4	Perfluorobutanoic acid	10	9.9	99	70-140
2706-90-3	Perfluoropentanoic acid	5	5.6	112	60-150
307-24-4	Perfluorohexanoic acid	2.5	2.8	112	65-140
375-85-9	Perfluoroheptanoic acid	2.5	2.7	108	65-145
335-67-1	Perfluorooctanoic acid	2.5	2.6	104	70-150
375-95-1	Perfluorononanoic acid	2.5	2.5	100	70-155
335-76-2	Perfluorodecanoic acid	2.5	2.6	104	70-155
2058-94-8	Perfluoroundecanoic acid	2.5	2.7	108	70-155
307-55-1	Perfluorododecanoic acid	2.5	2.6	104	70-150
72629-94-8	Perfluorotridecanoic acid	2.5	2.6	104	65-150
376-06-7	Perfluorotetradecanoic acid	2.5	2.7	108	65-150
375-73-5	Perfluorobutanesulfonic acid	2.22	2.2	99	65-145
2706-91-4	Perfluoropentanesulfonic acid	2.35	2.4	102	55-160
355-46-4	Perfluorohexanesulfonic acid	2.29	2.2	96	60-150
375-92-8	Perfluoroheptanesulfonic acid	2.38	2.2	92	65-155
1763-23-1	Perfluorooctanesulfonic acid	2.32	2.3	99	65-160
68259-12-1	Perfluorononanesulfonic acid	2.41	2.5	104	55-140
335-77-3	Perfluorodecanesulfonic acid	2.41	2.3	95	40-155
79780-39-5	Perfluorododecanesulfonic aci	2.43	2.2	91	25-160
757124-72-4	4:2-FTS	9.38	9.8	105	60-150
27619-97-2	6:2-FTS	9.5	9.9	104	55-200
39108-34-4	8:2-FTS	9.6	10.5	109	70-150
754-91-6	PFOSA	2.5	2.6	104	70-140
31506-32-8	MeFOSA	5	4.8	96	70-155
4151-50-2	EtFOSA	5	4.7	94	70-140
2355-31-9	MeFOSAA	2.5	2.7	108	65-155
2991-50-6	EtFOSAA	2.5	2.4	96	65-165
24448-09-7	MeFOSE	12.5	12.6	101	70-140
1691-99-2	EtFOSE	12.5	13.0	104	70-135
13252-13-6	HFPO-DA (GenX)	5	5.1	102	70-145
919005-14-4	ADONA	4.73	4.8	102	70-160
377-73-1	PFMPA	5	4.9	98	30-140
863090-89-5	PFMBA	5	5.0	100	60-150
151772-58-6	NFDHA	5	5.6	112	60-155
756426-58-1	9Cl-PF3ONS (F-53B Major)	4.68	4.8	103	70-150
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	4.73	4.9	104	45-160

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4946-BS	7Q9557.D	1	09/08/24	MV	08/26/24	OP4946	S7Q148

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-30, FC18042-32, FC18042-33, FC18042-34, FC18042-36, FC18042-37

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
113507-82-7	PFEESA	4.45	4.8	108	70-140
356-02-5	3:3-FTCA	12.5	11.4	91	45-130
914637-49-3	5:3-FTCA	62.5	63.0	101	60-130
812-70-4	7:3-FTCA	62.5	63.0	101	60-150

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	76%	10-130%
	13C5-PFPeA	74%	35-130%
	13C5-PFHxA	71%	40-130%
	13C4-PFHpA	77%	40-130%
	13C8-PFOA	75%	40-130%
	13C9-PFNA	82%	40-130%
	13C6-PFDA	73%	40-130%
	13C7-PFUnDA	72%	40-130%
	13C2-PFDoDA	72%	40-130%
	13C2-PFTeDA	68%	20-130%
	13C3-PFBS	80%	40-135%
	13C3-PFHxS	83%	40-130%
	13C8-PFOS	82%	40-130%
	13C8-FOSA	77%	40-130%
	d3-MeFOSA	82%	10-130%
	d5-EtFOSA	79%	10-130%
	d3-MeFOSAA	79%	40-135%
	d5-EtFOSAA	82%	40-150%
	d7-MeFOSE	82%	20-130%
	d9-EtFOSE	79%	15-130%
	13C2-4:2FTS	79%	40-165%
	13C2-6:2FTS	85%	40-215%
	13C2-8:2FTS	82%	40-275%
	13C3-HFPO-DA	75%	40-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5158-BS	4Q66018.D	1	09/09/24	MB	09/05/24	OP5158	S4Q971

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-38, FC18042-39, FC18042-41, FC18042-44, FC18042-46, FC18042-47, FC18042-50

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0931	93	70-140
2706-90-3	Perfluoropentanoic acid	0.05	0.0480	96	65-135
307-24-4	Perfluorohexanoic acid	0.025	0.0237	95	70-145
375-85-9	Perfluoroheptanoic acid	0.025	0.0241	96	70-150
335-67-1	Perfluorooctanoic acid	0.025	0.0231	92	70-150
375-95-1	Perfluorononanoic acid	0.025	0.0227	91	70-150
335-76-2	Perfluorodecanoic acid	0.025	0.0247	99	70-140
2058-94-8	Perfluoroundecanoic acid	0.025	0.0236	94	70-145
307-55-1	Perfluorododecanoic acid	0.025	0.0246	98	70-140
72629-94-8	Perfluorotridecanoic acid	0.025	0.0234	94	65-140
376-06-7	Perfluorotetradecanoic acid	0.025	0.0247	99	60-140
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0222	100	60-145
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0239	102	65-140
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0226	99	65-145
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0236	99	70-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0210	91	55-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0223	93	65-145
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0219	91	60-145
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0199	82	50-145
757124-72-4	4:2-FTS	0.0938	0.0876	93	70-145
27619-97-2	6:2-FTS	0.095	0.0990	104	65-155
39108-34-4	8:2-FTS	0.096	0.0903	94	60-150
754-91-6	PFOSA	0.025	0.0229	92	70-145
31506-32-8	MeFOSA	0.05	0.0499	100	60-150
4151-50-2	EtFOSA	0.05	0.0478	96	65-145
2355-31-9	MeFOSAA	0.025	0.0256	102	50-140
2991-50-6	EtFOSAA	0.025	0.0279	112	70-145
24448-09-7	MeFOSE	0.125	0.119	95	70-145
1691-99-2	EtFOSE	0.125	0.114	91	70-135
13252-13-6	HFPO-DA (GenX)	0.05	0.0482	96	70-140
919005-14-4	ADONA	0.0473	0.0490	104	65-145
377-73-1	PFMPA	0.05	0.0462	92	55-140
863090-89-5	PFMBA	0.05	0.0463	93	60-150
151772-58-6	NFDHA	0.05	0.0447	89	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0468	0.0495	106	70-155
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0473	0.0461	98	55-160

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5158-BS	4Q66018.D	1	09/09/24	MB	09/05/24	OP5158	S4Q971

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-38, FC18042-39, FC18042-41, FC18042-44, FC18042-46, FC18042-47, FC18042-50

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0423	95	70-140
356-02-5	3:3-FTCA	0.125	0.0998	80	65-130
914637-49-3	5:3-FTCA	0.625	0.564	90	70-135
812-70-4	7:3-FTCA	0.625	0.553	88	50-145

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	102%	10-130%
	13C5-PFPeA	101%	40-130%
	13C5-PFHxA	100%	40-130%
	13C4-PFHpA	99%	40-130%
	13C8-PFOA	101%	40-130%
	13C9-PFNA	105%	40-130%
	13C6-PFDA	101%	40-130%
	13C7-PFUnDA	102%	30-130%
	13C2-PFDoDA	97%	10-130%
	13C2-PFTeDA	84%	10-130%
	13C3-PFBS	101%	40-135%
	13C3-PFHxS	100%	40-130%
	13C8-PFOS	101%	40-130%
	13C8-FOSA	75%	40-130%
	d3-MeFOSA	61%	10-130%
	d5-EtFOSA	61%	10-130%
	d3-MeFOSAA	99%	40-170%
	d5-EtFOSAA	101%	25-135%
	d7-MeFOSE	55%	10-130%
	d9-EtFOSE	56%	10-130%
	13C2-4:2FTS	111%	40-200%
	13C2-6:2FTS	96%	40-200%
	13C2-8:2FTS	108%	40-300%
	13C3-HFPO-DA	94%	40-130%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5158-MS	4Q66042.D	1	09/10/24	MB	09/05/24	OP5158	S4Q971
FC18519-1	4Q66041.D	1	09/10/24	MB	09/05/24	OP5158	S4Q971

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-38, FC18042-39, FC18042-41, FC18042-44, FC18042-46, FC18042-47, FC18042-50

CAS No.	Compound	FC18519-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.0216		0.125	0.140	95	70-140
2706-90-3	Perfluoropentanoic acid	0.0017		0.0625	0.0608	95	65-135
307-24-4	Perfluorohexanoic acid	0.0015		0.0313	0.0307	93	70-145
375-85-9	Perfluoroheptanoic acid	ND		0.0313	0.0299	96	70-150
335-67-1	Perfluorooctanoic acid	ND		0.0313	0.0291	93	70-150
375-95-1	Perfluorononanoic acid	ND		0.0313	0.0286	92	70-150
335-76-2	Perfluorodecanoic acid	ND		0.0313	0.0290	93	70-140
2058-94-8	Perfluoroundecanoic acid	ND		0.0313	0.0288	92	70-145
307-55-1	Perfluorododecanoic acid	ND		0.0313	0.0303	97	70-140
72629-94-8	Perfluorotridecanoic acid	ND		0.0313	0.0246	79	65-140
376-06-7	Perfluorotetradecanoic acid	ND		0.0313	0.0294	94	60-140
375-73-5	Perfluorobutanesulfonic acid	ND		0.0277	0.0230	83	60-145
2706-91-4	Perfluoropentanesulfonic acid	ND		0.0294	0.0282	96	65-140
355-46-4	Perfluorohexanesulfonic acid	ND		0.0286	0.0277	97	65-145
375-92-8	Perfluoroheptanesulfonic acid	ND		0.0298	0.0294	99	70-150
1763-23-1	Perfluorooctanesulfonic acid	ND		0.029	0.0252	87	55-150
68259-12-1	Perfluorononanesulfonic acid	ND		0.0301	0.0241	80	65-145
335-77-3	Perfluorodecanesulfonic acid	ND		0.0302	0.0199	66	60-145
79780-39-5	Perfluorododecanesulfonic aci	ND		0.0303	0.0121	40*	50-145
757124-72-4	4:2-FTS	ND		0.117	0.112	96	70-145
27619-97-2	6:2-FTS	ND		0.119	0.122	103	65-155
39108-34-4	8:2-FTS	ND		0.12	0.125	104	60-150
754-91-6	PFOSA	ND		0.0313	0.0292	93	70-145
31506-32-8	MeFOSA	ND		0.0625	0.0594	95	60-150
4151-50-2	EtFOSA	ND		0.0625	0.0607	97	65-145
2355-31-9	MeFOSAA	ND		0.0313	0.0313	100	50-140
2991-50-6	EtFOSAA	ND		0.0313	0.0357	114	70-145
24448-09-7	MeFOSE	ND		0.156	0.147	94	70-145
1691-99-2	EtFOSE	ND		0.156	0.134	86	70-135
13252-13-6	HFPO-DA (GenX)	ND		0.0625	0.0614	98	70-140
919005-14-4	ADONA	ND		0.0591	0.0686	116	65-145
377-73-1	PFMPA	ND		0.0625	0.0675	108	55-140
863090-89-5	PFMBA	ND		0.0625	0.0570	91	60-150
151772-58-6	NFDHA	ND		0.0625	0.0537	86	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND		0.0584	0.0598	102	70-155
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND		0.0591	0.0463	78	55-160

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5158-MS	4Q66042.D	1	09/10/24	MB	09/05/24	OP5158	S4Q971
FC18519-1	4Q66041.D	1	09/10/24	MB	09/05/24	OP5158	S4Q971

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-38, FC18042-39, FC18042-41, FC18042-44, FC18042-46, FC18042-47, FC18042-50

CAS No.	Compound	FC18519-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
113507-82-7	PFEESA	ND		0.0556	0.0492	88	70-140
356-02-5	3:3-FTCA	ND		0.156	0.162	104	65-130
914637-49-3	5:3-FTCA	ND		0.781	0.756	97	70-135
812-70-4	7:3-FTCA	ND		0.781	0.781	100	50-145

CAS No.	ID Standard Recoveries	MS	FC18519-1	Limits
	13C4-PFBA	83%		10-130%
	13C5-PFPeA	101%		40-130%
	13C5-PFHxA	102%	103%	40-130%
	13C4-PFHpA	103%	101%	40-130%
	13C8-PFOA	101%	102%	40-130%
	13C9-PFNA	98%	100%	40-130%
	13C6-PFDA	97%		40-130%
	13C7-PFUnDA	84%	82%	30-130%
	13C2-PFDoDA	62%	63%	10-130%
	13C2-PFTeDA	42%	38%	10-130%
	13C3-PFBS	111%	118%	40-135%
	13C3-PFHxS	99%		40-130%
	13C8-PFOS	99%	98%	40-130%
	13C8-FOSA	101%		40-130%
	d3-MeFOSA	77%		10-130%
	d5-EtFOSA	73%		10-130%
	d3-MeFOSAA	111%		40-170%
	d5-EtFOSAA	120%		25-135%
	d7-MeFOSE	71%		10-130%
	d9-EtFOSE	70%		10-130%
	13C2-4:2FTS	149%		40-200%
	13C2-6:2FTS	121%		40-200%
	13C2-8:2FTS	114%		40-300%
	13C3-HFPO-DA	83%		40-130%

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4934-MS	7Q9528.D	1	09/06/24	MV	08/23/24	OP4934	S7Q147
OP4934-MSD	7Q9529.D	1	09/06/24	MV	08/23/24	OP4934	S7Q147
FC18042-26	7Q9552.D	1	09/08/24	MV	08/23/24	OP4934	S7Q148

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-3, FC18042-4, FC18042-6, FC18042-7, FC18042-10, FC18042-11, FC18042-12, FC18042-13, FC18042-15, FC18042-16, FC18042-18, FC18042-19, FC18042-21, FC18042-22, FC18042-24, FC18042-26, FC18042-27, FC18042-29

CAS No.	Compound	FC18042-26 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
375-22-4	Perfluorobutanoic acid	ND		12.6	10.8	86	12.5	10.9	87	1	70-140/17
2706-90-3	Perfluoropentanoic acid	ND		6.31	6.3	100	6.26	6.3	101	0	60-150/26
307-24-4	Perfluorohexanoic acid	0.25		3.15	3.4	100	3.13	3.3	98	3	65-140/23
375-85-9	Perfluoroheptanoic acid	ND		3.15	3.0	95	3.13	3.0	96	0	65-145/21
335-67-1	Perfluorooctanoic acid	0.24	J	3.15	3.0	87	3.13	3.0	88	0	70-150/23
375-95-1	Perfluorononanoic acid	0.39		3.15	3.1	87	3.13	3.2	91	3	70-155/24
335-76-2	Perfluorodecanoic acid	ND		3.15	3.1	98	3.13	2.9	93	7	70-155/26
2058-94-8	Perfluoroundecanoic acid	ND		3.15	3.2	101	3.13	3.1	99	3	70-155/26
307-55-1	Perfluorododecanoic acid	ND		3.15	2.9	92	3.13	3.0	96	3	70-150/25
72629-94-8	Perfluorotridecanoic acid	ND		3.15	2.8	89	3.13	2.9	93	4	65-150/26
376-06-7	Perfluorotetradecanoic acid	ND		3.15	3.2	101	3.13	3.1	99	3	65-150/24
375-73-5	Perfluorobutanesulfonic acid	0.42		2.8	2.9	88	2.78	3.1	96	7	65-145/25
2706-91-4	Perfluoropentanesulfonic acid	0.60		2.97	3.2	86	2.94	3.3	90	3	55-160/29
355-46-4	Perfluorohexanesulfonic acid	4.7		2.88	6.0	45*	2.86	6.0	45*	0	60-150/28
375-92-8	Perfluoroheptanesulfonic acid	0.52		3.01	2.9	81	2.98	2.9	81	0	65-155/27
1763-23-1	Perfluorooctanesulfonic acid	17.9		2.93	14.2	-130* [a]	2.9	13.4	-158* [a]	6	65-160/27
68259-12-1	Perfluorononanesulfonic acid	ND		3.03	2.8	92	3.01	2.8	93	0	55-140/27
335-77-3	Perfluorodecanesulfonic acid	ND		3.04	2.7	89	3.02	2.8	93	4	40-155/31
79780-39-5	Perfluorododecanesulfonic aci	ND		3.06	2.6	85	3.04	2.7	89	4	25-160/40
757124-72-4	4:2-FTS	ND		11.8	10.9	92	11.7	11.2	95	3	60-150/27
27619-97-2	6:2-FTS	ND		12	12.0	100	11.9	12.1	102	1	55-200/50
39108-34-4	8:2-FTS	ND		12.1	12.8	106	12	12.8	107	0	70-150/27
754-91-6	PFOSA	ND		3.15	2.9	92	3.13	2.8	89	4	70-140/19
31506-32-8	MeFOSA	ND		6.31	5.6	89	6.26	5.6	89	0	70-155/26
4151-50-2	EtFOSA	ND		6.31	5.1	81	6.26	5.2	83	2	70-140/19
2355-31-9	MeFOSAA	ND		3.15	3.1	98	3.13	2.8	89	10	65-155/31
2991-50-6	EtFOSAA	ND		3.15	2.8	89	3.13	2.6	83	7	65-165/31
24448-09-7	MeFOSE	ND		15.8	14.0	89	15.6	14.6	93	4	70-140/19
1691-99-2	EtFOSE	ND		15.8	14.9	94	15.6	14.2	91	5	70-135/17
13252-13-6	HFPO-DA (GenX)	ND		6.31	5.8	92	6.26	5.7	91	2	70-145/25
919005-14-4	ADONA	ND		5.96	5.3	89	5.91	5.1	86	4	70-160/26
377-73-1	PFMPA	ND		6.31	5.4	86	6.26	5.4	86	0	30-140/25
863090-89-5	PFMBA	ND		6.31	5.6	89	6.26	5.6	89	0	60-150/33
151772-58-6	NFDHA	ND		6.31	6.3	100	6.26	6.3	101	0	60-155/27
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND		5.9	5.1	86	5.85	5.0	85	2	70-150/23
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND		5.96	5.4	91	5.91	5.2	88	4	45-160/31

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4934-MS	7Q9528.D	1	09/06/24	MV	08/23/24	OP4934	S7Q147
OP4934-MSD	7Q9529.D	1	09/06/24	MV	08/23/24	OP4934	S7Q147
FC18042-26	7Q9552.D	1	09/08/24	MV	08/23/24	OP4934	S7Q148

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-3, FC18042-4, FC18042-6, FC18042-7, FC18042-10, FC18042-11, FC18042-12, FC18042-13, FC18042-15, FC18042-16, FC18042-18, FC18042-19, FC18042-21, FC18042-22, FC18042-24, FC18042-26, FC18042-27, FC18042-29

CAS No.	Compound	FC18042-26 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
113507-82-7	PFEESA	ND		5.61	5.3	94	5.57	5.0	90	6	70-140/20
356-02-5	3:3-FTCA	ND		15.8	12.2	77	15.6	12.3	79	1	45-130/32
914637-49-3	5:3-FTCA	ND		78.9	66.7	85	78.2	65.5	84	2	60-130/28
812-70-4	7:3-FTCA	ND		78.9	68.4	87	78.2	69.2	88	1	60-150/39

CAS No.	ID Standard Recoveries	MS	MSD	FC18042-26	Limits
	13C4-PFBA	95%	94%	95%	10-130%
	13C5-PFPeA	92%	92%	89%	35-130%
	13C5-PFHxA	87%	88%	89%	40-130%
	13C4-PFHpA	91%	91%	95%	40-130%
	13C8-PFOA	92%	93%	89%	40-130%
	13C9-PFNA	97%	95%	95%	40-130%
	13C6-PFDA	87%	91%	90%	40-130%
	13C7-PFUnDA	89%	87%	89%	40-130%
	13C2-PFDoDA	91%	89%	89%	40-130%
	13C2-PFTeDA	86%	88%	85%	20-130%
	13C3-PFBS	95%	90%	99%	40-135%
	13C3-PFHxS	91%	90%	101%	40-130%
	13C8-PFOS	89%	93%	89%	40-130%
	13C8-FOSA	90%	96%	92%	40-130%
	d3-MeFOSA	87%	93%	97%	10-130%
	d5-EtFOSA	93%	95%	100%	10-130%
	d3-MeFOSAA	91%	95%	89%	40-135%
	d5-EtFOSAA	95%	96%	90%	40-150%
	d7-MeFOSE	96%	99%	97%	20-130%
	d9-EtFOSE	91%	99%	99%	15-130%
	13C2-4:2FTS	82%	79%	98%	40-165%
	13C2-6:2FTS	90%	91%	103%	40-215%
	13C2-8:2FTS	88%	90%	107%	40-275%
	13C3-HFPO-DA	95%	98%	92%	40-130%

(a) Outside control limits due to high level in sample relative to spike amount.

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4946-MS	7Q9576.D	1	09/09/24	MV	08/26/24	OP4946	S7Q148
OP4946-MSD	7Q9577.D	1	09/09/24	MV	08/26/24	OP4946	S7Q148
FC18122-8	7Q9575.D	1	09/09/24	MV	08/26/24	OP4946	S7Q148

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-30, FC18042-32, FC18042-33, FC18042-34, FC18042-36, FC18042-37

CAS No.	Compound	FC18122-8 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
375-22-4	Perfluorobutanoic acid	2.6 U		13.2	12.9	98	13	11.4	87	12	70-140/17
2706-90-3	Perfluoropentanoic acid	1.3 U		6.58	7.5	114	6.51	6.6	101	13	60-150/26
307-24-4	Perfluorohexanoic acid	0.66 U		3.29	3.7	112	3.26	3.2	98	14	65-140/23
375-85-9	Perfluoroheptanoic acid	0.66 U		3.29	3.3	100	3.26	3.1	95	6	65-145/21
335-67-1	Perfluorooctanoic acid	0.66 U		3.29	3.4	103	3.26	3.1	95	9	70-150/23
375-95-1	Perfluorononanoic acid	0.66 U		3.29	3.4	103	3.26	3.2	98	6	70-155/24
335-76-2	Perfluorodecanoic acid	0.66 U		3.29	3.3	100	3.26	3.1	95	6	70-155/26
2058-94-8	Perfluoroundecanoic acid	0.66 U		3.29	3.8	116	3.26	3.3	101	14	70-155/26
307-55-1	Perfluorododecanoic acid	0.66 U		3.29	3.6	109	3.26	3.3	101	9	70-150/25
72629-94-8	Perfluorotridecanoic acid	0.66 U		3.29	3.5	106	3.26	3.2	98	9	65-150/26
376-06-7	Perfluorotetradecanoic acid	0.66 U		3.29	3.8	116	3.26	3.5	107	8	65-150/24
375-73-5	Perfluorobutanesulfonic acid	0.66 U		2.92	3.2	110	2.89	2.8	97	13	65-145/25
2706-91-4	Perfluoropentanesulfonic acid	0.66 U		3.1	3.1	100	3.07	3.0	98	3	55-160/29
355-46-4	Perfluorohexanesulfonic acid	0.66 U		3.01	2.8	93	2.98	2.8	94	0	60-150/28
375-92-8	Perfluoroheptanesulfonic acid	0.66 U		3.14	3.3	105	3.1	3.1	100	6	65-155/27
1763-23-1	Perfluorooctanesulfonic acid	0.66 U		3.05	3.2	105	3.02	2.7	89	17	65-160/27
68259-12-1	Perfluorononanesulfonic acid	0.66 U		3.17	3.2	101	3.13	3.2	102	0	55-140/27
335-77-3	Perfluorodecanesulfonic acid	0.66 U		3.17	2.9	91	3.14	2.8	89	4	40-155/31
79780-39-5	Perfluorododecanesulfonic aci	0.66 U		3.19	2.9	91	3.16	3.0	95	3	25-160/40
757124-72-4	4:2-FTS	2.6 U		12.3	12.9	105	12.2	11.7	96	10	60-150/27
27619-97-2	6:2-FTS	2.6 U		12.5	13.8	110	12.4	12.3	99	11	55-200/50
39108-34-4	8:2-FTS	2.6 U		12.6	15.8	125	12.5	12.6	101	23	70-150/27
754-91-6	PFOSA	0.66 U		3.29	3.3	100	3.26	3.0	92	10	70-140/19
31506-32-8	MeFOSA	1.3 U		6.58	6.4	97	6.51	5.8	89	10	70-155/26
4151-50-2	EtFOSA	1.3 U		6.58	6.1	93	6.51	5.5	84	10	70-140/19
2355-31-9	MeFOSAA	0.66 U		3.29	3.6	109	3.26	3.0	92	18	65-155/31
2991-50-6	EtFOSAA	0.66 U		3.29	3.2	97	3.26	3.0	92	6	65-165/31
24448-09-7	MeFOSE	6.6 U		16.5	16.3	99	16.3	15.4	95	6	70-140/19
1691-99-2	EtFOSE	6.6 U		16.5	16.5	100	16.3	15.2	93	8	70-135/17
13252-13-6	HFPO-DA (GenX)	2.6 U		6.58	7.1	108	6.51	5.9	91	18	70-145/25
919005-14-4	ADONA	2.6 U		6.22	6.2	100	6.16	5.6	91	10	70-160/26
377-73-1	PFMPA	1.3 U		6.58	6.3	96	6.51	5.8	89	8	30-140/25
863090-89-5	PFMBA	1.3 U		6.58	6.6	100	6.51	6.1	94	8	60-150/33
151772-58-6	NFDHA	1.3 U		6.58	7.4	112	6.51	7.0	107	6	60-155/27
756426-58-1	9Cl-PF3ONS (F-53B Major)	2.6 U		6.15	6.0	98	6.09	5.4	89	11	70-150/23
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	2.6 U		6.22	6.2	100	6.16	5.5	89	12	45-160/31

* = Outside of Control Limits.

Matrix Spike/Matrix Spike Duplicate Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4946-MS	7Q9576.D	1	09/09/24	MV	08/26/24	OP4946	S7Q148
OP4946-MSD	7Q9577.D	1	09/09/24	MV	08/26/24	OP4946	S7Q148
FC18122-8	7Q9575.D	1	09/09/24	MV	08/26/24	OP4946	S7Q148

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-30, FC18042-32, FC18042-33, FC18042-34, FC18042-36, FC18042-37

CAS No.	Compound	FC18122-8 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
113507-82-7	PFEESA	1.3 U		5.86	6.4	109	5.8	5.7	98	12	70-140/20
356-02-5	3:3-FTCA	3.3 U		16.5	13.5	82	16.3	12.5	77	8	45-130/32
914637-49-3	5:3-FTCA	16 U		82.3	77.5	94	81.4	71.0	87	9	60-130/28
812-70-4	7:3-FTCA	16 U		82.3	78.4	95	81.4	71.4	88	9	60-150/39

CAS No.	ID Standard Recoveries	MS	MSD	FC18122-8	Limits
	13C4-PFBA	70%	74%	86%	10-130%
	13C5-PFPeA	65%	70%	81%	35-130%
	13C5-PFHxA	62%	68%	76%	40-130%
	13C4-PFHpA	68%	70%	84%	40-130%
	13C8-PFOA	69%	72%	87%	40-130%
	13C9-PFNA	68%	71%	86%	40-130%
	13C6-PFDA	68%	68%	82%	40-130%
	13C7-PFUnDA	64%	67%	85%	40-130%
	13C2-PFDoDA	65%	65%	78%	40-130%
	13C2-PFTeDA	61%	63%	75%	20-130%
	13C3-PFBS	68%	68%	80%	40-135%
	13C3-PFHxS	71%	70%	81%	40-130%
	13C8-PFOS	69%	71%	83%	40-130%
	13C8-FOSA	69%	73%	82%	40-130%
	d3-MeFOSA	59%	70%	68%	10-130%
	d5-EtFOSA	59%	70%	66%	10-130%
	d3-MeFOSAA	69%	74%	86%	40-135%
	d5-EtFOSAA	73%	76%	91%	40-150%
	d7-MeFOSE	75%	81%	82%	20-130%
	d9-EtFOSE	71%	80%	81%	15-130%
	13C2-4:2FTS	62%	61%	82%	40-165%
	13C2-6:2FTS	71%	71%	85%	40-215%
	13C2-8:2FTS	66%	69%	74%	40-275%
	13C3-HFPO-DA	68%	73%	84%	40-130%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5158-DUP	4Q66044.D	1	09/10/24	MB	09/05/24	OP5158	S4Q971
FC18519-2	4Q66043.D	1	09/10/24	MB	09/05/24	OP5158	S4Q971

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-38, FC18042-39, FC18042-41, FC18042-44, FC18042-46, FC18042-47, FC18042-50

CAS No.	Compound	FC18519-2 ug/l	Q	DUP ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.0215		0.0234		8	21
2706-90-3	Perfluoropentanoic acid	0.0022		0.0017	J	26*	23
307-24-4	Perfluorohexanoic acid	0.0013		0.0014	J	7	24
375-85-9	Perfluoroheptanoic acid	ND		ND		nc	28
335-67-1	Perfluorooctanoic acid	ND		ND		nc	27
375-95-1	Perfluorononanoic acid	ND		ND		nc	28
335-76-2	Perfluorodecanoic acid	ND		ND		nc	26
2058-94-8	Perfluoroundecanoic acid	ND		ND		nc	29
307-55-1	Perfluorododecanoic acid	ND		ND		nc	21
72629-94-8	Perfluorotridecanoic acid	ND		ND		nc	29
376-06-7	Perfluorotetradecanoic acid	ND		ND		nc	27
375-73-5	Perfluorobutanesulfonic acid	ND		ND		nc	23
2706-91-4	Perfluoropentanesulfonic acid	ND		ND		nc	25
355-46-4	Perfluorohexanesulfonic acid	ND		ND		nc	27
375-92-8	Perfluoroheptanesulfonic acid	ND		ND		nc	30
1763-23-1	Perfluorooctanesulfonic acid	ND		ND		nc	29
68259-12-1	Perfluorononanesulfonic acid	ND		ND		nc	29
335-77-3	Perfluorodecanesulfonic acid	ND		ND		nc	30
79780-39-5	Perfluorododecanesulfonic aci	ND		ND		nc	35
757124-72-4	4:2-FTS	ND		ND		nc	27
27619-97-2	6:2-FTS	ND		ND		nc	32
39108-34-4	8:2-FTS	ND		ND		nc	33
754-91-6	PFOSA	ND		ND		nc	22
31506-32-8	MeFOSA	ND		ND		nc	30
4151-50-2	EtFOSA	ND		ND		nc	26
2355-31-9	MeFOSAA	ND		ND		nc	32
2991-50-6	EtFOSAA	ND		ND		nc	28
24448-09-7	MeFOSE	ND		ND		nc	29
1691-99-2	EtFOSE	ND		ND		nc	21
13252-13-6	HFPO-DA (GenX)	ND		ND		nc	23
919005-14-4	ADONA	ND		ND		nc	23
377-73-1	PFMPA	ND		ND		nc	23
863090-89-5	PFMBA	ND		ND		nc	27
151772-58-6	NFDHA	ND		ND		nc	37
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND		ND		nc	30
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND		ND		nc	35

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC18042
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5158-DUP	4Q66044.D	1	09/10/24	MB	09/05/24	OP5158	S4Q971
FC18519-2	4Q66043.D	1	09/10/24	MB	09/05/24	OP5158	S4Q971

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-38, FC18042-39, FC18042-41, FC18042-44, FC18042-46, FC18042-47, FC18042-50

CAS No.	Compound	FC18519-2 ug/l	Q	DUP ug/l	Q	RPD	Limits
113507-82-7	PFEESA	ND		ND		nc	25
356-02-5	3:3-FTCA	ND		ND		nc	23
914637-49-3	5:3-FTCA	ND		ND		nc	24
812-70-4	7:3-FTCA	ND		ND		nc	34

CAS No.	ID Standard Recoveries	DUP	FC18519-2	Limits
	13C4-PFBA	82%		10-130%
	13C5-PFPeA	101%		40-130%
	13C5-PFHxA	100%	102%	40-130%
	13C4-PFHpA	103%	100%	40-130%
	13C8-PFOA	102%	99%	40-130%
	13C9-PFNA	100%	98%	40-130%
	13C6-PFDA	99%		40-130%
	13C7-PFUnDA	89%	84%	30-130%
	13C2-PFDoDA	68%	64%	10-130%
	13C2-PFTeDA	39%	40%	10-130%
	13C3-PFBS	118%	115%	40-135%
	13C3-PFHxS	100%		40-130%
	13C8-PFOS	100%	91%	40-130%
	13C8-FOSA	98%		40-130%
	d3-MeFOSA	73%		10-130%
	d5-EtFOSA	69%		10-130%
	d3-MeFOSAA	119%		40-170%
	d5-EtFOSAA	118%		25-135%
	d7-MeFOSE	67%		10-130%
	d9-EtFOSE	64%		10-130%
	13C2-4:2FTS	152%		40-200%
	13C2-6:2FTS	124%		40-200%
	13C2-8:2FTS	116%		40-300%
	13C3-HFPO-DA	81%		40-130%

* = Outside of Control Limits.

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

GeoEngineers, Inc.

WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

000504.217.00

SGS Job Number: FC18042R

Sampling Date: 08/14/24

Report to:

GeoEngineers, Inc
17425 NE Union Hill Rd
Redmond, WA 98052
jletts@geoengineers.com; katakturk@geoengineers.com

ATTN: Jacob Letts

Total number of pages in report: **43**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

Norm Farmer
Technical Director

Client Service contact: Andrea Colby 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001) DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177), AL, AK, AR, CT, IA, KY, MA, MI. MS, ND, NH, NV, OK, OR, IL, UT, VT, WA, WI, WV

Sections: 1 2 3 4 5 6

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SGS North America Inc.

Sample Summary

GeoEngineers, Inc.

Job No: FC18042R

WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA
Project No: 000504.217.00

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FC18042-40R	08/14/24	09:50	KAMB	08/16/24	AQ	Ground Water	BH-5-240814

This report contains results reported as ND = Not detected. The following applies:
Organics ND = Not detected above the MDL

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: GeoEngineers, Inc. **Job No:** FC18042R

Site: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, **Report Date:** 10/23/2024 8:54:23

On 08/16/2024, 1 Sample(s), 0 Trip Blank(s), 0 Equip. Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 4.4 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC18042R was assigned to the project.

Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Semi-volatiles By Method EPA 1633

Matrix: AQ **Batch ID:** OP5673

Sample(s) FC19096-15DUP, FC19096-3MS were used as the QC samples indicated.

Sample(s) FC18042-40R have compounds reported with "E" qualifiers indicating estimated value exceeding calibration range.

Matrix Spike Recovery(s) for 3:3-FTCA, Perfluorododecanesulfonic acid, PFMPA, Perfluorohexanesulfonic acid, Perfluorooctanesulfonic acid are outside control limits. Outside control limits due to high level in sample relative to spike amount.

Sample(s) FC18042-40R have surrogates outside control limits.

OP5673-LLBS for 13C5-PFHxA: Outside control limits.

OP5673-BS for 13C5-PFHxA: Outside control limits.

FC18042-40R: Sample frozen to extend holdtime.

FC18042-40R for Perfluorooctanesulfonic acid: E qualified result(s) reported due to method limitation.

SGS North America Inc. - Orlando certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted. Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria. SGS North America Inc.- Orlando is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety.

Narrative prepared by:

_____

Kim Benham, Report Generation (signature on file)

Summary of Hits

Job Number: FC18042R
Account: GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA
Collected: 08/14/24

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
FC18042-40R	**BH-5-240814**					
Perfluorobutanoic acid [a]		710	7.3	3.6	ng/l	EPA 1633
Perfluoropentanoic acid		1290	36	9.1	ng/l	EPA 1633
Perfluorohexanoic acid		1210	18	4.5	ng/l	EPA 1633
Perfluoroheptanoic acid [a]		433	1.8	0.45	ng/l	EPA 1633
Perfluorooctanoic acid [a]		492	1.8	0.45	ng/l	EPA 1633
Perfluorononanoic acid		1420	18	5.5	ng/l	EPA 1633
Perfluorodecanoic acid [b]		47.1	1.8	0.45	ng/l	EPA 1633
Perfluoroundecanoic acid [a]		423	1.8	0.55	ng/l	EPA 1633
Perfluorododecanoic acid [a]		3.3	1.8	0.55	ng/l	EPA 1633
Perfluorotridecanoic acid [a]		6.6	1.8	0.76	ng/l	EPA 1633
Perfluorobutanesulfonic acid		793	18	9.1	ng/l	EPA 1633
Perfluoropentanesulfonic acid		906	18	10	ng/l	EPA 1633
Perfluorohexanesulfonic acid		4320	18	9.1	ng/l	EPA 1633
Perfluoroheptanesulfonic acid [a]		338	1.8	0.91	ng/l	EPA 1633
Perfluorooctanesulfonic acid [c]		12500 E	18	9.1	ng/l	EPA 1633
Perfluorononanesulfonic acid [a]		46.1	1.8	0.91	ng/l	EPA 1633
Perfluorodecanesulfonic acid [a]		12.3	1.8	0.91	ng/l	EPA 1633
6:2-FTS [a]		455	7.3	3.6	ng/l	EPA 1633
8:2-FTS [a]		80.9	7.3	3.7	ng/l	EPA 1633
PFOSA [d]		20.3	1.8	0.91	ng/l	EPA 1633
PFMPA [a]		1.1 J	3.6	0.91	ng/l	EPA 1633

(a) Sample frozen to extend holdtime.
(b) Sample frozen to extend holdtime. Associated Low Level CCV outside of control limits high.
(c) E qualified result(s) reported due to method limitation.
(d) Sample frozen to extend holdtime. Associated EIS outside control limits.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: BH-5-240814
Lab Sample ID: FC18042-40R
Matrix: AQ - Ground Water
Method: EPA 1633 EPA 1633
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Date Sampled: 08/14/24
Date Received: 08/16/24
Percent Solids: n/a

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 [a]	7Q12142.D	1	10/22/24 00:18	MV	10/03/24 08:30	OP5673	S7Q175
Run #2	7Q12143.D	10	10/22/24 00:32	MV	10/03/24 08:30	OP5673	S7Q175

	Initial Volume	Final Volume
Run #1	550 ml	5.0 ml
Run #2	550 ml	5.0 ml

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	710	7.3	3.6	ng/l	
2706-90-3	Perfluoropentanoic acid	1290 [b]	36	9.1	ng/l	
307-24-4	Perfluorohexanoic acid	1210 [b]	18	4.5	ng/l	
375-85-9	Perfluoroheptanoic acid	433	1.8	0.45	ng/l	
335-67-1	Perfluorooctanoic acid	492	1.8	0.45	ng/l	
375-95-1	Perfluorononanoic acid	1420 [b]	18	5.5	ng/l	
335-76-2	Perfluorodecanoic acid [c]	47.1	1.8	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	423	1.8	0.55	ng/l	
307-55-1	Perfluorododecanoic acid	3.3	1.8	0.55	ng/l	
72629-94-8	Perfluorotridecanoic acid	6.6	1.8	0.76	ng/l	
376-06-7	Perfluorotetradecanoic acid	ND	1.8	0.45	ng/l	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	793 [b]	18	9.1	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	906 [b]	18	10	ng/l	
355-46-4	Perfluorohexanesulfonic acid	4320 [b]	18	9.1	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	338	1.8	0.91	ng/l	
1763-23-1	Perfluorooctanesulfonic acid [d]	12500 [b]	18	9.1	ng/l	E
68259-12-1	Perfluorononanesulfonic acid	46.1	1.8	0.91	ng/l	
335-77-3	Perfluorodecanesulfonic acid	12.3	1.8	0.91	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	1.8	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	7.3	3.6	ng/l	
27619-97-2	6:2-FTS	455	7.3	3.6	ng/l	
39108-34-4	8:2-FTS	80.9	7.3	3.7	ng/l	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA [e]	20.3	1.8	0.91	ng/l	
31506-32-8	MeFOSA	ND	3.6	0.91	ng/l	
4151-50-2	EtFOSA	ND	3.6	0.91	ng/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-5-240814
Lab Sample ID: FC18042-40R **Date Sampled:** 08/14/24
Matrix: AQ - Ground Water **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** n/a
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	1.8	0.91	ng/l	
2991-50-6	EtFOSAA [e]	ND	1.8	1.2	ng/l	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	18	9.1	ng/l	
1691-99-2	EtFOSE	ND	18	9.1	ng/l	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	3.6	0.91	ng/l	
919005-14-4	ADONA	ND	7.3	1.8	ng/l	
377-73-1	PFMPA	1.1	3.6	0.91	ng/l	J
863090-89-5	PFMBA	ND	3.6	1.0	ng/l	
151772-58-6	NFDHA	ND	3.6	1.1	ng/l	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	7.3	1.8	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	7.3	1.8	ng/l	
113507-82-7	PFEESA	ND	3.6	0.91	ng/l	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	9.1	4.5	ng/l	
914637-49-3	5:3-FTCA	ND	45	9.1	ng/l	
812-70-4	7:3-FTCA	ND	45	9.1	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	61%	60%	10-130%
	13C5-PFPeA	88%	92%	40-130%
	13C5-PFHxA	89%	98%	40-130%
	13C4-PFHpA	96%	96%	40-130%
	13C8-PFOA	95%	93%	40-130%
	13C9-PFNA	98%	86%	40-130%
	13C6-PFDA	98%	87%	40-130%
	13C7-PFUnDA	101%	90%	30-130%
	13C2-PFDoDA	88%	74%	10-130%
	13C2-PFTeDA	43%	39%	10-130%
	13C3-PFBS	117%	77%	40-135%
	13C3-PFHxS	92%	80%	40-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-5-240814		
Lab Sample ID:	FC18042-40R	**Date Sampled:**	08/14/24
Matrix:	AQ - Ground Water	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	110%	80%	40-130%
	13C8-FOSA	134% [f]	73%	40-130%
	d3-MeFOSA	120%	59%	10-130%
	d5-EtFOSA	120%	62%	10-130%
	d3-MeFOSAA	132%	73%	40-170%
	d5-EtFOSAA	159% [f]	82%	25-135%
	d7-MeFOSE	105%	52%	10-130%
	d9-EtFOSE	109%	55%	10-130%
	13C2-4:2FTS	77%	75%	40-200%
	13C2-6:2FTS	93%	91%	40-200%
	13C2-8:2FTS	94%	74%	40-300%
	13C3-HFPO-DA	99%	95%	40-130%

(a) Sample frozen to extend holdtime.
(b) Result is from Run# 2
(c) Associated Low Level CCV outside of control limits high.
(d) E qualified result(s) reported due to method limitation.
(e) Associated EIS outside control limits.
(f) Outside control limits.

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SGS North America Inc - Orlando

Chain of Custody

4405

Vineland Road, Suite C-15 Orlando, Fl 32811
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SGS - ORLANDO JOB # :

PAGE 1 OF 5

SGS - ORLANDO Quote #

SKIFF # FC18042

Client / Reporting Information		Project Information	
Company Name: GeoEngineers, Inc.		Project Name: Bailer Hill PFAS Tier 2 Investigation	
Address: 2101 4th Ave., Suite 950		Street: 3189 Bailer Hill Rd	
City: Seattle	State: WA Zip: 98121	City: Friday Harbor	State: Washington
Project Contact: Jacob Letts	Email: jletts@geoengineers.com	Project #: 00504-217-00	
Phone #:		Fax #	
Sampler(s) Name(s) (Printed) Sampler 1: Meredith Bush	Sampler 2: Katy Atakturk	Client Purchase Order #	

Analytical Information: PFAS by EPA 1633; Hold

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid

SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION DATE	TIME	SAMPLED BY:	MATRIX	CONTAINER INFORMATION TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZnAc	DI WATER	MEOH	PFAS by EPA 1633	Hold	LAB USE ONLY
1	BH-1-1-2	8/13/24	1025	MB	SO	1											X	
2	BH-1-5-6	↓	1030	↓	↓	↓											↓	
3	BH-1-10-11	↓	1050	↓	↓	↓											↓	
4	BH-2-1-2	8/14/24	1415	MB	SO	1											↓	
5	BH-2-5-6	↓	1425	↓	↓	↓											↓	
6	BH-3-1-2	8/14/24	1120	MB	SO	1											↓	
7	BH-3-5-6	↓	1135	↓	↓	↓											↓	
8	BH-3-14-15	↓	1155	↓	↓	↓											↓	
9	BH-4-1-2	8/12/24	1004	MB	SO	1											↓	
10	BH-4-7-8	↓	1007	↓	↓	↓											↓	
11	BH-4-13-14	↓	1010	↓	↓	↓											↓	
12	BH-5-1-2	8/13/24	1450	MB	SO	1											↓	

Turnaround Time (Business days)

10 Day (Business) Approved By: / Date:
7 Day
5 Day
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other STANDARD
Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [ ] FULLT1 (EPA LEVEL 4)
- [x] EDD'S

*See Note in Comments

Comments / Remarks

also email Katy Atakturk (katakturk@geoengineers.com)

INITIAL ASSESSMENT 2B
LABEL VERIFICATION 2B

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1	Katy A	8/15/24 1100	2 8/16/24 930	3		4
5	Relinquished by/Affiliation	Date Time:	6 Received By/Affiliation	7 Relinquished By/Affiliation	Date Time:	8 Received By/Affiliation

Lab Use Only : Cooler Temperature (s) Celsius (corrected): 4.2 4.2 TR#1

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FC18042R: Chain of Custody
Page 1 of 8

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SGS - ORLANDO JOB # : PAGE 2 OF 5

SGS - ORLANDO Quote # SKIFF # FC18042

Client / Reporting Information

Company Name: GeoEngineers, Inc.
Address: 2101 4th Ave., Suite 950
City: Seattle State: WA Zip: 98121
Project Contact: Jacob Letts Email: jletts@geoengineers.com
Phone #:
Sampler(s) Name(s) (Printed)
Sampler 1: Meredith Bush Sampler 2: Katy Atakturk

Project Information

Project Name: Bailer Hill PFAS Tier 2 Investigation
Street: 3189 Bailer Hill Rd
City: Friday Harbor State: Washington
Project #: 00504-217-00
Fax #
Client Purchase Order #

Analytical Information

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid

SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION DATE	TIME	SAMPLED BY	MATRIX	CONTAINER INFORMATION: TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZnAc	DI WATER	MEOH	PFAS by EPA 1633	Hold	LAB USE ONLY
13	BH-5-5-6	8/13/24	1510	MB	SO	1											X	
14	BH-5-19-20	↓	1532															
15	BH-6-1-2	8/14/24	0855															
16	BH-6-5-6		0910															
17	BH-6-14-15		0932															
18	BH-7-1-2	8/12/24	1038															
19	BH-7-7-8		1048															
20	BH-7-12-13		1058															
21	BH-8-1-2	8/13/24	1120															
22	BH-8-5-6		1125															
23	BH-8-15-16		1145															
24	BH-9-1-2	8/13/24	1330															

Turnaround Time (Business days)

10 Day (Business) Approved By: / Date:
7 Day
5 Day
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other STANDARD
Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

☐ COMMERCIAL "A" (RESULTS ONLY)
☐ COMMERCIAL "B" (RESULTS PLUS QC)
☐ REDT1 (EPA LEVEL 3)
☐ FULLT1 (EPA LEVEL 4)
☒ EDD'S

*See Note in Comments

Comments / Remarks

also email Katy Atakturk (katakturk@geoengineers.com)

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1	Katy	8/15/24 1100	2 8/16/24 930	3		4
5	Relinquished by/Affiliation	Date Time:	6 Received By/Affiliation	7 Relinquished By/Affiliation	Date Time:	8 Received By/Affiliation

Lab Use Only : Cooler Temperature (s) Celsius (corrected):

http://www.sgs.com/en/terms-and-conditions

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Chain of Custody

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SGS - ORLANDO JOB # : PAGE 3 OF 5

SGS - ORLANDO Quote # SKIFF # FC18042

Client / Reporting Information			Project Information			Analytical Information	Matrix Codes
Company Name: GeoEngineers, Inc.			Project Name: Bailer Hill PFAS Tier 2 Investigation				DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid
Address: 2101 4th Ave., Suite 950			Street: 3189 Bailer Hill Rd				
City: Seattle	State: WA	Zip: 98121	City: Friday Harbor	State: Washington			
Project Contact: Jacob Letts	Email: jletts@geoengineers.com		Project #: 00504-217-00				
Phone #:			Fax #:				
Sampler(s) Name(s) (Printed) Sampler 1: Meredith Bush	Sampler 2: Katy Atakturk		Client Purchase Order #:				

SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION DATE	COLLECTION TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	CONTAINER INFORMATION: OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZnAc	DI WATER	MEOH	PFAS by EPA 1633	Hold	LAB USE ONLY
25	BH-9-5-6	8/13/24	1340	MB	SO	1											X	
26	BH-9-14-15	↓	1407	↓	↓	↓											↓	
27	BH-10-1-2	8/15/24	0911															
28	BH-10-5-6	↓	0920															
29	BH-10-13-14	↓	0935															
30	BH-11-1-2	8/12/24	1420															
31	BH-11-5-6	↓	1430															
32	BH-11-20-21	↓	1505															
33	BH-12-1-2	8/12/24	1130															
34	BH-12-5-6	↓	1145															
35	BH-12-19-20	↓	1210															
36	SDUP-240814-1	8/14/24	0600	↓	↓	↓											↓	

Turnaround Time (Business days)	Data Deliverable Information	Comments / Remarks
10 Day (Business) Approved By: / Date:	☐ COMMERCIAL "A" (RESULTS ONLY)	also email Katy Atakturk (katakturk@geoengineers.com)
7 Day	☐ COMMERCIAL "B" (RESULTS PLUS QC)	
5 Day	☐ REDT1 (EPA LEVEL 3)	
3 Day *RUSH*	☐ FULLT1 (EPA LEVEL 4)	
2 Day *RUSH*	☒ EDD'S	
1 Day *RUSH*	*See Note in Comments	
Other STANDARD		
Rush T/A Data Available VIA Email or Lablink		

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1	8/15/24 1100	2 8/16/24 930	3		4
Relinquished by/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
5		6	7		8

Lab Use Only: Cooler Temperature (s) Celsius (corrected):

http://www.sgs.com/en/terms-and-conditions

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SGS - ORLANDO JOB # : PAGE 4 OF 5

SGS - ORLANDO Quote # SKIFF # FC18042

Client / Reporting Information	Project Information
Company Name: GeoEngineers, Inc.	Project Name: Bailer Hill PFAS Tier 2 Investigation
Address: 2101 4th Ave., Suite 950	Street: 3189 Bailer Hill Rd
City: Seattle State: WA Zip: 98121	City: Friday Harbor State: Washington
Project Contact: Jacob Letts Email: jletts@geoengineers.com	Project #: 00504-217-00
Phone #:	Fax #
Sampler(s) Name(s) (Printed) Sampler 1: Meredith Bush Sampler 2: Katy Atakturk	Client Purchase Order #

Analytical Information: PFAS by EPA 1633; Hold

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid

SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	CONTAINER INFORMATION: OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZnAc	DI WATER	MEOH	PFAS by EPA 1633	Hold	LAB USE ONLY
37	SDUP-240814-2	8/14/24	0000	MB	SO	1											X	
38	BH-1-240814	8/14/24	1130	KA	GW	3												
39	BH-4-240812	8/12/24	1215	KA	GW	3												
40	BH-5-240814	8/14/24	0950	KA	GW	2												
41	BH-6-240814	8/14/24	1100	KA	GW	2												
42	BH-8-240813	8/13/24	1205	KA	GW	3												
43	BH-9-240813	8/13/24	1320	KA	GW	3												
44	BH-10-240813	8/13/24	0955	KA	GW	1												
45	BH-11-240812	8/12/24	1540	KA	GW	3												
46	BH-12-240812	8/12/24	1480	KA	GW	3												
47	WDUP-240814	8/14/24	1410	KA	GW	3												
48	FB-240812	8/12/24	1600	MB	WW	3											V	

Turnaround Time (Business days)

- 10 Day (Business) — Approved By: / Date:
- 7 Day
- 5 Day
- 3 Day *RUSH*
- 2 Day *RUSH*
- 1 Day *RUSH*
- Other: STANDARD

Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [ ] FULLT1 (EPA LEVEL 4)
- [X] EDD'S

*See Note in Comments

Comments / Remarks

also email Katy Atakturk (katakturk@geoengineers.com)

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1	[signature]	8/15/24 1100	2 [signature] 8/16/24 930	3		4
5	Relinquished by/Affiliation	Date Time:	6 Received By/Affiliation	7 Relinquished By/Affiliation	Date Time:	8 Received By/Affiliation

Lab Use Only : Cooler Temperature (s) Celsius (corrected):

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SGS_COC_Draft Rev 031318

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FC18042R: Chain of Custody
Page 4 of 8

SGS North America Inc - Orlando

Chain of Custody

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SGS - ORLANDO JOB # : PAGE 5 OF 5

SGS - ORLANDO Quote # SKIFF # FC18042

Client / Reporting Information			Project Information			Analytical Information	Matrix Codes
Company Name: GeoEngineers, Inc.			Project Name: Bailer Hill PFAS Tier 2 Investigation			PFAS by EPA 1633 / Hold	DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid
Address: 2101 4th Ave., Suite 950			Street: 3189 Bailer Hill Rd				
City: Seattle	State: WA	Zip: 98121	City: Friday Harbor	State: Washington			
Project Contact: Jacob Letts	Email: jletts@geoengineers.com		Project #: 00504-217-00				
Phone #:			Fax #:				
Sampler(s) Name(s) (Printed) Sampler 1: Meredith Bush	Sampler 2: Katy Atakturk		Client Purchase Order #				

SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	CONTAINER INFORMATION: OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZNAC	DI WATER	MECH	PFAS by EPA 1633	Hold	LAB USE ONLY
49	FB-240814	8/14/24	1610	MB	WW	3											X	
50	RB-240815	8/13/24	1640															
51	RB-240814	8/14/24	1545															
52	TB-240814-1	8/14/24	1600															
53	TB-240814-2	8/14/24	1615															
	MB																	

Turnaround Time (Business days)	Approved By: / Date:	Data Deliverable Information	Comments / Remarks
10 Day (Business)		☐ COMMERCIAL "A" (RESULTS ONLY)	also email Katy Atakturk (katakturk@geoengineers.com)
7 Day		☐ COMMERCIAL "B" (RESULTS PLUS QC)	
5 Day		☐ REDT1 (EPA LEVEL 3)	
3 Day *RUSH*		☐ FULLT1 (EPA LEVEL 4)	
2 Day *RUSH*		☒ EDD'S	
1 Day *RUSH*		*See Note in Comments	
Other: STANDARD			
Rush T/A Data Available VIA Email or Lablink			

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1	8/15/24 1100	2 8/16/24 930	3		4
Relinquished by/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
5		6	7		8

Lab Use Only : Cooler Temperature (s) Celsius (corrected): _____

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SGS_COC_Draft Rev 031318

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SGS - Orlando Sample Receipt Summary

Job Number: fc18042 **Client:** GEOENGINEERS **Project:** BAILER HILL PFAS TIER 2 INVESTIGATIO

Date / Time Received: 8/16/2024 9:30:00 AM **Delivery Method:** FEDEX **Airbill #'s:** 791487456673

Cooler Temps (Raw Measured) °C: Cooler 1: (4.2); Cooler 2: (4.6);

Cooler Temps (Corrected) °C: Cooler 1: (4.0); Cooler 2: (4.4);

Cooler Information	Y	or	N
1. Custody Seals Present:	☑		☐
2. Custody Seals Intact:	☑		☐
3. Temp criteria achieved:	☑		☐
4. Cooler temp verification:	IR Gun		
5. Cooler media:	Ice (Bag)		

Trip Blank Information	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑

	W	or	S	N/A
3. Type of TB Received	☐		☐	☑

Sample Information	Y	or	N	N/A
1. Sample labels present on bottles:	☑		☐	
2. Samples presented properly	☑		☐	
3. Sufficient volume/containers recv'd for analysis	☑		☐	
4. Condition of sample:	Intact			
5. Sample recv'd within HT	☑		☐	
6. Dates/Times/IDs on COC match sample label	☑		☐	
7. VOCs have headspace	☐		☐	☑
8. Bottles received for unspecified tests	☐		☑	
9. Compositing instructions clear	☐		☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☑
11. % Solids Jar Received?	☑		☐	☐
12. Residual Chlorine Present?	☐		☐	☑

Misc Information

Number of Encores: 25 Gram 5 Gram

Number of Lab Filtered Metals:

Test Strip Lot #s: pH 0-3: 226422 pH 10-12: Other: (Specify) pH 1.0 - 12.0 222221

Residual Chlorine Test Strip Lot #

Comments

Sample Receipt Summary 112723 EK Technician: ZANEB Date: 8/16/2024 3:31:16 PM Reviewer: Date:

Job Change Order: FC18042

Requested Date:	8/20/2024	**Received Date:**	8/16/2024
Account Name:	GeoEngineers, Inc.	**Due Date:**	8/20/2024
Project Description:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights	**Deliverable:**	FULT2
C/O Initiated By:	ANDREA_C **PM:** AC	**TAT (Days):**	21

==========

Sample #: FC18042-3,4,6,7,10-13,15,16,18,19 **Dept:** SVOA

Client ID: **TAT:** 21

Change: Please analye the samples for LCID1633LIST40

==========

Sample #: FC18042-21,22,24,26,27,29,30,32-34 **Dept:** SVOA

Client ID: **TAT:** 21

Change: Please analyze the samples for LCID1633LIST40

==========

Sample #: FC18042-36-39,41,44,46,47,50 **Dept:** SVOA

Client ID: **TAT:** 21

Change: Please analyze the samples for LCID1633LIST40.

FC18042R: Chain of Custody
Page 7 of 8

Above Changes Per: Katy Atakturk **Date/Time:** 8/20/2024

To Client: This Change Order is confirmation of the revisions, previously discussed with the Client Service Representative.

Page 1 of 1

Job Change Order: FC18042

Requested Date:	9/13/2024	**Received Date:**	8/16/2024
Account Name:	GeoEngineers, Inc.	**Due Date:**	9/13/2024
Project Description:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights	**Deliverable:**	FULT2
C/O Initiated By:	ANDREA_C **PM:** AC	**TAT (Days):**	21

==========

Sample #:	FC18042-40	**Dept:**	SVOA
Client ID:	BH-5-240814	**TAT:**	21
Change:	Please analyze sample for LCID1633LIST40.		

FC18042R: Chain of Custody
Page 8 of 8

Above Changes Per: Jacob Letts **Date/Time:** 9/13/2024

To Client: This Change Order is confirmation of the revisions, previously discussed with the Client Service Representative.

Page 1 of 1

MS Semi-volatiles

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: FC18042R
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5673-MB	7Q12055.D	1	10/20/24	MV	10/03/24	OP5673	S7Q174

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-40R

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0080	0.0040	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.0010	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0020	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0020	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.0010	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.0010	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.0010	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0020	0.0010	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0020	0.0010	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0020	0.0011	ug/l	
757124-72-4	4:2-FTS	ND	0.0080	0.0040	ug/l	
27619-97-2	6:2-FTS	ND	0.0080	0.0040	ug/l	
39108-34-4	8:2-FTS	ND	0.0080	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0020	0.0010	ug/l	
31506-32-8	MeFOSA	ND	0.0040	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0040	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0020	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0020	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.020	0.010	ug/l	
1691-99-2	EtFOSE	ND	0.020	0.010	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
377-73-1	PFMPA	ND	0.0040	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

Method Blank Summary

Job Number: FC18042R
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5673-MB	7Q12055.D	1	10/20/24	MV	10/03/24	OP5673	S7Q174

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-40R

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0040	0.0010	ug/l	
356-02-5	3:3-FTCA	ND	0.010	0.0050	ug/l	
914637-49-3	5:3-FTCA	ND	0.050	0.010	ug/l	
812-70-4	7:3-FTCA	ND	0.050	0.010	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	115%	10-130%
	13C5-PFPeA	108%	40-130%
	13C5-PFHxA	121%	40-130%
	13C4-PFHpA	112%	40-130%
	13C8-PFOA	105%	40-130%
	13C9-PFNA	108%	40-130%
	13C6-PFDA	108%	40-130%
	13C7-PFUnDA	94%	30-130%
	13C2-PFDoDA	93%	10-130%
	13C2-PFTeDA	75%	10-130%
	13C3-PFBS	107%	40-135%
	13C3-PFHxS	108%	40-130%
	13C8-PFOS	108%	40-130%
	13C8-FOSA	92%	40-130%
	d3-MeFOSA	74%	10-130%
	d5-EtFOSA	78%	10-130%
	d3-MeFOSAA	88%	40-170%
	d5-EtFOSAA	84%	25-135%
	d7-MeFOSE	79%	10-130%
	d9-EtFOSE	86%	10-130%
	13C2-4:2FTS	117%	40-200%
	13C2-6:2FTS	128%	40-200%
	13C2-8:2FTS	131%	40-300%
	13C3-HFPO-DA	114%	40-130%

Method Blank Summary

Job Number: FC18042R
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5673-MB	7Q12136.D	1	10/21/24	MV	10/03/24	OP5673	S7Q175

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-40R

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0080	0.0040	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.0010	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0020	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0020	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.0010	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.0010	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.0010	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0020	0.0010	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0020	0.0010	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0020	0.0011	ug/l	
757124-72-4	4:2-FTS	ND	0.0080	0.0040	ug/l	
27619-97-2	6:2-FTS	ND	0.0080	0.0040	ug/l	
39108-34-4	8:2-FTS	ND	0.0080	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0020	0.0010	ug/l	
31506-32-8	MeFOSA	ND	0.0040	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0040	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0020	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0020	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.020	0.010	ug/l	
1691-99-2	EtFOSE	ND	0.020	0.010	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
377-73-1	PFMPA	ND	0.0040	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

Method Blank Summary

Job Number: FC18042R
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5673-MB	7Q12136.D	1	10/21/24	MV	10/03/24	OP5673	S7Q175

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-40R

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0040	0.0010	ug/l	
356-02-5	3:3-FTCA	ND	0.010	0.0050	ug/l	
914637-49-3	5:3-FTCA	ND	0.050	0.010	ug/l	
812-70-4	7:3-FTCA	ND	0.050	0.010	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	99%	10-130%
	13C5-PFPeA	101%	40-130%
	13C5-PFHxA	100%	40-130%
	13C4-PFHpA	100%	40-130%
	13C8-PFOA	99%	40-130%
	13C9-PFNA	98%	40-130%
	13C6-PFDA	94%	40-130%
	13C7-PFUnDA	96%	30-130%
	13C2-PFDoDA	88%	10-130%
	13C2-PFTeDA	84%	10-130%
	13C3-PFBS	101%	40-135%
	13C3-PFHxS	103%	40-130%
	13C8-PFOS	91%	40-130%
	13C8-FOSA	74%	40-130%
	d3-MeFOSA	73%	10-130%
	d5-EtFOSA	73%	10-130%
	d3-MeFOSAA	96%	40-170%
	d5-EtFOSAA	94%	25-135%
	d7-MeFOSE	65%	10-130%
	d9-EtFOSE	67%	10-130%
	13C2-4:2FTS	113%	40-200%
	13C2-6:2FTS	116%	40-200%
	13C2-8:2FTS	108%	40-300%
	13C3-HFPO-DA	99%	40-130%

Instrument Blank

Job Number: FC18042R
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q175-IBLK	7Q12106.D	1	10/21/24	MV	n/a	n/a	S7Q175

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-40R

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	0.0017	0.0040	0.00050	ug/l	J
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	0.00053	0.0040	0.00050	ug/l	J
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-4	4:2-FTS	ND	0.020	0.0032	ug/l	
27619-97-2	6:2-FTS	ND	0.020	0.0035	ug/l	
39108-34-4	8:2-FTS	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Instrument Blank

Job Number: FC18042R
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q175-IBLK	7Q12106.D	1	10/21/24	MV	n/a	n/a	S7Q175

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-40R

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3-FTCA	ND	0.020	0.0045	ug/l	
914637-49-3	5:3-FTCA	ND	0.10	0.0087	ug/l	
812-70-4	7:3-FTCA	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	89%	10-130%
	13C5-PFPeA	87%	40-130%
	13C5-PFHxA	87%	40-130%
	13C4-PFHpA	87%	40-130%
	13C8-PFOA	87%	40-130%
	13C9-PFNA	87%	40-130%
	13C6-PFDA	90%	40-130%
	13C7-PFUnDA	92%	30-130%
	13C2-PFDoDA	89%	10-130%
	13C2-PFTeDA	86%	10-130%
	13C3-PFBS	87%	40-135%
	13C3-PFHxS	87%	40-130%
	13C8-PFOS	88%	40-130%
	13C8-FOSA	89%	40-130%
	d3-MeFOSA	86%	10-130%
	d5-EtFOSA	88%	10-130%
	d3-MeFOSAA	88%	40-170%
	d5-EtFOSAA	91%	25-135%
	d7-MeFOSE	87%	10-130%
	d9-EtFOSE	87%	10-130%
	13C2-4:2FTS	101%	40-200%
	13C2-6:2FTS	103%	40-200%
	13C2-8:2FTS	101%	40-300%
	13C3-HFPO-DA	90%	40-130%

Continuing Calibration Blank

Job Number: FC18042R
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q175-ICCB	7Q12133.D	1	10/21/24	MV	n/a	n/a	S7Q175

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-40R

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	0.0017	0.0040	0.00050	ug/l	J
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-4	4:2-FTS	ND	0.020	0.0032	ug/l	
27619-97-2	6:2-FTS	ND	0.020	0.0035	ug/l	
39108-34-4	8:2-FTS	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC18042R
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q175-ICCB	7Q12133.D	1	10/21/24	MV	n/a	n/a	S7Q175

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18042-40R

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3-FTCA	ND	0.020	0.0045	ug/l	
914637-49-3	5:3-FTCA	ND	0.10	0.0087	ug/l	
812-70-4	7:3-FTCA	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	88%	10-130%
	13C5-PFPeA	91%	40-130%
	13C5-PFHxA	86%	40-130%
	13C4-PFHpA	90%	40-130%
	13C8-PFOA	84%	40-130%
	13C9-PFNA	85%	40-130%
	13C6-PFDA	95%	40-130%
	13C7-PFUnDA	93%	30-130%
	13C2-PFDoDA	91%	10-130%
	13C2-PFTeDA	89%	10-130%
	13C3-PFBS	88%	40-135%
	13C3-PFHxS	92%	40-130%
	13C8-PFOS	92%	40-130%
	13C8-FOSA	91%	40-130%
	d3-MeFOSA	89%	10-130%
	d5-EtFOSA	93%	10-130%
	d3-MeFOSAA	97%	40-170%
	d5-EtFOSAA	91%	25-135%
	d7-MeFOSE	88%	10-130%
	d9-EtFOSE	86%	10-130%
	13C2-4:2FTS	105%	40-200%
	13C2-6:2FTS	96%	40-200%
	13C2-8:2FTS	97%	40-300%
	13C3-HFPO-DA	89%	40-130%

Instrument Blank

Job Number: FC18042R
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q174-IBLK	7Q12026.D	1	10/20/24	MV	n/a	n/a	S7Q174

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

OP5673-BS, OP5673-LLBS, OP5673-MS

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-4	4:2-FTS	ND	0.020	0.0032	ug/l	
27619-97-2	6:2-FTS	ND	0.020	0.0035	ug/l	
39108-34-4	8:2-FTS	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Instrument Blank

Job Number: FC18042R
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q174-IBLK	7Q12026.D	1	10/20/24	MV	n/a	n/a	S7Q174

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

OP5673-BS, OP5673-LLBS, OP5673-MS

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3-FTCA	ND	0.020	0.0045	ug/l	
914637-49-3	5:3-FTCA	ND	0.10	0.0087	ug/l	
812-70-4	7:3-FTCA	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	102%	10-130%
	13C5-PFPeA	95%	40-130%
	13C5-PFHxA	105%	40-130%
	13C4-PFHpA	100%	40-130%
	13C8-PFOA	97%	40-130%
	13C9-PFNA	102%	40-130%
	13C6-PFDA	99%	40-130%
	13C7-PFUnDA	96%	30-130%
	13C2-PFDoDA	93%	10-130%
	13C2-PFTeDA	79%	10-130%
	13C3-PFBS	99%	40-135%
	13C3-PFHxS	99%	40-130%
	13C8-PFOS	96%	40-130%
	13C8-FOSA	100%	40-130%
	d3-MeFOSA	88%	10-130%
	d5-EtFOSA	89%	10-130%
	d3-MeFOSAA	72%	40-170%
	d5-EtFOSAA	75%	25-135%
	d7-MeFOSE	102%	10-130%
	d9-EtFOSE	104%	10-130%
	13C2-4:2FTS	93%	40-200%
	13C2-6:2FTS	100%	40-200%
	13C2-8:2FTS	103%	40-300%
	13C3-HFPO-DA	102%	40-130%

Continuing Calibration Blank

Job Number: FC18042R
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q174-ICCB	7Q12052.D	1	10/20/24	MV	n/a	n/a	S7Q174

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

OP5673-BS, OP5673-LLBS, OP5673-MB, OP5673-MS

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-4	4:2-FTS	ND	0.020	0.0032	ug/l	
27619-97-2	6:2-FTS	ND	0.020	0.0035	ug/l	
39108-34-4	8:2-FTS	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC18042R
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S7Q174-ICCB	7Q12052.D	1	10/20/24	MV	n/a	n/a	S7Q174

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

OP5673-BS, OP5673-LLBS, OP5673-MB, OP5673-MS

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3-FTCA	ND	0.020	0.0045	ug/l	
914637-49-3	5:3-FTCA	ND	0.10	0.0087	ug/l	
812-70-4	7:3-FTCA	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	102%	10-130%
	13C5-PFPeA	95%	40-130%
	13C5-PFHxA	102%	40-130%
	13C4-PFHpA	100%	40-130%
	13C8-PFOA	98%	40-130%
	13C9-PFNA	105%	40-130%
	13C6-PFDA	101%	40-130%
	13C7-PFUnDA	97%	30-130%
	13C2-PFDoDA	95%	10-130%
	13C2-PFTeDA	81%	10-130%
	13C3-PFBS	100%	40-135%
	13C3-PFHxS	103%	40-130%
	13C8-PFOS	94%	40-130%
	13C8-FOSA	103%	40-130%
	d3-MeFOSA	88%	10-130%
	d5-EtFOSA	87%	10-130%
	d3-MeFOSAA	79%	40-170%
	d5-EtFOSAA	79%	25-135%
	d7-MeFOSE	99%	10-130%
	d9-EtFOSE	98%	10-130%
	13C2-4:2FTS	103%	40-200%
	13C2-6:2FTS	116%	40-200%
	13C2-8:2FTS	108%	40-300%
	13C3-HFPO-DA	102%	40-130%

Blank Spike Summary

Job Number: FC18042R
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5673-LLBS	7Q12054.D	1	10/20/24	MV	10/03/24	OP5673	S7Q174

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-40R

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.016	0.0128	80	70-140
2706-90-3	Perfluoropentanoic acid	0.008	0.0078	98	65-135
307-24-4	Perfluorohexanoic acid	0.004	0.0036	90	70-145
375-85-9	Perfluoroheptanoic acid	0.004	0.0035	88	70-150
335-67-1	Perfluorooctanoic acid	0.004	0.0030	75	70-150
375-95-1	Perfluorononanoic acid	0.004	0.0036	90	70-150
335-76-2	Perfluorodecanoic acid	0.004	0.0036	90	70-140
2058-94-8	Perfluoroundecanoic acid	0.004	0.0037	93	70-145
307-55-1	Perfluorododecanoic acid	0.004	0.0037	93	70-140
72629-94-8	Perfluorotridecanoic acid	0.004	0.0031	78	65-140
376-06-7	Perfluorotetradecanoic acid	0.004	0.0035	88	60-140
375-73-5	Perfluorobutanesulfonic acid	0.00355	0.0034	96	60-145
2706-91-4	Perfluoropentanesulfonic acid	0.00376	0.0032	85	65-140
355-46-4	Perfluorohexanesulfonic acid	0.00366	0.0036	98	65-145
375-92-8	Perfluoroheptanesulfonic acid	0.00381	0.0033	87	70-150
1763-23-1	Perfluorooctanesulfonic acid	0.00371	0.0038	102	55-150
68259-12-1	Perfluorononanesulfonic acid	0.00385	0.0031	81	65-145
335-77-3	Perfluorodecanesulfonic acid	0.00386	0.0030	78	60-145
79780-39-5	Perfluorododecanesulfonic aci	0.00388	0.0028	72	50-145
757124-72-4	4:2-FTS	0.015	0.0126	84	70-145
27619-97-2	6:2-FTS	0.0152	0.0125	82	65-155
39108-34-4	8:2-FTS	0.0154	0.0133	87	60-150
754-91-6	PFOSA	0.004	0.0033	83	70-145
31506-32-8	MeFOSA	0.008	0.0070	88	60-150
4151-50-2	EtFOSA	0.008	0.0065	81	65-145
2355-31-9	MeFOSAA	0.004	0.0036	90	50-140
2991-50-6	EtFOSAA	0.004	0.0035	88	70-145
24448-09-7	MeFOSE	0.02	0.0171	86	70-145
1691-99-2	EtFOSE	0.02	0.0175	88	70-135
13252-13-6	HFPO-DA (GenX)	0.008	0.0069	86	70-140
919005-14-4	ADONA	0.00756	0.0069	91	65-145
377-73-1	PFMPA	0.008	0.0067	84	55-140
863090-89-5	PFMBA	0.008	0.0075	94	60-150
151772-58-6	NFDHA	0.008	0.0065	81	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.00748	0.0070	94	70-155
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.00756	0.0064	85	55-160

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC18042R
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5673-LLBS	7Q12054.D	1	10/20/24	MV	10/03/24	OP5673	S7Q174

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-40R

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.00712	0.0059	83	70-140
356-02-5	3:3-FTCA	0.02	0.0165	83	65-130
914637-49-3	5:3-FTCA	0.1	0.0858	86	70-135
812-70-4	7:3-FTCA	0.1	0.0870	87	50-145

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	121%	10-130%
	13C5-PFPeA	116%	40-130%
	13C5-PFHxA	133%* [a]	40-130%
	13C4-PFHpA	119%	40-130%
	13C8-PFOA	117%	40-130%
	13C9-PFNA	122%	40-130%
	13C6-PFDA	112%	40-130%
	13C7-PFUnDA	109%	30-130%
	13C2-PFDoDA	104%	10-130%
	13C2-PFTeDA	84%	10-130%
	13C3-PFBS	113%	40-135%
	13C3-PFHxS	122%	40-130%
	13C8-PFOS	115%	40-130%
	13C8-FOSA	99%	40-130%
	d3-MeFOSA	78%	10-130%
	d5-EtFOSA	87%	10-130%
	d3-MeFOSAA	99%	40-170%
	d5-EtFOSAA	92%	25-135%
	d7-MeFOSE	84%	10-130%
	d9-EtFOSE	95%	10-130%
	13C2-4:2FTS	125%	40-200%
	13C2-6:2FTS	131%	40-200%
	13C2-8:2FTS	137%	40-300%
	13C3-HFPO-DA	124%	40-130%

(a) Outside control limits.

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC18042R
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5673-LLBS	7Q12135.D	1	10/21/24	MV	10/03/24	OP5673	S7Q175

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-40R

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.016	0.0145	91	70-140
2706-90-3	Perfluoropentanoic acid	0.008	0.0073	91	65-135
307-24-4	Perfluorohexanoic acid	0.004	0.0037	93	70-145
375-85-9	Perfluoroheptanoic acid	0.004	0.0038	95	70-150
335-67-1	Perfluorooctanoic acid	0.004	0.0039	98	70-150
375-95-1	Perfluorononanoic acid	0.004	0.0041	103	70-150
335-76-2	Perfluorodecanoic acid	0.004	0.0036	90	70-140
2058-94-8	Perfluoroundecanoic acid	0.004	0.0039	98	70-145
307-55-1	Perfluorododecanoic acid	0.004	0.0039	98	70-140
72629-94-8	Perfluorotridecanoic acid	0.004	0.0040	100	65-140
376-06-7	Perfluorotetradecanoic acid	0.004	0.0036	90	60-140
375-73-5	Perfluorobutanesulfonic acid	0.00355	0.0030	85	60-145
2706-91-4	Perfluoropentanesulfonic acid	0.00376	0.0036	96	65-140
355-46-4	Perfluorohexanesulfonic acid	0.00366	0.0033	90	65-145
375-92-8	Perfluoroheptanesulfonic acid	0.00381	0.0035	92	70-150
1763-23-1	Perfluorooctanesulfonic acid	0.00371	0.0036	97	55-150
68259-12-1	Perfluorononanesulfonic acid	0.00385	0.0031	81	65-145
335-77-3	Perfluorodecanesulfonic acid	0.00386	0.0035	91	60-145
79780-39-5	Perfluorododecanesulfonic aci	0.00388	0.0034	88	50-145
757124-72-4	4:2-FTS	0.015	0.0139	93	70-145
27619-97-2	6:2-FTS	0.0152	0.0150	99	65-155
39108-34-4	8:2-FTS	0.0154	0.0151	98	60-150
754-91-6	PFOSA	0.004	0.0037	93	70-145
31506-32-8	MeFOSA	0.008	0.0074	93	60-150
4151-50-2	EtFOSA	0.008	0.0072	90	65-145
2355-31-9	MeFOSAA	0.004	0.0033	83	50-140
2991-50-6	EtFOSAA	0.004	0.0037	93	70-145
24448-09-7	MeFOSE	0.02	0.0182	91	70-145
1691-99-2	EtFOSE	0.02	0.0177	89	70-135
13252-13-6	HFPO-DA (GenX)	0.008	0.0075	94	70-140
919005-14-4	ADONA	0.00756	0.0073	97	65-145
377-73-1	PFMPA	0.008	0.0073	91	55-140
863090-89-5	PFMBA	0.008	0.0073	91	60-150
151772-58-6	NFDHA	0.008	0.0075	94	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.00748	0.0074	99	70-155
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.00756	0.0071	94	55-160

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC18042R
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5673-LLBS	7Q12135.D	1	10/21/24	MV	10/03/24	OP5673	S7Q175

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-40R

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.00712	0.0068	96	70-140
356-02-5	3:3-FTCA	0.02	0.0181	91	65-130
914637-49-3	5:3-FTCA	0.1	0.0951	95	70-135
812-70-4	7:3-FTCA	0.1	0.0928	93	50-145

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	104%	10-130%
	13C5-PFPeA	108%	40-130%
	13C5-PFHxA	105%	40-130%
	13C4-PFHpA	107%	40-130%
	13C8-PFOA	105%	40-130%
	13C9-PFNA	107%	40-130%
	13C6-PFDA	108%	40-130%
	13C7-PFUnDA	106%	30-130%
	13C2-PFDoDA	102%	10-130%
	13C2-PFTeDA	100%	10-130%
	13C3-PFBS	108%	40-135%
	13C3-PFHxS	106%	40-130%
	13C8-PFOS	108%	40-130%
	13C8-FOSA	88%	40-130%
	d3-MeFOSA	82%	10-130%
	d5-EtFOSA	85%	10-130%
	d3-MeFOSAA	111%	40-170%
	d5-EtFOSAA	112%	25-135%
	d7-MeFOSE	75%	10-130%
	d9-EtFOSE	82%	10-130%
	13C2-4:2FTS	118%	40-200%
	13C2-6:2FTS	119%	40-200%
	13C2-8:2FTS	120%	40-300%
	13C3-HFPO-DA	104%	40-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC18042R
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5673-BS	7Q12053.D	1	10/20/24	MV	10/03/24	OP5673	S7Q174

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-40R

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0766	77	70-140
2706-90-3	Perfluoropentanoic acid	0.05	0.0470	94	65-135
307-24-4	Perfluorohexanoic acid	0.025	0.0226	90	70-145
375-85-9	Perfluoroheptanoic acid	0.025	0.0203	81	70-150
335-67-1	Perfluorooctanoic acid	0.025	0.0216	86	70-150
375-95-1	Perfluorononanoic acid	0.025	0.0197	79	70-150
335-76-2	Perfluorodecanoic acid	0.025	0.0210	84	70-140
2058-94-8	Perfluoroundecanoic acid	0.025	0.0205	82	70-145
307-55-1	Perfluorododecanoic acid	0.025	0.0208	83	70-140
72629-94-8	Perfluorotridecanoic acid	0.025	0.0189	76	65-140
376-06-7	Perfluorotetradecanoic acid	0.025	0.0220	88	60-140
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0179	81	60-145
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0189	80	65-140
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0208	91	65-145
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0183	77	70-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0184	79	55-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0179	74	65-145
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0169	70	60-145
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0150	62	50-145
757124-72-4	4:2-FTS	0.0938	0.0762	81	70-145
27619-97-2	6:2-FTS	0.095	0.0740	78	65-155
39108-34-4	8:2-FTS	0.096	0.0791	82	60-150
754-91-6	PFOSA	0.025	0.0197	79	70-145
31506-32-8	MeFOSA	0.05	0.0405	81	60-150
4151-50-2	EtFOSA	0.05	0.0377	75	65-145
2355-31-9	MeFOSAA	0.025	0.0191	76	50-140
2991-50-6	EtFOSAA	0.025	0.0205	82	70-145
24448-09-7	MeFOSE	0.125	0.0981	78	70-145
1691-99-2	EtFOSE	0.125	0.102	82	70-135
13252-13-6	HFPO-DA (GenX)	0.05	0.0397	79	70-140
919005-14-4	ADONA	0.0473	0.0399	84	65-145
377-73-1	PFMPA	0.05	0.0629	126	55-140
863090-89-5	PFMBA	0.05	0.0447	89	60-150
151772-58-6	NFDHA	0.05	0.0394	79	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0468	0.0421	90	70-155
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0473	0.0366	77	55-160

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC18042R
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5673-BS	7Q12053.D	1	10/20/24	MV	10/03/24	OP5673	S7Q174

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-40R

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0357	80	70-140
356-02-5	3:3-FTCA	0.125	0.143	114	65-130
914637-49-3	5:3-FTCA	0.625	0.496	79	70-135
812-70-4	7:3-FTCA	0.625	0.512	82	50-145

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	71%	10-130%
	13C5-PFPeA	119%	40-130%
	13C5-PFHxA	134%* [a]	40-130%
	13C4-PFHpA	128%	40-130%
	13C8-PFOA	118%	40-130%
	13C9-PFNA	120%	40-130%
	13C6-PFDA	118%	40-130%
	13C7-PFUnDA	115%	30-130%
	13C2-PFDoDA	110%	10-130%
	13C2-PFTeDA	85%	10-130%
	13C3-PFBS	122%	40-135%
	13C3-PFHxS	118%	40-130%
	13C8-PFOS	116%	40-130%
	13C8-FOSA	101%	40-130%
	d3-MeFOSA	91%	10-130%
	d5-EtFOSA	93%	10-130%
	d3-MeFOSAA	98%	40-170%
	d5-EtFOSAA	93%	25-135%
	d7-MeFOSE	87%	10-130%
	d9-EtFOSE	93%	10-130%
	13C2-4:2FTS	122%	40-200%
	13C2-6:2FTS	134%	40-200%
	13C2-8:2FTS	137%	40-300%
	13C3-HFPO-DA	129%	40-130%

(a) Outside control limits.

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC18042R
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5673-BS	7Q12134.D	1	10/21/24	MV	10/03/24	OP5673	S7Q175

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-40R

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0878	88	70-140
2706-90-3	Perfluoropentanoic acid	0.05	0.0441	88	65-135
307-24-4	Perfluorohexanoic acid	0.025	0.0220	88	70-145
375-85-9	Perfluoroheptanoic acid	0.025	0.0217	87	70-150
335-67-1	Perfluorooctanoic acid	0.025	0.0216	86	70-150
375-95-1	Perfluorononanoic acid	0.025	0.0221	88	70-150
335-76-2	Perfluorodecanoic acid	0.025	0.0205	82	70-140
2058-94-8	Perfluoroundecanoic acid	0.025	0.0217	87	70-145
307-55-1	Perfluorododecanoic acid	0.025	0.0214	86	70-140
72629-94-8	Perfluorotridecanoic acid	0.025	0.0215	86	65-140
376-06-7	Perfluorotetradecanoic acid	0.025	0.0222	89	60-140
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0176	79	60-145
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0200	85	65-140
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0191	84	65-145
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0200	84	70-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0197	85	55-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0196	81	65-145
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0200	83	60-145
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0173	71	50-145
757124-72-4	4:2-FTS	0.0938	0.0842	90	70-145
27619-97-2	6:2-FTS	0.095	0.0881	93	65-155
39108-34-4	8:2-FTS	0.096	0.0935	97	60-150
754-91-6	PFOSA	0.025	0.0232	93	70-145
31506-32-8	MeFOSA	0.05	0.0411	82	60-150
4151-50-2	EtFOSA	0.05	0.0433	87	65-145
2355-31-9	MeFOSAA	0.025	0.0219	88	50-140
2991-50-6	EtFOSAA	0.025	0.0218	87	70-145
24448-09-7	MeFOSE	0.125	0.104	83	70-145
1691-99-2	EtFOSE	0.125	0.106	85	70-135
13252-13-6	HFPO-DA (GenX)	0.05	0.0450	90	70-140
919005-14-4	ADONA	0.0473	0.0414	88	65-145
377-73-1	PFMPA	0.05	0.0674	135	55-140
863090-89-5	PFMBA	0.05	0.0443	89	60-150
151772-58-6	NFDHA	0.05	0.0424	85	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0468	0.0403	86	70-155
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0473	0.0387	82	55-160

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC18042R
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5673-BS	7Q12134.D	1	10/21/24	MV	10/03/24	OP5673	S7Q175

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-40R

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0387	87	70-140
356-02-5	3:3-FTCA	0.125	0.155	124	65-130
914637-49-3	5:3-FTCA	0.625	0.528	84	70-135
812-70-4	7:3-FTCA	0.625	0.552	88	50-145

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	61%	10-130%
	13C5-PFPeA	107%	40-130%
	13C5-PFHxA	107%	40-130%
	13C4-PFHpA	107%	40-130%
	13C8-PFOA	108%	40-130%
	13C9-PFNA	107%	40-130%
	13C6-PFDA	107%	40-130%
	13C7-PFUnDA	107%	30-130%
	13C2-PFDoDA	105%	10-130%
	13C2-PFTeDA	95%	10-130%
	13C3-PFBS	110%	40-135%
	13C3-PFHxS	106%	40-130%
	13C8-PFOS	102%	40-130%
	13C8-FOSA	83%	40-130%
	d3-MeFOSA	87%	10-130%
	d5-EtFOSA	83%	10-130%
	d3-MeFOSAA	103%	40-170%
	d5-EtFOSAA	101%	25-135%
	d7-MeFOSE	71%	10-130%
	d9-EtFOSE	77%	10-130%
	13C2-4:2FTS	118%	40-200%
	13C2-6:2FTS	120%	40-200%
	13C2-8:2FTS	112%	40-300%
	13C3-HFPO-DA	108%	40-130%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC18042R
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5673-MS	7Q12061.D	1	10/20/24	MV	10/03/24	OP5673	S7Q174
FC19096-3	7Q12060.D	1	10/20/24	MV	10/03/24	OP5673	S7Q174

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-40R

CAS No.	Compound	FC19096-3 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.0429		0.0909	0.118	83	70-140
2706-90-3	Perfluoropentanoic acid	0.216		0.0455	0.266	110	65-135
307-24-4	Perfluorohexanoic acid	0.215		0.0227	0.242	119	70-145
375-85-9	Perfluoroheptanoic acid	0.0719		0.0227	0.0950	102	70-150
335-67-1	Perfluorooctanoic acid	0.0555		0.0227	0.0715	70	70-150
375-95-1	Perfluorononanoic acid	0.0130		0.0227	0.0337	91	70-150
335-76-2	Perfluorodecanoic acid	ND		0.0227	0.0206	91	70-140
2058-94-8	Perfluoroundecanoic acid	ND		0.0227	0.0206	91	70-145
307-55-1	Perfluorododecanoic acid	ND		0.0227	0.0194	85	70-140
72629-94-8	Perfluorotridecanoic acid	ND		0.0227	0.0149	66	65-140
376-06-7	Perfluorotetradecanoic acid	ND		0.0227	0.0214	94	60-140
375-73-5	Perfluorobutanesulfonic acid	0.0402		0.0202	0.0594	95	60-145
2706-91-4	Perfluoropentanesulfonic acid	0.0423		0.0214	0.0625	94	65-140
355-46-4	Perfluorohexanesulfonic acid	0.357		0.0208	0.408	246* [a]	65-145
375-92-8	Perfluoroheptanesulfonic acid	0.0120		0.0217	0.0276	72	70-150
1763-23-1	Perfluorooctanesulfonic acid	0.396		0.0211	0.448	247* [a]	55-150
68259-12-1	Perfluorononanesulfonic acid	ND		0.0219	0.0181	83	65-145
335-77-3	Perfluorodecanesulfonic acid	ND		0.0219	0.0141	64	60-145
79780-39-5	Perfluorododecanesulfonic aci	ND		0.022	0.0080	36*	50-145
757124-72-4	4:2-FTS	ND		0.0852	0.0716	84	70-145
27619-97-2	6:2-FTS	ND		0.0864	0.0770	89	65-155
39108-34-4	8:2-FTS	ND		0.0873	0.0730	84	60-150
754-91-6	PFOSA	ND		0.0227	0.0202	89	70-145
31506-32-8	MeFOSA	ND		0.0455	0.0395	87	60-150
4151-50-2	EtFOSA	ND		0.0455	0.0402	88	65-145
2355-31-9	MeFOSAA	ND		0.0227	0.0203	89	50-140
2991-50-6	EtFOSAA	ND		0.0227	0.0186	82	70-145
24448-09-7	MeFOSE	ND		0.114	0.100	88	70-145
1691-99-2	EtFOSE	ND		0.114	0.103	91	70-135
13252-13-6	HFPO-DA (GenX)	ND		0.0455	0.0389	86	70-140
919005-14-4	ADONA	ND		0.043	0.0399	93	65-145
377-73-1	PFMPA	ND		0.0455	0.0878	193*	55-140
863090-89-5	PFMBA	ND		0.0455	0.0503	111	60-150
151772-58-6	NFDHA	ND		0.0455	0.0344	76	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND		0.0425	0.0403	95	70-155
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND		0.043	0.0333	78	55-160

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC18042R
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5673-MS	7Q12061.D	1	10/20/24	MV	10/03/24	OP5673	S7Q174
FC19096-3	7Q12060.D	1	10/20/24	MV	10/03/24	OP5673	S7Q174

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-40R

CAS No.	Compound	FC19096-3 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
113507-82-7	PFEESA	ND		0.0405	0.0342	85	70-140
356-02-5	3:3-FTCA	ND		0.114	0.301	265*	65-130
914637-49-3	5:3-FTCA	ND		0.568	0.490	86	70-135
812-70-4	7:3-FTCA	ND		0.568	0.509	90	50-145

CAS No.	ID Standard Recoveries	MS	FC19096-3	Limits
	13C4-PFBA	14%	20%	10-130%
	13C5-PFPeA	74%	78%	40-130%
	13C5-PFHxA	121%	124%	40-130%
	13C4-PFHpA	117%	122%	40-130%
	13C8-PFOA	111%	120%	40-130%
	13C9-PFNA	114%	121%	40-130%
	13C6-PFDA	112%	113%	40-130%
	13C7-PFUnDA	102%	103%	30-130%
	13C2-PFDoDA	87%	86%	10-130%
	13C2-PFTeDA	46%	45%	10-130%
	13C3-PFBS	116%	124%	40-135%
	13C3-PFHxS	112%	126%	40-130%
	13C8-PFOS	111%	117%	40-130%
	13C8-FOSA	114%	122%	40-130%
	d3-MeFOSA	99%	101%	10-130%
	d5-EtFOSA	90%	101%	10-130%
	d3-MeFOSAA	90%	95%	40-170%
	d5-EtFOSAA	93%	90%	25-135%
	d7-MeFOSE	94%	95%	10-130%
	d9-EtFOSE	91%	95%	10-130%
	13C2-4:2FTS	91%	100%	40-200%
	13C2-6:2FTS	104%	113%	40-200%
	13C2-8:2FTS	105%	103%	40-300%
	13C3-HFPO-DA	117%	118%	40-130%

(a) Outside control limits due to high level in sample relative to spike amount.

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC18042R
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5673-DUP	7Q12138.D	1	10/21/24	MV	10/03/24	OP5673	S7Q175
FC19096-15	7Q12137.D	1	10/21/24	MV	10/03/24	OP5673	S7Q175

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-40R

CAS No.	Compound	FC19096-15 ug/l	Q	DUP ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.0066	J	0.0073		10	21
2706-90-3	Perfluoropentanoic acid	0.0166		0.0170		2	23
307-24-4	Perfluorohexanoic acid	0.0178		0.0186		4	24
375-85-9	Perfluoroheptanoic acid	0.0070		0.0072		3	28
335-67-1	Perfluorooctanoic acid	0.0070		0.0073		4	27
375-95-1	Perfluorononanoic acid	0.0018		0.0015	J	18	28
335-76-2	Perfluorodecanoic acid	ND		ND		nc	26
2058-94-8	Perfluoroundecanoic acid	ND		ND		nc	29
307-55-1	Perfluorododecanoic acid	ND		ND		nc	21
72629-94-8	Perfluorotridecanoic acid	ND		ND		nc	29
376-06-7	Perfluorotetradecanoic acid	ND		ND		nc	27
375-73-5	Perfluorobutanesulfonic acid	0.0034		0.0034		0	23
2706-91-4	Perfluoropentanesulfonic acid	0.0036		0.0038		5	25
355-46-4	Perfluorohexanesulfonic acid	0.0312		0.0332		6	27
375-92-8	Perfluoroheptanesulfonic acid	0.0011	J	0.0014	J	24	30
1763-23-1	Perfluorooctanesulfonic acid	0.0342		0.0348		2	29
68259-12-1	Perfluorononanesulfonic acid	ND		ND		nc	29
335-77-3	Perfluorodecanesulfonic acid	ND		ND		nc	30
79780-39-5	Perfluorododecanesulfonic aci	ND		ND		nc	35
757124-72-4	4:2-FTS	ND		ND		nc	27
27619-97-2	6:2-FTS	ND		ND		nc	32
39108-34-4	8:2-FTS	ND		ND		nc	33
754-91-6	PFOSA	ND		ND		nc	22
31506-32-8	MeFOSA	ND		ND		nc	30
4151-50-2	EtFOSA	ND		ND		nc	26
2355-31-9	MeFOSAA	ND		ND		nc	32
2991-50-6	EtFOSAA	ND		ND		nc	28
24448-09-7	MeFOSE	ND		ND		nc	29
1691-99-2	EtFOSE	ND		ND		nc	21
13252-13-6	HFPO-DA (GenX)	ND		ND		nc	23
919005-14-4	ADONA	ND		ND		nc	23
377-73-1	PFMPA	ND		ND		nc	23
863090-89-5	PFMBA	ND		ND		nc	27
151772-58-6	NFDHA	ND		ND		nc	37
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND		ND		nc	30
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND		ND		nc	35

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC18042R
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP5673-DUP	7Q12138.D	1	10/21/24	MV	10/03/24	OP5673	S7Q175
FC19096-15	7Q12137.D	1	10/21/24	MV	10/03/24	OP5673	S7Q175

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18042-40R

CAS No.	Compound	FC19096-15 ug/l	Q	DUP ug/l	Q	RPD	Limits
113507-82-7	PFEESA	ND		ND		nc	25
356-02-5	3:3-FTCA	ND		ND		nc	23
914637-49-3	5:3-FTCA	ND		ND		nc	24
812-70-4	7:3-FTCA	ND		ND		nc	34

CAS No.	ID Standard Recoveries	DUP	FC19096-15	Limits
	13C4-PFBA	45%	48%	10-130%
	13C5-PFPeA	95%	101%	40-130%
	13C5-PFHxA	107%	113%	40-130%
	13C4-PFHpA	111%	117%	40-130%
	13C8-PFOA	112%	112%	40-130%
	13C9-PFNA	110%	107%	40-130%
	13C6-PFDA	107%	117%	40-130%
	13C7-PFUnDA	101%	109%	30-130%
	13C2-PFDoDA	86%	83%	10-130%
	13C2-PFTeDA	64%	66%	10-130%
	13C3-PFBS	111%	119%	40-135%
	13C3-PFHxS	116%	126%	40-130%
	13C8-PFOS	115%	118%	40-130%
	13C8-FOSA	103%	114%	40-130%
	d3-MeFOSA	96%	98%	10-130%
	d5-EtFOSA	94%	93%	10-130%
	d3-MeFOSAA	105%	104%	40-170%
	d5-EtFOSAA	100%	103%	25-135%
	d7-MeFOSE	82%	85%	10-130%
	d9-EtFOSE	82%	81%	10-130%
	13C2-4:2FTS	91%	98%	40-200%
	13C2-6:2FTS	105%	114%	40-200%
	13C2-8:2FTS	100%	111%	40-300%
	13C3-HFPO-DA	106%	113%	40-130%

(a) Associated Low Level CCV outside of control limits high, sample was ND.

* = Outside of Control Limits.

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

GeoEngineers, Inc.

WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

000504.217.00

SGS Job Number: FC18044

Sampling Date: 08/14/24

Report to:

GeoEngineers, Inc
17425 NE Union Hill Rd
Redmond, WA 98052
jletts@geoengineers.com; katakturk@geoengineers.com

ATTN: Jacob Letts

Total number of pages in report: **31**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

Norm Farmer
Technical Director

Client Service contact: Andrea Colby 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001) DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177), AL, AK, AR, CT, IA, KY, MA, MI. MS, ND, NH, NV, OK, OR, IL, UT, VT, WA, WI, WV

September 5, 2024

Mr. Jacob Letts
GeoEngineers

RE: SGS North America Inc. - Orlando job FC18044 Reissue

Dear Mr. Letts,

The final report for job number FC18044 has been edited to reflect requested corrections. These edits have been incorporated into the revised report.

The sample ID on -1 has been changed to P-1-240814 per your request.

Please feel free to contact us if we can be of further assistance.

Sincerely,

SGS North America, Inc. - Orlando

Florida ♦ 4405 Vineland Road ♦ Suite C-15 ♦ Orlando, FL 32811 ♦ tel: 407 425-6700 ♦ fax: 407 425-0707

Sections:

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Table of Contents

SGS North America Inc.

Sample Summary

GeoEngineers, Inc.

Job No: FC18044

WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA
Project No: 000504.217.00

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FC18044-1	08/14/24	15:00	MB	08/16/24	AQ	Ground Water	P-1-240814

This report contains results reported as ND = Not detected. The following applies:
Organics ND = Not detected above the MDL

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: GeoEngineers, Inc. **Job No:** FC18044

Site: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, **Report Date:** 9/4/2024 5:36:19 PM

On 08/16/2024, 1 Sample(s), 0 Trip Blank(s), 0 Equip. Blank(s) and 0 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 4 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC18044 was assigned to the project.

Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Semi-volatiles By Method EPA 1633

Matrix: AQ **Batch ID:** OP4993

Sample(s) FC18044-1MS were used as the QC samples indicated.

OP4993-MB for 13C9-PFNA: Outside control limits.

OP4993-MB for 13C8-PFOA: Outside control limits.

OP4993-MB for 13C5-PFPeA: Outside control limits.

SGS North America Inc. - Orlando certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted. Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria. SGS North America Inc.- Orlando is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety.

Narrative prepared by:

_____

Kim Benham, Report Generation (signature on file)

Summary of Hits

Job Number: FC18044
Account: GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA
Collected: 08/14/24

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
FC18044-1	**P-1-240814**					
Perfluorobutanesulfonic acid		0.00091 J	0.0018	0.00089	ug/l	EPA 1633

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: P-1-240814
Lab Sample ID: FC18044-1 **Date Sampled:** 08/14/24
Matrix: AQ - Ground Water **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** n/a
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	4Q65706.D	1	09/01/24 06:10	MB	08/27/24 07:30	OP4993	S4Q967
Run #2							

	Initial Volume	Final Volume
Run #1	560 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	0.0071	0.0036	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0036	0.00089	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0018	0.00045	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0018	0.00045	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0018	0.00045	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0018	0.00054	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0018	0.00045	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0018	0.00054	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0018	0.00054	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0018	0.00075	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0018	0.00045	ug/l	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	0.00091	0.0018	0.00089	ug/l	J
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0018	0.0010	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0018	0.00089	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0018	0.00089	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0018	0.00089	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0018	0.00089	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0018	0.00089	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0018	0.0010	ug/l	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	0.0071	0.0036	ug/l	
27619-97-2	6:2-FTS	ND	0.0071	0.0036	ug/l	
39108-34-4	8:2-FTS	ND	0.0071	0.0037	ug/l	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	0.0018	0.00089	ug/l	
31506-32-8	MeFOSA	ND	0.0036	0.00089	ug/l	
4151-50-2	EtFOSA	ND	0.0036	0.00089	ug/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	P-1-240814		
Lab Sample ID:	FC18044-1	**Date Sampled:**	08/14/24
Matrix:	AQ - Ground Water	**Date Received:**	08/16/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	0.0018	0.00089	ug/l	
2991-50-6	EtFOSAA	ND	0.0018	0.0012	ug/l	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	0.018	0.0089	ug/l	
1691-99-2	EtFOSE	ND	0.018	0.0089	ug/l	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	0.0036	0.00089	ug/l	
919005-14-4	ADONA	ND	0.0071	0.0018	ug/l	
377-73-1	PFMPA	ND	0.0036	0.00089	ug/l	
863090-89-5	PFMBA	ND	0.0036	0.0010	ug/l	
151772-58-6	NFDHA	ND	0.0036	0.0011	ug/l	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0071	0.0018	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0071	0.0018	ug/l	
113507-82-7	PFEESA	ND	0.0036	0.00089	ug/l	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	0.0089	0.0045	ug/l	
914637-49-3	5:3-FTCA	ND	0.045	0.0089	ug/l	
812-70-4	7:3-FTCA	ND	0.045	0.0089	ug/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	97%		10-130%
	13C5-PFPeA	112%		40-130%
	13C5-PFHxA	109%		40-130%
	13C4-PFHpA	110%		40-130%
	13C8-PFOA	111%		40-130%
	13C9-PFNA	115%		40-130%
	13C6-PFDA	105%		40-130%
	13C7-PFUnDA	101%		30-130%
	13C2-PFDoDA	94%		10-130%
	13C2-PFTeDA	84%		10-130%
	13C3-PFBS	110%		40-135%
	13C3-PFHxS	109%		40-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: P-1-240814
Lab Sample ID: FC18044-1 **Date Sampled:** 08/14/24
Matrix: AQ - Ground Water **Date Received:** 08/16/24
Method: EPA 1633 EPA 1633 **Percent Solids:** n/a
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	110%		40-130%
	13C8-FOSA	98%		40-130%
	d3-MeFOSA	83%		10-130%
	d5-EtFOSA	89%		10-130%
	d3-MeFOSAA	122%		40-170%
	d5-EtFOSAA	114%		25-135%
	d7-MeFOSE	74%		10-130%
	d9-EtFOSE	83%		10-130%
	13C2-4:2FTS	127%		40-200%
	13C2-6:2FTS	125%		40-200%
	13C2-8:2FTS	118%		40-300%
	13C3-HFPO-DA	92%		40-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SGS North America Inc - Orlando

Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, Fl 32811
TEL. 407-425-6700 FAX: 407-425-0707
www.sgs.com

SGS - ORLANDO JOB # : PAGE 1 OF 1

SGS - ORLANDO Quote # SKIFF # FC18044

Client / Reporting Information		Project Information	
Company Name: GeoEngineers, Inc.		Project Name: Bailer Hill PFAS Tier 2 Investigation	
Address: 2101 4th Ave., Suite 950		Street: 3189 Bailer Hill Rd	
City: Seattle	State: WA Zip: 98121	City: Friday Harbor	State: Washington
Project Contact: Jacob Letts	Email: jletts@geoengineers.com	Project #: 00504-217-00	
Phone #:		Fax #	
Sampler(s) Name(s) (Printed) Sampler 1: Meredith Bush	Sampler 2:	Client Purchase Order #	

Analytical Information: PFAS by EPA 1633; Hold

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid

SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION DATE	TIME	SAMPLED BY:	CONTAINER INFORMATION MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZnAc	DI WATER	MEOH	LAB USE ONLY
1	MAPID-01-240814	8/14/24	1500	MB	GW	3										
MB																

Turnaround Time (Business days)

10 Day (Business) Approved By: / Date:
7 Day
5 Day
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other STANDARD
Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [ ] FULLT1 (EPA LEVEL 4)
- [x] EDD'S

*See Note in Comments

Comments / Remarks

also email Katy Atakturk (katakturk@geoengineers.com)

INITIAL ASSESSMENT ZB
LABEL VERIFICATION ZB

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1 Katy A	8/15/24 1100	2 ZB 8/16/24 930	3		4
Relinquished by/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
5		6	7		8

Lab Use Only : Cooler Temperature (s) Celsius (corrected): 4.2 IR #1

http://www.sgs.com/en/terms-and-conditions

SGS_COC_Draft Rev 031318

FC18044: Chain of Custody
Page 1 of 3

SGS - Orlando Sample Receipt Summary

Job Number: fc18044 **Client:** GEOENGINEERS **Project:** BAILER HILL PFAS TIER 2 INVESTIGATIO

Date / Time Received: 8/16/2024 9:30:00 AM **Delivery Method:** FEDEX **Airbill #'s:** 791487456673

Cooler Temps (Raw Measured) °C: Cooler 1: (4.2);

Cooler Temps (Corrected) °C: Cooler 1: (4.0);

Cooler Information	Y	or	N
1. Custody Seals Present:	☑		☐
2. Custody Seals Intact:	☑		☐
3. Temp criteria achieved:	☑		☐
4. Cooler temp verification:	IR Gun		
5. Cooler media:	Ice (Bag)		

Trip Blank Information	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑

	W	or	S	N/A
3. Type of TB Received	☐		☐	☑

Sample Information	Y	or	N	N/A
1. Sample labels present on bottles:	☑		☐	
2. Samples presented properly	☑		☐	
3. Sufficient volume/containers recv'd for analysis	☑		☐	
4. Condition of sample:	Intact			
5. Sample recv'd within HT	☑		☐	
6. Dates/Times/IDs on COC match sample label	☑		☐	
7. VOCs have headspace	☐		☐	☑
8. Bottles received for unspecified tests	☐		☑	
9. Compositing instructions clear	☐		☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☑
11. % Solids Jar Received?	☐		☐	☑
12. Residual Chlorine Present?	☐		☐	☑

Misc Information

Number of Encores: 25 Gram 5 Gram

Number of Lab Filtered Metals:

Test Strip Lot #s: pH 0-3: 226422 pH 10-12: Other: (Specify) pH 1.0 - 12.0 222221

Residual Chlorine Test Strip Lot #

Comments

Sample Receipt Summary 112723 EK Technician: ZANEB Date: 8/16/2024 3:36:47 PM Reviewer: Date:

Job Change Order: FC18044

Requested Date:	8/20/2024	**Received Date:**	8/16/2024
Account Name:	GeoEngineers, Inc.	**Due Date:**	8/20/2024
Project Description:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights	**Deliverable:**	FULT2
C/O Initiated By:	ANDREA_C **PM:** AC	**TAT (Days):**	21

==========

Sample #:	FC18044-1	**Dept:**	SVOA
Client ID:	MAPID-01-240814	**TAT:**	21
Change:	Please analyze the sample for LCID1633LIST40.		

FC18044: Chain of Custody
Page 3 of 3

Above Changes Per: Katy Atakturk **Date/Time:** 8/20/2024

To Client: This Change Order is confirmation of the revisions, previously discussed with the Client Service Representative.

Page 1 of 1

MS Semi-volatiles

6

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: FC18044
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4993-MB	4Q65705.D	1	09/01/24	MB	08/27/24	OP4993	S4Q967

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18044-1

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0080	0.0040	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.0010	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0020	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0020	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.0010	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.0010	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.0010	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0020	0.0010	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0020	0.0010	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0020	0.0011	ug/l	
757124-72-4	4:2-FTS	ND	0.0080	0.0040	ug/l	
27619-97-2	6:2-FTS	ND	0.0080	0.0040	ug/l	
39108-34-4	8:2-FTS	ND	0.0080	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0020	0.0010	ug/l	
31506-32-8	MeFOSA	ND	0.0040	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0040	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0020	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0020	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.020	0.010	ug/l	
1691-99-2	EtFOSE	ND	0.020	0.010	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
377-73-1	PFMPA	ND	0.0040	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

Method Blank Summary

Job Number: FC18044
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4993-MB	4Q65705.D	1	09/01/24	MB	08/27/24	OP4993	S4Q967

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18044-1

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0040	0.0010	ug/l	
356-02-5	3:3-FTCA	ND	0.010	0.0050	ug/l	
914637-49-3	5:3-FTCA	ND	0.050	0.010	ug/l	
812-70-4	7:3-FTCA	ND	0.050	0.010	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	130%	10-130%
	13C5-PFPeA	131%* [a]	40-130%
	13C5-PFHxA	127%	40-130%
	13C4-PFHpA	129%	40-130%
	13C8-PFOA	132%* [a]	40-130%
	13C9-PFNA	132%* [a]	40-130%
	13C6-PFDA	123%	40-130%
	13C7-PFUnDA	118%	30-130%
	13C2-PFDoDA	108%	10-130%
	13C2-PFTeDA	105%	10-130%
	13C3-PFBS	125%	40-135%
	13C3-PFHxS	124%	40-130%
	13C8-PFOS	127%	40-130%
	13C8-FOSA	97%	40-130%
	d3-MeFOSA	84%	10-130%
	d5-EtFOSA	91%	10-130%
	d3-MeFOSAA	137%	40-170%
	d5-EtFOSAA	131%	25-135%
	d7-MeFOSE	81%	10-130%
	d9-EtFOSE	88%	10-130%
	13C2-4:2FTS	184%	40-200%
	13C2-6:2FTS	167%	40-200%
	13C2-8:2FTS	164%	40-300%
	13C3-HFPO-DA	116%	40-130%

(a) Outside control limits.

Instrument Blank

Job Number: FC18044
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q965-IBLK	4Q65506.D	1	08/29/24	MB	n/a	n/a	S4Q965

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18044-1

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-4	4:2-FTS	ND	0.020	0.0032	ug/l	
27619-97-2	6:2-FTS	ND	0.020	0.0035	ug/l	
39108-34-4	8:2-FTS	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Instrument Blank

Job Number: FC18044
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q965-IBLK	4Q65506.D	1	08/29/24	MB	n/a	n/a	S4Q965

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18044-1

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3-FTCA	ND	0.020	0.0045	ug/l	
914637-49-3	5:3-FTCA	ND	0.10	0.0087	ug/l	
812-70-4	7:3-FTCA	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	98%	10-130%
	13C5-PFPeA	99%	40-130%
	13C5-PFHxA	100%	40-130%
	13C4-PFHpA	97%	40-130%
	13C8-PFOA	101%	40-130%
	13C9-PFNA	102%	40-130%
	13C6-PFDA	106%	40-130%
	13C7-PFUnDA	107%	30-130%
	13C2-PFDoDA	100%	10-130%
	13C2-PFTeDA	101%	10-130%
	13C3-PFBS	103%	40-135%
	13C3-PFHxS	99%	40-130%
	13C8-PFOS	100%	40-130%
	13C8-FOSA	101%	40-130%
	d3-MeFOSA	98%	10-130%
	d5-EtFOSA	99%	10-130%
	d3-MeFOSAA	103%	40-170%
	d5-EtFOSAA	102%	25-135%
	d7-MeFOSE	98%	10-130%
	d9-EtFOSE	100%	10-130%
	13C2-4:2FTS	92%	40-200%
	13C2-6:2FTS	102%	40-200%
	13C2-8:2FTS	86%	40-300%
	13C3-HFPO-DA	99%	40-130%

Instrument Blank

Job Number: FC18044
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q967-IBLK	4Q65659.D	1	08/31/24	MB	n/a	n/a	S4Q967

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18044-1

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-4	4:2-FTS	ND	0.020	0.0032	ug/l	
27619-97-2	6:2-FTS	ND	0.020	0.0035	ug/l	
39108-34-4	8:2-FTS	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Instrument Blank

Job Number: FC18044
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q967-IBLK	4Q65659.D	1	08/31/24	MB	n/a	n/a	S4Q967

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18044-1

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3-FTCA	ND	0.020	0.0045	ug/l	
914637-49-3	5:3-FTCA	ND	0.10	0.0087	ug/l	
812-70-4	7:3-FTCA	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	101%	10-130%
	13C5-PFPeA	101%	40-130%
	13C5-PFHxA	100%	40-130%
	13C4-PFHpA	101%	40-130%
	13C8-PFOA	102%	40-130%
	13C9-PFNA	103%	40-130%
	13C6-PFDA	100%	40-130%
	13C7-PFUnDA	104%	30-130%
	13C2-PFDoDA	99%	10-130%
	13C2-PFTeDA	100%	10-130%
	13C3-PFBS	98%	40-135%
	13C3-PFHxS	95%	40-130%
	13C8-PFOS	101%	40-130%
	13C8-FOSA	101%	40-130%
	d3-MeFOSA	103%	10-130%
	d5-EtFOSA	97%	10-130%
	d3-MeFOSAA	111%	40-170%
	d5-EtFOSAA	107%	25-135%
	d7-MeFOSE	103%	10-130%
	d9-EtFOSE	100%	10-130%
	13C2-4:2FTS	123%	40-200%
	13C2-6:2FTS	115%	40-200%
	13C2-8:2FTS	114%	40-300%
	13C3-HFPO-DA	89%	40-130%

Continuing Calibration Blank

Job Number: FC18044
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q967-ICCB	4Q65702.D	1	09/01/24	MB	n/a	n/a	S4Q967

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18044-1

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-4	4:2-FTS	ND	0.020	0.0032	ug/l	
27619-97-2	6:2-FTS	ND	0.020	0.0035	ug/l	
39108-34-4	8:2-FTS	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC18044
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q967-ICCB	4Q65702.D	1	09/01/24	MB	n/a	n/a	S4Q967

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18044-1

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3-FTCA	ND	0.020	0.0045	ug/l	
914637-49-3	5:3-FTCA	ND	0.10	0.0087	ug/l	
812-70-4	7:3-FTCA	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	99%	10-130%
	13C5-PFPeA	102%	40-130%
	13C5-PFHxA	101%	40-130%
	13C4-PFHpA	102%	40-130%
	13C8-PFOA	102%	40-130%
	13C9-PFNA	102%	40-130%
	13C6-PFDA	97%	40-130%
	13C7-PFUnDA	99%	30-130%
	13C2-PFDoDA	94%	10-130%
	13C2-PFTeDA	95%	10-130%
	13C3-PFBS	96%	40-135%
	13C3-PFHxS	95%	40-130%
	13C8-PFOS	99%	40-130%
	13C8-FOSA	97%	40-130%
	d3-MeFOSA	95%	10-130%
	d5-EtFOSA	98%	10-130%
	d3-MeFOSAA	107%	40-170%
	d5-EtFOSAA	102%	25-135%
	d7-MeFOSE	99%	10-130%
	d9-EtFOSE	97%	10-130%
	13C2-4:2FTS	129%	40-200%
	13C2-6:2FTS	116%	40-200%
	13C2-8:2FTS	121%	40-300%
	13C3-HFPO-DA	91%	40-130%

Continuing Calibration Blank

Job Number: FC18044
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q967-ICCB	4Q65712.D	1	09/01/24	MB	n/a	n/a	S4Q967

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18044-1

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-4	4:2-FTS	ND	0.020	0.0032	ug/l	
27619-97-2	6:2-FTS	ND	0.020	0.0035	ug/l	
39108-34-4	8:2-FTS	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC18044
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S4Q967-ICCB	4Q65712.D	1	09/01/24	MB	n/a	n/a	S4Q967

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC18044-1

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3-FTCA	ND	0.020	0.0045	ug/l	
914637-49-3	5:3-FTCA	ND	0.10	0.0087	ug/l	
812-70-4	7:3-FTCA	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	98%	10-130%
	13C5-PFPeA	99%	40-130%
	13C5-PFHxA	100%	40-130%
	13C4-PFHpA	98%	40-130%
	13C8-PFOA	103%	40-130%
	13C9-PFNA	99%	40-130%
	13C6-PFDA	98%	40-130%
	13C7-PFUnDA	97%	30-130%
	13C2-PFDoDA	96%	10-130%
	13C2-PFTeDA	97%	10-130%
	13C3-PFBS	96%	40-135%
	13C3-PFHxS	97%	40-130%
	13C8-PFOS	103%	40-130%
	13C8-FOSA	101%	40-130%
	d3-MeFOSA	102%	10-130%
	d5-EtFOSA	106%	10-130%
	d3-MeFOSAA	113%	40-170%
	d5-EtFOSAA	105%	25-135%
	d7-MeFOSE	105%	10-130%
	d9-EtFOSE	106%	10-130%
	13C2-4:2FTS	133%	40-200%
	13C2-6:2FTS	126%	40-200%
	13C2-8:2FTS	125%	40-300%
	13C3-HFPO-DA	89%	40-130%

Blank Spike Summary

Job Number: FC18044
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4993-LLBS	4Q65704.D	1	09/01/24	MB	08/27/24	OP4993	S4Q967

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18044-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.016	0.0137	86	70-140
2706-90-3	Perfluoropentanoic acid	0.008	0.0069	86	65-135
307-24-4	Perfluorohexanoic acid	0.004	0.0033	83	70-145
375-85-9	Perfluoroheptanoic acid	0.004	0.0035	88	70-150
335-67-1	Perfluorooctanoic acid	0.004	0.0036	90	70-150
375-95-1	Perfluorononanoic acid	0.004	0.0034	85	70-150
335-76-2	Perfluorodecanoic acid	0.004	0.0036	90	70-140
2058-94-8	Perfluoroundecanoic acid	0.004	0.0033	83	70-145
307-55-1	Perfluorododecanoic acid	0.004	0.0036	90	70-140
72629-94-8	Perfluorotridecanoic acid	0.004	0.0034	85	65-140
376-06-7	Perfluorotetradecanoic acid	0.004	0.0034	85	60-140
375-73-5	Perfluorobutanesulfonic acid	0.00355	0.0032	90	60-145
2706-91-4	Perfluoropentanesulfonic acid	0.00376	0.0033	88	65-140
355-46-4	Perfluorohexanesulfonic acid	0.00366	0.0032	88	65-145
375-92-8	Perfluoroheptanesulfonic acid	0.00381	0.0036	94	70-150
1763-23-1	Perfluorooctanesulfonic acid	0.00371	0.0034	92	55-150
68259-12-1	Perfluorononanesulfonic acid	0.00385	0.0034	88	65-145
335-77-3	Perfluorodecanesulfonic acid	0.00386	0.0031	80	60-145
79780-39-5	Perfluorododecanesulfonic aci	0.00388	0.0033	85	50-145
757124-72-4	4:2-FTS	0.015	0.0125	83	70-145
27619-97-2	6:2-FTS	0.0152	0.0153	101	65-155
39108-34-4	8:2-FTS	0.0154	0.0137	89	60-150
754-91-6	PFOSA	0.004	0.0038	95	70-145
31506-32-8	MeFOSA	0.008	0.0072	90	60-150
4151-50-2	EtFOSA	0.008	0.0065	81	65-145
2355-31-9	MeFOSAA	0.004	0.0035	88	50-140
2991-50-6	EtFOSAA	0.004	0.0038	95	70-145
24448-09-7	MeFOSE	0.02	0.0173	87	70-145
1691-99-2	EtFOSE	0.02	0.0170	85	70-135
13252-13-6	HFPO-DA (GenX)	0.008	0.0075	94	70-140
919005-14-4	ADONA	0.00756	0.0074	98	65-145
377-73-1	PFMPA	0.008	0.0068	85	55-140
863090-89-5	PFMBA	0.008	0.0069	86	60-150
151772-58-6	NFDHA	0.008	0.0084	105	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.00748	0.0069	92	70-155
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.00756	0.0066	87	55-160

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC18044
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4993-LLBS	4Q65704.D	1	09/01/24	MB	08/27/24	OP4993	S4Q967

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18044-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.00712	0.0060	84	70-140
356-02-5	3:3-FTCA	0.02	0.0161	81	65-130
914637-49-3	5:3-FTCA	0.1	0.0813	81	70-135
812-70-4	7:3-FTCA	0.1	0.0812	81	50-145

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	122%	10-130%
	13C5-PFPeA	125%	40-130%
	13C5-PFHxA	124%	40-130%
	13C4-PFHpA	125%	40-130%
	13C8-PFOA	123%	40-130%
	13C9-PFNA	124%	40-130%
	13C6-PFDA	121%	40-130%
	13C7-PFUnDA	119%	30-130%
	13C2-PFDoDA	113%	10-130%
	13C2-PFTeDA	107%	10-130%
	13C3-PFBS	121%	40-135%
	13C3-PFHxS	121%	40-130%
	13C8-PFOS	120%	40-130%
	13C8-FOSA	108%	40-130%
	d3-MeFOSA	91%	10-130%
	d5-EtFOSA	98%	10-130%
	d3-MeFOSAA	139%	40-170%
	d5-EtFOSAA	129%	25-135%
	d7-MeFOSE	94%	10-130%
	d9-EtFOSE	96%	10-130%
	13C2-4:2FTS	187%	40-200%
	13C2-6:2FTS	147%	40-200%
	13C2-8:2FTS	154%	40-300%
	13C3-HFPO-DA	111%	40-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC18044
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4993-BS	4Q65703.D	1	09/01/24	MB	08/27/24	OP4993	S4Q967

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18044-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0876	88	70-140
2706-90-3	Perfluoropentanoic acid	0.05	0.0451	90	65-135
307-24-4	Perfluorohexanoic acid	0.025	0.0223	89	70-145
375-85-9	Perfluoroheptanoic acid	0.025	0.0232	93	70-150
335-67-1	Perfluorooctanoic acid	0.025	0.0224	90	70-150
375-95-1	Perfluorononanoic acid	0.025	0.0224	90	70-150
335-76-2	Perfluorodecanoic acid	0.025	0.0237	95	70-140
2058-94-8	Perfluoroundecanoic acid	0.025	0.0226	90	70-145
307-55-1	Perfluorododecanoic acid	0.025	0.0235	94	70-140
72629-94-8	Perfluorotridecanoic acid	0.025	0.0227	91	65-140
376-06-7	Perfluorotetradecanoic acid	0.025	0.0233	93	60-140
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0199	90	60-145
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0224	95	65-140
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0204	89	65-145
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0216	91	70-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0205	88	55-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0224	93	65-145
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0206	85	60-145
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0197	81	50-145
757124-72-4	4:2-FTS	0.0938	0.0900	96	70-145
27619-97-2	6:2-FTS	0.095	0.0840	88	65-155
39108-34-4	8:2-FTS	0.096	0.0894	93	60-150
754-91-6	PFOSA	0.025	0.0237	95	70-145
31506-32-8	MeFOSA	0.05	0.0462	92	60-150
4151-50-2	EtFOSA	0.05	0.0452	90	65-145
2355-31-9	MeFOSAA	0.025	0.0229	92	50-140
2991-50-6	EtFOSAA	0.025	0.0230	92	70-145
24448-09-7	MeFOSE	0.125	0.117	94	70-145
1691-99-2	EtFOSE	0.125	0.108	86	70-135
13252-13-6	HFPO-DA (GenX)	0.05	0.0480	96	70-140
919005-14-4	ADONA	0.0473	0.0496	105	65-145
377-73-1	PFMPA	0.05	0.0437	87	55-140
863090-89-5	PFMBA	0.05	0.0449	90	60-150
151772-58-6	NFDHA	0.05	0.0492	98	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0468	0.0471	101	70-155
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0473	0.0443	94	55-160

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC18044
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4993-BS	4Q65703.D	1	09/01/24	MB	08/27/24	OP4993	S4Q967

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18044-1

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0401	90	70-140
356-02-5	3:3-FTCA	0.125	0.0991	79	65-130
914637-49-3	5:3-FTCA	0.625	0.555	89	70-135
812-70-4	7:3-FTCA	0.625	0.559	89	50-145

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	125%	10-130%
	13C5-PFPeA	127%	40-130%
	13C5-PFHxA	126%	40-130%
	13C4-PFHpA	124%	40-130%
	13C8-PFOA	124%	40-130%
	13C9-PFNA	123%	40-130%
	13C6-PFDA	116%	40-130%
	13C7-PFUnDA	118%	30-130%
	13C2-PFDoDA	110%	10-130%
	13C2-PFTeDA	104%	10-130%
	13C3-PFBS	120%	40-135%
	13C3-PFHxS	120%	40-130%
	13C8-PFOS	122%	40-130%
	13C8-FOSA	101%	40-130%
	d3-MeFOSA	91%	10-130%
	d5-EtFOSA	91%	10-130%
	d3-MeFOSAA	140%	40-170%
	d5-EtFOSAA	133%	25-135%
	d7-MeFOSE	78%	10-130%
	d9-EtFOSE	87%	10-130%
	13C2-4:2FTS	163%	40-200%
	13C2-6:2FTS	164%	40-200%
	13C2-8:2FTS	148%	40-300%
	13C3-HFPO-DA	113%	40-130%

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC18044
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4993-MS	4Q65707.D	1	09/01/24	MB	08/27/24	OP4993	S4Q967
FC18044-1	4Q65706.D	1	09/01/24	MB	08/27/24	OP4993	S4Q967

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18044-1

CAS No.	Compound	FC18044-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	ND		0.0877	0.0852	97	70-140
2706-90-3	Perfluoropentanoic acid	ND		0.0439	0.0436	99	65-135
307-24-4	Perfluorohexanoic acid	ND		0.0219	0.0205	93	70-145
375-85-9	Perfluoroheptanoic acid	ND		0.0219	0.0219	100	70-150
335-67-1	Perfluorooctanoic acid	ND		0.0219	0.0225	103	70-150
375-95-1	Perfluorononanoic acid	ND		0.0219	0.0209	95	70-150
335-76-2	Perfluorodecanoic acid	ND		0.0219	0.0217	99	70-140
2058-94-8	Perfluoroundecanoic acid	ND		0.0219	0.0226	103	70-145
307-55-1	Perfluorododecanoic acid	ND		0.0219	0.0229	104	70-140
72629-94-8	Perfluorotridecanoic acid	ND		0.0219	0.0213	97	65-140
376-06-7	Perfluorotetradecanoic acid	ND		0.0219	0.0220	100	60-140
375-73-5	Perfluorobutanesulfonic acid	0.00091	J	0.0195	0.0203	100	60-145
2706-91-4	Perfluoropentanesulfonic acid	ND		0.0206	0.0210	102	65-140
355-46-4	Perfluorohexanesulfonic acid	ND		0.02	0.0204	102	65-145
375-92-8	Perfluoroheptanesulfonic acid	ND		0.0209	0.0228	109	70-150
1763-23-1	Perfluorooctanesulfonic acid	ND		0.0204	0.0204	100	55-150
68259-12-1	Perfluorononanesulfonic acid	ND		0.0211	0.0206	98	65-145
335-77-3	Perfluorodecanesulfonic acid	ND		0.0212	0.0182	86	60-145
79780-39-5	Perfluorododecanesulfonic aci	ND		0.0213	0.0161	76	50-145
757124-72-4	4:2-FTS	ND		0.0822	0.0853	104	70-145
27619-97-2	6:2-FTS	ND		0.0833	0.0852	102	65-155
39108-34-4	8:2-FTS	ND		0.0842	0.0863	102	60-150
754-91-6	PFOSA	ND		0.0219	0.0228	104	70-145
31506-32-8	MeFOSA	ND		0.0439	0.0454	104	60-150
4151-50-2	EtFOSA	ND		0.0439	0.0440	100	65-145
2355-31-9	MeFOSAA	ND		0.0219	0.0262	119	50-140
2991-50-6	EtFOSAA	ND		0.0219	0.0274	125	70-145
24448-09-7	MeFOSE	ND		0.11	0.111	101	70-145
1691-99-2	EtFOSE	ND		0.11	0.102	93	70-135
13252-13-6	HFPO-DA (GenX)	ND		0.0439	0.0457	104	70-140
919005-14-4	ADONA	ND		0.0414	0.0493	119	65-145
377-73-1	PFMPA	ND		0.0439	0.0507	116	55-140
863090-89-5	PFMBA	ND		0.0439	0.0438	100	60-150
151772-58-6	NFDHA	ND		0.0439	0.0455	104	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND		0.041	0.0449	109	70-155
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND		0.0414	0.0368	89	55-160

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC18044
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP4993-MS	4Q65707.D	1	09/01/24	MB	08/27/24	OP4993	S4Q967
FC18044-1	4Q65706.D	1	09/01/24	MB	08/27/24	OP4993	S4Q967

The QC reported here applies to the following samples: **Method:** EPA 1633

FC18044-1

CAS No.	Compound	FC18044-1 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
113507-82-7	PFEESA	ND		0.039	0.0385	99	70-140
356-02-5	3:3-FTCA	ND		0.11	0.112	102	65-130
914637-49-3	5:3-FTCA	ND		0.548	0.529	96	70-135
812-70-4	7:3-FTCA	ND		0.548	0.518	94	50-145

CAS No.	ID Standard Recoveries	MS	FC18044-1	Limits
	13C4-PFBA	93%	97%	10-130%
	13C5-PFPeA	109%	112%	40-130%
	13C5-PFHxA	111%	109%	40-130%
	13C4-PFHpA	109%	110%	40-130%
	13C8-PFOA	110%	111%	40-130%
	13C9-PFNA	114%	115%	40-130%
	13C6-PFDA	108%	105%	40-130%
	13C7-PFUnDA	96%	101%	30-130%
	13C2-PFDoDA	85%	94%	10-130%
	13C2-PFTeDA	77%	84%	10-130%
	13C3-PFBS	107%	110%	40-135%
	13C3-PFHxS	108%	109%	40-130%
	13C8-PFOS	99%	110%	40-130%
	13C8-FOSA	101%	98%	40-130%
	d3-MeFOSA	82%	83%	10-130%
	d5-EtFOSA	82%	89%	10-130%
	d3-MeFOSAA	110%	122%	40-170%
	d5-EtFOSAA	109%	114%	25-135%
	d7-MeFOSE	80%	74%	10-130%
	d9-EtFOSE	82%	83%	10-130%
	13C2-4:2FTS	131%	127%	40-200%
	13C2-6:2FTS	126%	125%	40-200%
	13C2-8:2FTS	123%	118%	40-300%
	13C3-HFPO-DA	95%	92%	40-130%

* = Outside of Control Limits.

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

GeoEngineers, Inc.

WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

000504.217.00T4

SGS Job Number: FC19997

Sampling Dates: 10/28/24 - 10/30/24

Report to:

GeoEngineers, Inc
17425 NE Union Hill Rd
Redmond, WA 98052
jletts@geoengineers.com; katakturk@geoengineers.com

ATTN: Jacob Letts

Total number of pages in report: **53**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable unless noted in the narrative, comments or footnotes.

Norm Farmer
Technical Director

Client Service contact: Andrea Colby 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), NC(573), NJ(FL002), NY(12022), SC(96038001) DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177), AL, AK, AR, CT, IA, KY, MA, MI. MS, ND, NH, NV, OK, OR, IL, UT, VT, WA, WI, WV

Test results relate only to samples analyzed.

Sections: 1 2 3 4 5 6

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Sample Summary

GeoEngineers, Inc.

Job No: FC19997

WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA
Project No: 000504.217.00T4

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
This report contains results reported as ND = Not detected. The following applies:							
Organics ND = Not detected above the MDL							
FC19997-1	10/30/24	10:00	KASB	10/31/24	AQ	Ground Water	BH-MW1-241030
FC19997-2	10/30/24	10:20	KASB	10/31/24	AQ	Ground Water	BH-MW2-241030
FC19997-3	10/30/24	10:45	KASB	10/31/24	AQ	Ground Water	BH-MW4-241030
FC19997-4	10/30/24	12:00	KASB	10/31/24	AQ	Ground Water	BH-DUP1-241030W
FC19997-5	10/28/24	18:00	KASB	10/31/24	AQ	Field Blank Water	FB-1-241028
FC19997-6	10/28/24	18:10	KASB	10/31/24	AQ	Field Blank Water	FB-2-241028
FC19997-7	10/29/24	18:00	KASB	10/31/24	AQ	Field Blank Water	FB-3-241029
FC19997-8	10/30/24	12:00	KASB	10/31/24	AQ	Field Blank Water	FB-4-241030

SAMPLE DELIVERY GROUP CASE NARRATIVE

Client: GeoEngineers, Inc. **Job No:** FC19997

Site: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, **Report Date:** 12/10/2024 12:53:25 PM

On 10/31/2024, 4 Sample(s), 0 Trip Blank(s), 0 Equip. Blank(s) and 4 Field Blank(s) were received at SGS North America Inc - Orlando. at a maximum corrected temperature of 2.6 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. - Orlando Job Number of FC19997 was assigned to the project.

Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section. Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

MS Semi-volatiles By Method EPA 1633

Matrix: AQ **Batch ID:** OP6523

Sample(s) FC20285-2DUP, FC20304-2MS were used as the QC samples indicated.

OP6523-BS for d5-EtFOSAA: Outside control limits.

SGS North America Inc. - Orlando certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted. Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria. SGS North America Inc.- Orlando is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety.

Narrative prepared by:

_____

Kim Benham, Report Generation (signature on file)

Summary of Hits

Job Number: FC19997
Account: GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA
Collected: 10/28/24 thru 10/30/24

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
FC19997-1	**BH-MW1-241030**					
Perfluorobutanoic acid		12.1 J	13	6.6	ng/l	EPA 1633
Perfluoropentanoic acid		13.0	6.6	1.6	ng/l	EPA 1633
Perfluorohexanoic acid		8.0	3.3	0.82	ng/l	EPA 1633
Perfluoroheptanoic acid		3.8	3.3	0.82	ng/l	EPA 1633
Perfluorooctanoic acid		2.0 J	3.3	0.82	ng/l	EPA 1633
Perfluorononanoic acid		5.2	3.3	1.0	ng/l	EPA 1633
Perfluorobutanesulfonic acid		2.5 J	3.3	1.6	ng/l	EPA 1633
Perfluorohexanesulfonic acid		2.1 J	3.3	1.6	ng/l	EPA 1633
FC19997-2	**BH-MW2-241030**					
Perfluorobutanoic acid		226	67	33	ng/l	EPA 1633
Perfluoropentanoic acid		544	33	8.3	ng/l	EPA 1633
Perfluorohexanoic acid		553	17	4.2	ng/l	EPA 1633
Perfluoroheptanoic acid		268	17	4.2	ng/l	EPA 1633
Perfluorooctanoic acid		290	17	4.2	ng/l	EPA 1633
Perfluorononanoic acid		2280	17	5.1	ng/l	EPA 1633
Perfluorodecanoic acid		21.1	17	4.2	ng/l	EPA 1633
Perfluoroundecanoic acid		18.8	17	5.0	ng/l	EPA 1633
Perfluorobutanesulfonic acid		353	17	8.3	ng/l	EPA 1633
Perfluoropentanesulfonic acid		474	17	9.3	ng/l	EPA 1633
Perfluorohexanesulfonic acid		2310	17	8.3	ng/l	EPA 1633
Perfluoroheptanesulfonic acid		211	17	8.3	ng/l	EPA 1633
Perfluorooctanesulfonic acid		4510	17	8.3	ng/l	EPA 1633
6:2-FTS		471	67	33	ng/l	EPA 1633
8:2-FTS		80.7	67	34	ng/l	EPA 1633
FC19997-3	**BH-MW4-241030**					
Perfluorobutanoic acid		279	9.1	4.5	ng/l	EPA 1633
Perfluoropentanoic acid		688	4.5	1.1	ng/l	EPA 1633
Perfluorohexanoic acid		859	23	5.7	ng/l	EPA 1633
Perfluoroheptanoic acid		265	2.3	0.57	ng/l	EPA 1633
Perfluorooctanoic acid		218	2.3	0.57	ng/l	EPA 1633
Perfluorononanoic acid		260	2.3	0.69	ng/l	EPA 1633
Perfluorobutanesulfonic acid		572	2.3	1.1	ng/l	EPA 1633
Perfluoropentanesulfonic acid		396	2.3	1.3	ng/l	EPA 1633
Perfluorohexanesulfonic acid		630	23	11	ng/l	EPA 1633
Perfluoroheptanesulfonic acid		10.3	2.3	1.1	ng/l	EPA 1633
Perfluorooctanesulfonic acid		12.2	2.3	1.1	ng/l	EPA 1633
4:2-FTS		8.9 J	9.1	4.5	ng/l	EPA 1633
6:2-FTS		201	9.1	4.5	ng/l	EPA 1633

Summary of Hits

Job Number: FC19997
Account: GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA
Collected: 10/28/24 thru 10/30/24

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
FC19997-4	**BH-DUP1-241030W**					
Perfluorobutanoic acid		208	67	33	ng/l	EPA 1633
Perfluoropentanoic acid		496	33	8.3	ng/l	EPA 1633
Perfluorohexanoic acid		503	17	4.2	ng/l	EPA 1633
Perfluoroheptanoic acid		248	17	4.2	ng/l	EPA 1633
Perfluorooctanoic acid		277	17	4.2	ng/l	EPA 1633
Perfluorononanoic acid		2020	17	5.1	ng/l	EPA 1633
Perfluorodecanoic acid		20.6	17	4.2	ng/l	EPA 1633
Perfluoroundecanoic acid		14.2 J	17	5.0	ng/l	EPA 1633
Perfluorobutanesulfonic acid		334	17	8.3	ng/l	EPA 1633
Perfluoropentanesulfonic acid		430	17	9.3	ng/l	EPA 1633
Perfluorohexanesulfonic acid		2090	17	8.3	ng/l	EPA 1633
Perfluoroheptanesulfonic acid		202	17	8.3	ng/l	EPA 1633
Perfluorooctanesulfonic acid		4130	17	8.3	ng/l	EPA 1633
6:2-FTS		417	67	33	ng/l	EPA 1633
8:2-FTS		67.4	67	34	ng/l	EPA 1633
FC19997-5	**FB-1-241028**					
No hits reported in this sample.						
FC19997-6	**FB-2-241028**					
No hits reported in this sample.						
FC19997-7	**FB-3-241029**					
No hits reported in this sample.						
FC19997-8	**FB-4-241030**					
No hits reported in this sample.						

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: BH-MW1-241030
Lab Sample ID: FC19997-1 **Date Sampled:** 10/30/24
Matrix: AQ - Ground Water **Date Received:** 10/31/24
Method: EPA 1633 EPA 1633 **Percent Solids:** n/a
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	9Q2658.D	1	12/08/24 19:31	MB	11/19/24 06:45	OP6523	S9Q40
Run #2							

	Initial Volume	Final Volume
Run #1	305 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	12.1	13	6.6	ng/l	J
2706-90-3	Perfluoropentanoic acid	13.0	6.6	1.6	ng/l	
307-24-4	Perfluorohexanoic acid	8.0	3.3	0.82	ng/l	
375-85-9	Perfluoroheptanoic acid	3.8	3.3	0.82	ng/l	
335-67-1	Perfluorooctanoic acid	2.0	3.3	0.82	ng/l	J
375-95-1	Perfluorononanoic acid	5.2	3.3	1.0	ng/l	
335-76-2	Perfluorodecanoic acid	ND	3.3	0.82	ng/l	
2058-94-8	Perfluoroundecanoic acid	ND	3.3	0.98	ng/l	
307-55-1	Perfluorododecanoic acid	ND	3.3	0.98	ng/l	
72629-94-8	Perfluorotridecanoic acid	ND	3.3	1.4	ng/l	
376-06-7	Perfluorotetradecanoic acid	ND	3.3	0.82	ng/l	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	2.5	3.3	1.6	ng/l	J
2706-91-4	Perfluoropentanesulfonic acid	ND	3.3	1.8	ng/l	
355-46-4	Perfluorohexanesulfonic acid	2.1	3.3	1.6	ng/l	J
375-92-8	Perfluoroheptanesulfonic acid	ND	3.3	1.6	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	3.3	1.6	ng/l	
68259-12-1	Perfluorononanesulfonic acid	ND	3.3	1.6	ng/l	
335-77-3	Perfluorodecanesulfonic acid	ND	3.3	1.6	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	3.3	1.9	ng/l	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	13	6.6	ng/l	
27619-97-2	6:2-FTS	ND	13	6.6	ng/l	
39108-34-4	8:2-FTS	ND	13	6.7	ng/l	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	3.3	1.6	ng/l	
31506-32-8	MeFOSA	ND	6.6	1.6	ng/l	
4151-50-2	EtFOSA	ND	6.6	1.6	ng/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-MW1-241030		
Lab Sample ID:	FC19997-1	**Date Sampled:**	10/30/24
Matrix:	AQ - Ground Water	**Date Received:**	10/31/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	3.3	1.6	ng/l	
2991-50-6	EtFOSAA	ND	3.3	2.2	ng/l	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	33	16	ng/l	
1691-99-2	EtFOSE	ND	33	16	ng/l	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	6.6	1.6	ng/l	
919005-14-4	ADONA	ND	13	3.3	ng/l	
377-73-1	PFMPA	ND	6.6	1.6	ng/l	
863090-89-5	PFMBA	ND	6.6	1.9	ng/l	
151772-58-6	NFDHA	ND	6.6	2.0	ng/l	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	13	3.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	13	3.3	ng/l	
113507-82-7	PFEESA	ND	6.6	1.6	ng/l	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	16	8.2	ng/l	
914637-49-3	5:3-FTCA	ND	82	16	ng/l	
812-70-4	7:3-FTCA	ND	82	16	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	94%		10-130%
	13C5-PFPeA	110%		40-130%
	13C5-PFHxA	112%		40-130%
	13C4-PFHpA	111%		40-130%
	13C8-PFOA	109%		40-130%
	13C9-PFNA	100%		40-130%
	13C6-PFDA	95%		40-130%
	13C7-PFUnDA	87%		30-130%
	13C2-PFDoDA	69%		10-130%
	13C2-PFTeDA	57%		10-130%
	13C3-PFBS	106%		40-135%
	13C3-PFHxS	112%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-MW1-241030
Lab Sample ID: FC19997-1 **Date Sampled:** 10/30/24
Matrix: AQ - Ground Water **Date Received:** 10/31/24
Method: EPA 1633 EPA 1633 **Percent Solids:** n/a
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	90%		40-130%
	13C8-FOSA	86%		40-130%
	d3-MeFOSA	53%		10-130%
	d5-EtFOSA	47%		10-130%
	d3-MeFOSAA	84%		40-170%
	d5-EtFOSAA	75%		25-135%
	d7-MeFOSE	49%		10-130%
	d9-EtFOSE	47%		10-130%
	13C2-4:2FTS	117%		40-200%
	13C2-6:2FTS	142%		40-200%
	13C2-8:2FTS	131%		40-300%
	13C3-HFPO-DA	108%		40-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-MW2-241030
Lab Sample ID: FC19997-2 **Date Sampled:** 10/30/24
Matrix: AQ - Ground Water **Date Received:** 10/31/24
Method: EPA 1633 EPA 1633 **Percent Solids:** n/a
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	9Q2660.D	1	12/08/24 20:00	MB	11/19/24 06:45	OP6523	S9Q40
Run #2							

	Initial Volume	Final Volume
Run #1	60.0 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	226	67	33	ng/l	
2706-90-3	Perfluoropentanoic acid	544	33	8.3	ng/l	
307-24-4	Perfluorohexanoic acid	553	17	4.2	ng/l	
375-85-9	Perfluoroheptanoic acid	268	17	4.2	ng/l	
335-67-1	Perfluorooctanoic acid	290	17	4.2	ng/l	
375-95-1	Perfluorononanoic acid	2280	17	5.1	ng/l	
335-76-2	Perfluorodecanoic acid	21.1	17	4.2	ng/l	
2058-94-8	Perfluoroundecanoic acid	18.8	17	5.0	ng/l	
307-55-1	Perfluorododecanoic acid	ND	17	5.0	ng/l	
72629-94-8	Perfluorotridecanoic acid	ND	17	7.0	ng/l	
376-06-7	Perfluorotetradecanoic acid	ND	17	4.2	ng/l	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	353	17	8.3	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	474	17	9.3	ng/l	
355-46-4	Perfluorohexanesulfonic acid	2310	17	8.3	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	211	17	8.3	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	4510	17	8.3	ng/l	
68259-12-1	Perfluorononanesulfonic acid	ND	17	8.3	ng/l	
335-77-3	Perfluorodecanesulfonic acid	ND	17	8.3	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	17	9.5	ng/l	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	67	33	ng/l	
27619-97-2	6:2-FTS	471	67	33	ng/l	
39108-34-4	8:2-FTS	80.7	67	34	ng/l	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	17	8.3	ng/l	
31506-32-8	MeFOSA	ND	33	8.3	ng/l	
4151-50-2	EtFOSA	ND	33	8.3	ng/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-MW2-241030		
Lab Sample ID:	FC19997-2	**Date Sampled:**	10/30/24
Matrix:	AQ - Ground Water	**Date Received:**	10/31/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	17	8.3	ng/l	
2991-50-6	EtFOSAA	ND	17	11	ng/l	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	170	83	ng/l	
1691-99-2	EtFOSE	ND	170	83	ng/l	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	33	8.3	ng/l	
919005-14-4	ADONA	ND	67	17	ng/l	
377-73-1	PFMPA	ND	33	8.3	ng/l	
863090-89-5	PFMBA	ND	33	9.5	ng/l	
151772-58-6	NFDHA	ND	33	10	ng/l	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	67	17	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	67	17	ng/l	
113507-82-7	PFEESA	ND	33	8.3	ng/l	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	83	42	ng/l	
914637-49-3	5:3-FTCA	ND	420	83	ng/l	
812-70-4	7:3-FTCA	ND	420	83	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	100%		10-130%
	13C5-PFPeA	104%		40-130%
	13C5-PFHxA	105%		40-130%
	13C4-PFHpA	103%		40-130%
	13C8-PFOA	106%		40-130%
	13C9-PFNA	92%		40-130%
	13C6-PFDA	93%		40-130%
	13C7-PFUnDA	89%		30-130%
	13C2-PFDoDA	92%		10-130%
	13C2-PFTeDA	97%		10-130%
	13C3-PFBS	101%		40-135%
	13C3-PFHxS	98%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-MW2-241030
Lab Sample ID: FC19997-2 **Date Sampled:** 10/30/24
Matrix: AQ - Ground Water **Date Received:** 10/31/24
Method: EPA 1633 EPA 1633 **Percent Solids:** n/a
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	88%		40-130%
	13C8-FOSA	80%		40-130%
	d3-MeFOSA	71%		10-130%
	d5-EtFOSA	74%		10-130%
	d3-MeFOSAA	93%		40-170%
	d5-EtFOSAA	96%		25-135%
	d7-MeFOSE	73%		10-130%
	d9-EtFOSE	73%		10-130%
	13C2-4:2FTS	130%		40-200%
	13C2-6:2FTS	150%		40-200%
	13C2-8:2FTS	149%		40-300%
	13C3-HFPO-DA	105%		40-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-MW4-241030
Lab Sample ID: FC19997-3 **Date Sampled:** 10/30/24
Matrix: AQ - Ground Water **Date Received:** 10/31/24
Method: EPA 1633 EPA 1633 **Percent Solids:** n/a
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	9Q2662.D	1	12/08/24 20:29	MB	11/19/24 06:45	OP6523	S9Q40
Run #2	9Q2663.D	10	12/08/24 20:44	MB	11/19/24 06:45	OP6523	S9Q40

	Initial Volume	Final Volume
Run #1	440 ml	5.0 ml
Run #2	440 ml	5.0 ml

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	279	9.1	4.5	ng/l	
2706-90-3	Perfluoropentanoic acid	688	4.5	1.1	ng/l	
307-24-4	Perfluorohexanoic acid	859 [a]	23	5.7	ng/l	
375-85-9	Perfluoroheptanoic acid	265	2.3	0.57	ng/l	
335-67-1	Perfluorooctanoic acid	218	2.3	0.57	ng/l	
375-95-1	Perfluorononanoic acid	260	2.3	0.69	ng/l	
335-76-2	Perfluorodecanoic acid	ND	2.3	0.57	ng/l	
2058-94-8	Perfluoroundecanoic acid	ND	2.3	0.68	ng/l	
307-55-1	Perfluorododecanoic acid	ND	2.3	0.68	ng/l	
72629-94-8	Perfluorotridecanoic acid	ND	2.3	0.95	ng/l	
376-06-7	Perfluorotetradecanoic acid	ND	2.3	0.57	ng/l	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	572	2.3	1.1	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	396	2.3	1.3	ng/l	
355-46-4	Perfluorohexanesulfonic acid	630 [a]	23	11	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	10.3	2.3	1.1	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	12.2	2.3	1.1	ng/l	
68259-12-1	Perfluorononanesulfonic acid	ND	2.3	1.1	ng/l	
335-77-3	Perfluorodecanesulfonic acid	ND	2.3	1.1	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	2.3	1.3	ng/l	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	8.9	9.1	4.5	ng/l	J
27619-97-2	6:2-FTS	201	9.1	4.5	ng/l	
39108-34-4	8:2-FTS	ND	9.1	4.7	ng/l	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	2.3	1.1	ng/l	
31506-32-8	MeFOSA	ND	4.5	1.1	ng/l	
4151-50-2	EtFOSA	ND	4.5	1.1	ng/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-MW4-241030		
Lab Sample ID:	FC19997-3	**Date Sampled:**	10/30/24
Matrix:	AQ - Ground Water	**Date Received:**	10/31/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	2.3	1.1	ng/l	
2991-50-6	EtFOSAA	ND	2.3	1.5	ng/l	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	23	11	ng/l	
1691-99-2	EtFOSE	ND	23	11	ng/l	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	4.5	1.1	ng/l	
919005-14-4	ADONA	ND	9.1	2.3	ng/l	
377-73-1	PFMPA	ND	4.5	1.1	ng/l	
863090-89-5	PFMBA	ND	4.5	1.3	ng/l	
151772-58-6	NFDHA	ND	4.5	1.4	ng/l	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	9.1	2.3	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	9.1	2.3	ng/l	
113507-82-7	PFEESA	ND	4.5	1.1	ng/l	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	11	5.7	ng/l	
914637-49-3	5:3-FTCA	ND	57	11	ng/l	
812-70-4	7:3-FTCA	ND	57	11	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	81%	81%	10-130%
	13C5-PFPeA	105%	97%	40-130%
	13C5-PFHxA	104%	92%	40-130%
	13C4-PFHpA	105%	97%	40-130%
	13C8-PFOA	108%	106%	40-130%
	13C9-PFNA	99%	101%	40-130%
	13C6-PFDA	88%	87%	40-130%
	13C7-PFUnDA	78%	79%	30-130%
	13C2-PFDoDA	71%	72%	10-130%
	13C2-PFTeDA	65%	63%	10-130%
	13C3-PFBS	96%	88%	40-135%
	13C3-PFHxS	100%	98%	40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-MW4-241030
Lab Sample ID: FC19997-3 **Date Sampled:** 10/30/24
Matrix: AQ - Ground Water **Date Received:** 10/31/24
Method: EPA 1633 EPA 1633 **Percent Solids:** n/a
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	94%	110%	40-130%
	13C8-FOSA	83%	85%	40-130%
	d3-MeFOSA	54%	55%	10-130%
	d5-EtFOSA	54%	60%	10-130%
	d3-MeFOSAA	88%	87%	40-170%
	d5-EtFOSAA	80%	88%	25-135%
	d7-MeFOSE	56%	58%	10-130%
	d9-EtFOSE	52%	53%	10-130%
	13C2-4:2FTS	142%	126%	40-200%
	13C2-6:2FTS	173%	151%	40-200%
	13C2-8:2FTS	141%	137%	40-300%
	13C3-HFPO-DA	109%	100%	40-130%

(a) Result is from Run# 2

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-DUP1-241030W
Lab Sample ID: FC19997-4 **Date Sampled:** 10/30/24
Matrix: AQ - Ground Water **Date Received:** 10/31/24
Method: EPA 1633 EPA 1633 **Percent Solids:** n/a
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	9Q2666.D	1	12/08/24 21:28	MB	11/19/24 06:45	OP6523	S9Q40
Run #2							

	Initial Volume	Final Volume
Run #1	60.0 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	208	67	33	ng/l	
2706-90-3	Perfluoropentanoic acid	496	33	8.3	ng/l	
307-24-4	Perfluorohexanoic acid	503	17	4.2	ng/l	
375-85-9	Perfluoroheptanoic acid	248	17	4.2	ng/l	
335-67-1	Perfluorooctanoic acid	277	17	4.2	ng/l	
375-95-1	Perfluorononanoic acid	2020	17	5.1	ng/l	
335-76-2	Perfluorodecanoic acid	20.6	17	4.2	ng/l	
2058-94-8	Perfluoroundecanoic acid	14.2	17	5.0	ng/l	J
307-55-1	Perfluorododecanoic acid	ND	17	5.0	ng/l	
72629-94-8	Perfluorotridecanoic acid	ND	17	7.0	ng/l	
376-06-7	Perfluorotetradecanoic acid	ND	17	4.2	ng/l	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	334	17	8.3	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	430	17	9.3	ng/l	
355-46-4	Perfluorohexanesulfonic acid	2090	17	8.3	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	202	17	8.3	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	4130	17	8.3	ng/l	
68259-12-1	Perfluorononanesulfonic acid	ND	17	8.3	ng/l	
335-77-3	Perfluorodecanesulfonic acid	ND	17	8.3	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	17	9.5	ng/l	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	67	33	ng/l	
27619-97-2	6:2-FTS	417	67	33	ng/l	
39108-34-4	8:2-FTS	67.4	67	34	ng/l	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	17	8.3	ng/l	
31506-32-8	MeFOSA	ND	33	8.3	ng/l	
4151-50-2	EtFOSA	ND	33	8.3	ng/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
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E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	BH-DUP1-241030W		
Lab Sample ID:	FC19997-4	**Date Sampled:**	10/30/24
Matrix:	AQ - Ground Water	**Date Received:**	10/31/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	17	8.3	ng/l	
2991-50-6	EtFOSAA	ND	17	11	ng/l	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	170	83	ng/l	
1691-99-2	EtFOSE	ND	170	83	ng/l	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	33	8.3	ng/l	
919005-14-4	ADONA	ND	67	17	ng/l	
377-73-1	PFMPA	ND	33	8.3	ng/l	
863090-89-5	PFMBA	ND	33	9.5	ng/l	
151772-58-6	NFDHA	ND	33	10	ng/l	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	67	17	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	67	17	ng/l	
113507-82-7	PFEESA	ND	33	8.3	ng/l	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	83	42	ng/l	
914637-49-3	5:3-FTCA	ND	420	83	ng/l	
812-70-4	7:3-FTCA	ND	420	83	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	99%		10-130%
	13C5-PFPeA	101%		40-130%
	13C5-PFHxA	102%		40-130%
	13C4-PFHpA	96%		40-130%
	13C8-PFOA	94%		40-130%
	13C9-PFNA	85%		40-130%
	13C6-PFDA	78%		40-130%
	13C7-PFUnDA	81%		30-130%
	13C2-PFDoDA	77%		10-130%
	13C2-PFTeDA	75%		10-130%
	13C3-PFBS	100%		40-135%
	13C3-PFHxS	97%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: BH-DUP1-241030W
Lab Sample ID: FC19997-4 **Date Sampled:** 10/30/24
Matrix: AQ - Ground Water **Date Received:** 10/31/24
Method: EPA 1633 EPA 1633 **Percent Solids:** n/a
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	80%		40-130%
	13C8-FOSA	64%		40-130%
	d3-MeFOSA	55%		10-130%
	d5-EtFOSA	58%		10-130%
	d3-MeFOSAA	82%		40-170%
	d5-EtFOSAA	85%		25-135%
	d7-MeFOSE	56%		10-130%
	d9-EtFOSE	54%		10-130%
	13C2-4:2FTS	107%		40-200%
	13C2-6:2FTS	139%		40-200%
	13C2-8:2FTS	120%		40-300%
	13C3-HFPO-DA	98%		40-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: FB-1-241028
Lab Sample ID: FC19997-5 **Date Sampled:** 10/28/24
Matrix: AQ - Field Blank Water **Date Received:** 10/31/24
Method: EPA 1633 EPA 1633 **Percent Solids:** n/a
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	9Q2668.D	1	12/08/24 21:58	MB	11/19/24 06:45	OP6523	S9Q40
Run #2							

	Initial Volume	Final Volume
Run #1	565 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	7.1	3.5	ng/l	
2706-90-3	Perfluoropentanoic acid	ND	3.5	0.88	ng/l	
307-24-4	Perfluorohexanoic acid	ND	1.8	0.44	ng/l	
375-85-9	Perfluoroheptanoic acid	ND	1.8	0.44	ng/l	
335-67-1	Perfluorooctanoic acid	ND	1.8	0.44	ng/l	
375-95-1	Perfluorononanoic acid	ND	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	ND	1.8	0.44	ng/l	
2058-94-8	Perfluoroundecanoic acid	ND	1.8	0.53	ng/l	
307-55-1	Perfluorododecanoic acid	ND	1.8	0.53	ng/l	
72629-94-8	Perfluorotridecanoic acid	ND	1.8	0.74	ng/l	
376-06-7	Perfluorotetradecanoic acid	ND	1.8	0.44	ng/l	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	ND	1.8	0.88	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.8	0.99	ng/l	
355-46-4	Perfluorohexanesulfonic acid	ND	1.8	0.88	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.8	0.88	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.8	0.88	ng/l	
68259-12-1	Perfluorononanesulfonic acid	ND	1.8	0.88	ng/l	
335-77-3	Perfluorodecanesulfonic acid	ND	1.8	0.88	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	1.8	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	7.1	3.5	ng/l	
27619-97-2	6:2-FTS	ND	7.1	3.5	ng/l	
39108-34-4	8:2-FTS	ND	7.1	3.6	ng/l	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	1.8	0.88	ng/l	
31506-32-8	MeFOSA	ND	3.5	0.88	ng/l	
4151-50-2	EtFOSA	ND	3.5	0.88	ng/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	FB-1-241028		
Lab Sample ID:	FC19997-5	**Date Sampled:**	10/28/24
Matrix:	AQ - Field Blank Water	**Date Received:**	10/31/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	1.8	0.88	ng/l	
2991-50-6	EtFOSAA	ND	1.8	1.2	ng/l	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	18	8.8	ng/l	
1691-99-2	EtFOSE	ND	18	8.8	ng/l	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	3.5	0.88	ng/l	
919005-14-4	ADONA	ND	7.1	1.8	ng/l	
377-73-1	PFMPA	ND	3.5	0.88	ng/l	
863090-89-5	PFMBA	ND	3.5	1.0	ng/l	
151772-58-6	NFDHA	ND	3.5	1.1	ng/l	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	7.1	1.8	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	7.1	1.8	ng/l	
113507-82-7	PFEESA	ND	3.5	0.88	ng/l	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	8.8	4.4	ng/l	
914637-49-3	5:3-FTCA	ND	44	8.8	ng/l	
812-70-4	7:3-FTCA	ND	44	8.8	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	98%		10-130%
	13C5-PFPeA	102%		40-130%
	13C5-PFHxA	101%		40-130%
	13C4-PFHpA	98%		40-130%
	13C8-PFOA	102%		40-130%
	13C9-PFNA	92%		40-130%
	13C6-PFDA	101%		40-130%
	13C7-PFUnDA	99%		30-130%
	13C2-PFDoDA	85%		10-130%
	13C2-PFTeDA	71%		10-130%
	13C3-PFBS	86%		40-135%
	13C3-PFHxS	91%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: FB-1-241028
Lab Sample ID: FC19997-5 **Date Sampled:** 10/28/24
Matrix: AQ - Field Blank Water **Date Received:** 10/31/24
Method: EPA 1633 EPA 1633 **Percent Solids:** n/a
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	90%		40-130%
	13C8-FOSA	87%		40-130%
	d3-MeFOSA	53%		10-130%
	d5-EtFOSA	51%		10-130%
	d3-MeFOSAA	101%		40-170%
	d5-EtFOSAA	97%		25-135%
	d7-MeFOSE	53%		10-130%
	d9-EtFOSE	50%		10-130%
	13C2-4:2FTS	118%		40-200%
	13C2-6:2FTS	138%		40-200%
	13C2-8:2FTS	128%		40-300%
	13C3-HFPO-DA	102%		40-130%

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: FB-2-241028
Lab Sample ID: FC19997-6 **Date Sampled:** 10/28/24
Matrix: AQ - Field Blank Water **Date Received:** 10/31/24
Method: EPA 1633 EPA 1633 **Percent Solids:** n/a
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	9Q2669.D	1	12/08/24 22:13	MB	11/19/24 06:45	OP6523	S9Q40
Run #2							

	Initial Volume	Final Volume
Run #1	570 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	7.0	3.5	ng/l	
2706-90-3	Perfluoropentanoic acid	ND	3.5	0.88	ng/l	
307-24-4	Perfluorohexanoic acid	ND	1.8	0.44	ng/l	
375-85-9	Perfluoroheptanoic acid	ND	1.8	0.44	ng/l	
335-67-1	Perfluorooctanoic acid	ND	1.8	0.44	ng/l	
375-95-1	Perfluorononanoic acid	ND	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	ND	1.8	0.44	ng/l	
2058-94-8	Perfluoroundecanoic acid	ND	1.8	0.53	ng/l	
307-55-1	Perfluorododecanoic acid	ND	1.8	0.53	ng/l	
72629-94-8	Perfluorotridecanoic acid	ND	1.8	0.74	ng/l	
376-06-7	Perfluorotetradecanoic acid	ND	1.8	0.44	ng/l	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	ND	1.8	0.88	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.8	0.98	ng/l	
355-46-4	Perfluorohexanesulfonic acid	ND	1.8	0.88	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.8	0.88	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.8	0.88	ng/l	
68259-12-1	Perfluorononanesulfonic acid	ND	1.8	0.88	ng/l	
335-77-3	Perfluorodecanesulfonic acid	ND	1.8	0.88	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	1.8	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	7.0	3.5	ng/l	
27619-97-2	6:2-FTS	ND	7.0	3.5	ng/l	
39108-34-4	8:2-FTS	ND	7.0	3.6	ng/l	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	1.8	0.88	ng/l	
31506-32-8	MeFOSA	ND	3.5	0.88	ng/l	
4151-50-2	EtFOSA	ND	3.5	0.88	ng/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	FB-2-241028		
Lab Sample ID:	FC19997-6	**Date Sampled:**	10/28/24
Matrix:	AQ - Field Blank Water	**Date Received:**	10/31/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	1.8	0.88	ng/l	
2991-50-6	EtFOSAA	ND	1.8	1.2	ng/l	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	18	8.8	ng/l	
1691-99-2	EtFOSE	ND	18	8.8	ng/l	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	3.5	0.88	ng/l	
919005-14-4	ADONA	ND	7.0	1.8	ng/l	
377-73-1	PFMPA	ND	3.5	0.88	ng/l	
863090-89-5	PFMBA	ND	3.5	1.0	ng/l	
151772-58-6	NFDHA	ND	3.5	1.1	ng/l	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	7.0	1.8	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	7.0	1.8	ng/l	
113507-82-7	PFEESA	ND	3.5	0.88	ng/l	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	8.8	4.4	ng/l	
914637-49-3	5:3-FTCA	ND	44	8.8	ng/l	
812-70-4	7:3-FTCA	ND	44	8.8	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	100%		10-130%
	13C5-PFPeA	105%		40-130%
	13C5-PFHxA	106%		40-130%
	13C4-PFHpA	102%		40-130%
	13C8-PFOA	104%		40-130%
	13C9-PFNA	95%		40-130%
	13C6-PFDA	106%		40-130%
	13C7-PFUnDA	113%		30-130%
	13C2-PFDoDA	105%		10-130%
	13C2-PFTeDA	89%		10-130%
	13C3-PFBS	102%		40-135%
	13C3-PFHxS	104%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: FB-2-241028
Lab Sample ID: FC19997-6
Matrix: AQ - Field Blank Water
Method: EPA 1633 EPA 1633
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Date Sampled: 10/28/24
Date Received: 10/31/24
Percent Solids: n/a

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	104%		40-130%
	13C8-FOSA	80%		40-130%
	d3-MeFOSA	62%		10-130%
	d5-EtFOSA	62%		10-130%
	d3-MeFOSAA	108%		40-170%
	d5-EtFOSAA	109%		25-135%
	d7-MeFOSE	61%		10-130%
	d9-EtFOSE	58%		10-130%
	13C2-4:2FTS	143%		40-200%
	13C2-6:2FTS	152%		40-200%
	13C2-8:2FTS	158%		40-300%
	13C3-HFPO-DA	102%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: FB-3-241029
Lab Sample ID: FC19997-7 **Date Sampled:** 10/29/24
Matrix: AQ - Field Blank Water **Date Received:** 10/31/24
Method: EPA 1633 EPA 1633 **Percent Solids:** n/a
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	9Q2670.D	1	12/08/24 22:27	MB	11/19/24 06:45	OP6523	S9Q40
Run #2							

	Initial Volume	Final Volume
Run #1	560 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	7.1	3.6	ng/l	
2706-90-3	Perfluoropentanoic acid	ND	3.6	0.89	ng/l	
307-24-4	Perfluorohexanoic acid	ND	1.8	0.45	ng/l	
375-85-9	Perfluoroheptanoic acid	ND	1.8	0.45	ng/l	
335-67-1	Perfluorooctanoic acid	ND	1.8	0.45	ng/l	
375-95-1	Perfluorononanoic acid	ND	1.8	0.54	ng/l	
335-76-2	Perfluorodecanoic acid	ND	1.8	0.45	ng/l	
2058-94-8	Perfluoroundecanoic acid	ND	1.8	0.54	ng/l	
307-55-1	Perfluorododecanoic acid	ND	1.8	0.54	ng/l	
72629-94-8	Perfluorotridecanoic acid	ND	1.8	0.75	ng/l	
376-06-7	Perfluorotetradecanoic acid	ND	1.8	0.45	ng/l	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	ND	1.8	0.89	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.8	1.0	ng/l	
355-46-4	Perfluorohexanesulfonic acid	ND	1.8	0.89	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.8	0.89	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.8	0.89	ng/l	
68259-12-1	Perfluorononanesulfonic acid	ND	1.8	0.89	ng/l	
335-77-3	Perfluorodecanesulfonic acid	ND	1.8	0.89	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	1.8	1.0	ng/l	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	7.1	3.6	ng/l	
27619-97-2	6:2-FTS	ND	7.1	3.6	ng/l	
39108-34-4	8:2-FTS	ND	7.1	3.7	ng/l	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	1.8	0.89	ng/l	
31506-32-8	MeFOSA	ND	3.6	0.89	ng/l	
4151-50-2	EtFOSA	ND	3.6	0.89	ng/l	

ND = Not detected MDL = Method Detection Limit J = Indicates an estimated value
RL = Reporting Limit B = Indicates analyte found in associated method blank
E = Indicates value exceeds calibration range N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	FB-3-241029		
Lab Sample ID:	FC19997-7	**Date Sampled:**	10/29/24
Matrix:	AQ - Field Blank Water	**Date Received:**	10/31/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	1.8	0.89	ng/l	
2991-50-6	EtFOSAA	ND	1.8	1.2	ng/l	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	18	8.9	ng/l	
1691-99-2	EtFOSE	ND	18	8.9	ng/l	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	3.6	0.89	ng/l	
919005-14-4	ADONA	ND	7.1	1.8	ng/l	
377-73-1	PFMPA	ND	3.6	0.89	ng/l	
863090-89-5	PFMBA	ND	3.6	1.0	ng/l	
151772-58-6	NFDHA	ND	3.6	1.1	ng/l	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	7.1	1.8	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	7.1	1.8	ng/l	
113507-82-7	PFEESA	ND	3.6	0.89	ng/l	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	8.9	4.5	ng/l	
914637-49-3	5:3-FTCA	ND	45	8.9	ng/l	
812-70-4	7:3-FTCA	ND	45	8.9	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	101%		10-130%
	13C5-PFPeA	103%		40-130%
	13C5-PFHxA	104%		40-130%
	13C4-PFHpA	100%		40-130%
	13C8-PFOA	101%		40-130%
	13C9-PFNA	93%		40-130%
	13C6-PFDA	102%		40-130%
	13C7-PFUnDA	105%		30-130%
	13C2-PFDoDA	103%		10-130%
	13C2-PFTeDA	96%		10-130%
	13C3-PFBS	98%		40-135%
	13C3-PFHxS	99%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: FB-3-241029
Lab Sample ID: FC19997-7 **Date Sampled:** 10/29/24
Matrix: AQ - Field Blank Water **Date Received:** 10/31/24
Method: EPA 1633 EPA 1633 **Percent Solids:** n/a
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	103%		40-130%
	13C8-FOSA	87%		40-130%
	d3-MeFOSA	72%		10-130%
	d5-EtFOSA	76%		10-130%
	d3-MeFOSAA	111%		40-170%
	d5-EtFOSAA	114%		25-135%
	d7-MeFOSE	76%		10-130%
	d9-EtFOSE	75%		10-130%
	13C2-4:2FTS	121%		40-200%
	13C2-6:2FTS	149%		40-200%
	13C2-8:2FTS	161%		40-300%
	13C3-HFPO-DA	100%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	FB-4-241030		
Lab Sample ID:	FC19997-8	**Date Sampled:**	10/30/24
Matrix:	AQ - Field Blank Water	**Date Received:**	10/31/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	9Q2671.D	1	12/08/24 22:42	MB	11/19/24 06:45	OP6523	S9Q40
Run #2							

	Initial Volume	Final Volume
Run #1	585 ml	5.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROALKYL CARBOXYLIC ACIDS						
375-22-4	Perfluorobutanoic acid	ND	6.8	3.4	ng/l	
2706-90-3	Perfluoropentanoic acid	ND	3.4	0.85	ng/l	
307-24-4	Perfluorohexanoic acid	ND	1.7	0.43	ng/l	
375-85-9	Perfluoroheptanoic acid	ND	1.7	0.43	ng/l	
335-67-1	Perfluorooctanoic acid	ND	1.7	0.43	ng/l	
375-95-1	Perfluorononanoic acid	ND	1.7	0.52	ng/l	
335-76-2	Perfluorodecanoic acid	ND	1.7	0.43	ng/l	
2058-94-8	Perfluoroundecanoic acid	ND	1.7	0.51	ng/l	
307-55-1	Perfluorododecanoic acid	ND	1.7	0.51	ng/l	
72629-94-8	Perfluorotridecanoic acid	ND	1.7	0.72	ng/l	
376-06-7	Perfluorotetradecanoic acid	ND	1.7	0.43	ng/l	
PERFLUOROALKYL SULFONIC ACIDS						
375-73-5	Perfluorobutanesulfonic acid	ND	1.7	0.85	ng/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	1.7	0.96	ng/l	
355-46-4	Perfluorohexanesulfonic acid	ND	1.7	0.85	ng/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	1.7	0.85	ng/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	1.7	0.85	ng/l	
68259-12-1	Perfluorononanesulfonic acid	ND	1.7	0.85	ng/l	
335-77-3	Perfluorodecanesulfonic acid	ND	1.7	0.85	ng/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	1.7	0.97	ng/l	
FLUOROTELOMER SULFONIC ACIDS						
757124-72-4	4:2-FTS	ND	6.8	3.4	ng/l	
27619-97-2	6:2-FTS	ND	6.8	3.4	ng/l	
39108-34-4	8:2-FTS	ND	6.8	3.5	ng/l	
PERFLUOROOCTANE SULFONAMIDES						
754-91-6	PFOSA	ND	1.7	0.85	ng/l	
31506-32-8	MeFOSA	ND	3.4	0.85	ng/l	
4151-50-2	EtFOSA	ND	3.4	0.85	ng/l	

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	FB-4-241030		
Lab Sample ID:	FC19997-8	**Date Sampled:**	10/30/24
Matrix:	AQ - Field Blank Water	**Date Received:**	10/31/24
Method:	EPA 1633 EPA 1633	**Percent Solids:**	n/a
Project:	WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA		

CAS No.	Compound	Result	RL	MDL	Units	Q
PERFLUOROOCTANE SULFONAMIDOACETIC ACIDS						
2355-31-9	MeFOSAA	ND	1.7	0.85	ng/l	
2991-50-6	EtFOSAA	ND	1.7	1.1	ng/l	
PERFLUOROOCTANE SULFONAMIDO ETHANOLS						
24448-09-7	MeFOSE	ND	17	8.5	ng/l	
1691-99-2	EtFOSE	ND	17	8.5	ng/l	
PER and POLYFLUOROETHER CARBOXYLIC ACIDS						
13252-13-6	HFPO-DA (GenX)	ND	3.4	0.85	ng/l	
919005-14-4	ADONA	ND	6.8	1.7	ng/l	
377-73-1	PFMPA	ND	3.4	0.85	ng/l	
863090-89-5	PFMBA	ND	3.4	0.97	ng/l	
151772-58-6	NFDHA	ND	3.4	1.0	ng/l	
PER and POLYFLUOROETHER SULFONIC ACIDS						
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	6.8	1.7	ng/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	6.8	1.7	ng/l	
113507-82-7	PFEESA	ND	3.4	0.85	ng/l	
FLUOROTELOMER CARBOXYLIC ACIDS						
356-02-5	3:3-FTCA	ND	8.5	4.3	ng/l	
914637-49-3	5:3-FTCA	ND	43	8.5	ng/l	
812-70-4	7:3-FTCA	ND	43	8.5	ng/l	

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C4-PFBA	103%		10-130%
	13C5-PFPeA	109%		40-130%
	13C5-PFHxA	110%		40-130%
	13C4-PFHpA	106%		40-130%
	13C8-PFOA	107%		40-130%
	13C9-PFNA	100%		40-130%
	13C6-PFDA	106%		40-130%
	13C7-PFUnDA	112%		30-130%
	13C2-PFDoDA	102%		10-130%
	13C2-PFTeDA	89%		10-130%
	13C3-PFBS	100%		40-135%
	13C3-PFHxS	102%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: FB-4-241030
Lab Sample ID: FC19997-8
Matrix: AQ - Field Blank Water
Method: EPA 1633 EPA 1633
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Date Sampled: 10/30/24
Date Received: 10/31/24
Percent Solids: n/a

CAS No.	ID Standard Recoveries	Run# 1	Run# 2	Limits
	13C8-PFOS	98%		40-130%
	13C8-FOSA	82%		40-130%
	d3-MeFOSA	61%		10-130%
	d5-EtFOSA	62%		10-130%
	d3-MeFOSAA	110%		40-170%
	d5-EtFOSAA	108%		25-135%
	d7-MeFOSE	67%		10-130%
	d9-EtFOSE	60%		10-130%
	13C2-4:2FTS	115%		40-200%
	13C2-6:2FTS	151%		40-200%
	13C2-8:2FTS	164%		40-300%
	13C3-HFPO-DA	108%		40-130%

ND = Not detected MDL = Method Detection Limit
RL = Reporting Limit
E = Indicates value exceeds calibration range
J = Indicates an estimated value
B = Indicates analyte found in associated method blank
N = Indicates presumptive evidence of a compound

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SGS North America Inc - Orlando

Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, Fl 32811
TEL. 407-425-6700 FAX: 407-425-0707
www.sgs.com

SGS - ORLANDO JOB # : PAGE 1 OF 1

SGS - ORLANDO Quote # SKIFF FC19997

Client / Reporting Information

Company Name: GeoEngineers
Address: 2101 4th Ave Suite 950
City: Seattle State: WA Zip: 98121
Project Contact: Jacob Letts Email: JLetts@geoengineers.com
Phone #: (253)722-2419
Sampler(s) Name(s) (Printed) Sampler 1: KBA Sampler 2: SJB

Project Information

Project Name: Bailer Hill PFAS Project
Street 3189 Bailer Hill Rd
City Friday Harbor State WA
Project # 504-217-0074
Fax #
Client Purchase Order #

Analytical Information

SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION DATE	TIME	SAMPLED BY:	MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZnAc	DI WATER	MEOH	PFAS by EPA 1633	Possibly PFAS* HOT Sample
1	BH-MW1-241030	10/30/24	1000	KBA	GW	3		X								X	
2	BH-MW2-241030		1020		GW	3		X								X	X
3	BH-MW4-241030		1045		GW	3		X								X	X
4	BH-DUP1-241030W		1200		GW	3		X								X	X
5	FB-1-241028	10/28	1800		WW	3		X								X	
6	FB-2-241028	10/28	1810		WW	3		X								X	
7	FB-3-241029	10/29	1800		WW	3		X								X	
8	FB-4-241030	10/30	1200		WW	3		X								X	

Matrix Codes: DW - Drinking Water; GW - Ground Water; WW - Water; SW - Surface Water; SO - Soil; SL- Sludge; OI - Oil; LIQ - Other Liquid; AIR - Air; SOL - Other Solid

LAB USE ONLY

Turnaround Time (Business days)

10 Day (Business) Approved By: / Date:
7 Day
5 Day
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other
Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [ ] FULLT1 (EPA LEVEL 4)
- [x] EDD'S

Comments / Remarks

INITIAL ASSESSMENT TH
LABEL VERIFICATION TH

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1	Katy Ataktürk	10/30/24 1200	2 10/31/24 930	3		4
5	Relinquished by/Affiliation	Date Time:	6 Received By/Affiliation	7 Relinquished By/Affiliation	Date Time:	8 Received By/Affiliation

Lab Use Only: Cooler Temperature (s) Celsius (corrected): 2.8 FR#1

http://www.sgs.com/en/terms-and-conditions

ORLD-SMT-0001-03-FORM-COC (4).xls Rev 031318

FC19997: Chain of Custody
Page 1 of 2

SGS - Orlando Sample Receipt Summary

Job Number: fc19997 **Client:** GEOENGINEERS **Project:** BAILER HILL PFAS PROJECT

Date / Time Received: 10/31/2024 9:30:00 AM **Delivery Method:** FEDEX **Airbill #'s:** 791511177248

Cooler Temps (Raw Measured) °C: Cooler 1: (2.8);

Cooler Temps (Corrected) °C: Cooler 1: (2.6);

Cooler Information	Y	or	N
1. Custody Seals Present:	☑		☐
2. Custody Seals Intact:	☑		☐
3. Temp criteria achieved:	☑		☐
4. Cooler temp verification:	IR Gun		
5. Cooler media:	Ice (Bag)		

Trip Blank Information	Y	or	N	N/A
1. Trip Blank present / cooler:	☐		☐	☑
2. Trip Blank listed on COC:	☐		☐	☑

	W	or	S	N/A
3. Type of TB Received	☐		☐	☑

Sample Information	Y	or	N	N/A
1. Sample labels present on bottles:	☑		☐	
2. Samples presented properly	☑		☐	
3. Sufficient volume/containers recv'd for analysis	☑		☐	
4. Condition of sample:	Intact			
5. Sample recv'd within HT	☑		☐	
6. Dates/Times/IDs on COC match sample label	☑		☐	
7. VOCs have headspace	☐		☐	☑
8. Bottles received for unspecified tests	☐		☑	
9. Compositing instructions clear	☐		☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☑
11. % Solids Jar Received?	☐		☐	☑
12. Residual Chlorine Present?	☐		☐	☑

Misc Information

Number of Encores: 25 Gram 5 Gram

Number of Lab Filtered Metals:

Test Strip Lot #s: pH 0-3: 226422 pH 10-12: Other: (Specify) pH 1.0 - 12.0 222221

Residual Chlorine Test Strip Lot #

Comments

Sample Receipt Summary 112723 EK Technician: ZANEB Date: 10/31/2024 10:02:03 AM Reviewer: Date:

MS Semi-volatiles

6

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries

Method Blank Summary

Job Number: FC19997
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6523-MB	9Q2657.D	1	12/08/24	MB	11/19/24	OP6523	S9Q40

The QC reported here applies to the following samples: **Method:** EPA 1633

FC19997-1, FC19997-2, FC19997-3, FC19997-4, FC19997-5, FC19997-6, FC19997-7, FC19997-8

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.0080	0.0040	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0040	0.0010	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0020	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0020	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0020	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0020	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0020	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0020	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0020	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0020	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0020	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0020	0.0010	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0020	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0020	0.0010	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0020	0.0010	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0020	0.0010	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0020	0.0010	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0020	0.0010	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0020	0.0011	ug/l	
757124-72-4	4:2-FTS	ND	0.0080	0.0040	ug/l	
27619-97-2	6:2-FTS	ND	0.0080	0.0040	ug/l	
39108-34-4	8:2-FTS	ND	0.0080	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0020	0.0010	ug/l	
31506-32-8	MeFOSA	ND	0.0040	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0040	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0020	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0020	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.020	0.010	ug/l	
1691-99-2	EtFOSE	ND	0.020	0.010	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0020	ug/l	
377-73-1	PFMPA	ND	0.0040	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0040	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0040	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0020	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0020	ug/l	

Method Blank Summary

Job Number: FC19997
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6523-MB	9Q2657.D	1	12/08/24	MB	11/19/24	OP6523	S9Q40

The QC reported here applies to the following samples: **Method:** EPA 1633

FC19997-1, FC19997-2, FC19997-3, FC19997-4, FC19997-5, FC19997-6, FC19997-7, FC19997-8

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0040	0.0010	ug/l	
356-02-5	3:3-FTCA	ND	0.010	0.0050	ug/l	
914637-49-3	5:3-FTCA	ND	0.050	0.010	ug/l	
812-70-4	7:3-FTCA	ND	0.050	0.010	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	106%	10-130%
	13C5-PFPeA	111%	40-130%
	13C5-PFHxA	112%	40-130%
	13C4-PFHpA	108%	40-130%
	13C8-PFOA	111%	40-130%
	13C9-PFNA	105%	40-130%
	13C6-PFDA	108%	40-130%
	13C7-PFUnDA	115%	30-130%
	13C2-PFDoDA	104%	10-130%
	13C2-PFTeDA	98%	10-130%
	13C3-PFBS	101%	40-135%
	13C3-PFHxS	104%	40-130%
	13C8-PFOS	102%	40-130%
	13C8-FOSA	91%	40-130%
	d3-MeFOSA	68%	10-130%
	d5-EtFOSA	71%	10-130%
	d3-MeFOSAA	120%	40-170%
	d5-EtFOSAA	114%	25-135%
	d7-MeFOSE	77%	10-130%
	d9-EtFOSE	73%	10-130%
	13C2-4:2FTS	130%	40-200%
	13C2-6:2FTS	149%	40-200%
	13C2-8:2FTS	156%	40-300%
	13C3-HFPO-DA	107%	40-130%

Instrument Blank

Job Number: FC19997
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S9Q40-IBLK	9Q2638.D	1	12/08/24	MB	n/a	n/a	S9Q40

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC19997-1, FC19997-2, FC19997-3, FC19997-4, FC19997-5, FC19997-6, FC19997-7, FC19997-8

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-4	4:2-FTS	ND	0.020	0.0032	ug/l	
27619-97-2	6:2-FTS	ND	0.020	0.0035	ug/l	
39108-34-4	8:2-FTS	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Instrument Blank

Job Number: FC19997
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S9Q40-IBLK	9Q2638.D	1	12/08/24	MB	n/a	n/a	S9Q40

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC19997-1, FC19997-2, FC19997-3, FC19997-4, FC19997-5, FC19997-6, FC19997-7, FC19997-8

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3-FTCA	ND	0.020	0.0045	ug/l	
914637-49-3	5:3-FTCA	ND	0.10	0.0087	ug/l	
812-70-4	7:3-FTCA	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	100%	10-130%
	13C5-PFPeA	103%	40-130%
	13C5-PFHxA	101%	40-130%
	13C4-PFHpA	100%	40-130%
	13C8-PFOA	101%	40-130%
	13C9-PFNA	100%	40-130%
	13C6-PFDA	99%	40-130%
	13C7-PFUnDA	108%	30-130%
	13C2-PFDoDA	103%	10-130%
	13C2-PFTeDA	108%	10-130%
	13C3-PFBS	100%	40-135%
	13C3-PFHxS	104%	40-130%
	13C8-PFOS	95%	40-130%
	13C8-FOSA	94%	40-130%
	d3-MeFOSA	90%	10-130%
	d5-EtFOSA	94%	10-130%
	d3-MeFOSAA	99%	40-170%
	d5-EtFOSAA	100%	25-135%
	d7-MeFOSE	96%	10-130%
	d9-EtFOSE	93%	10-130%
	13C2-4:2FTS	117%	40-200%
	13C2-6:2FTS	117%	40-200%
	13C2-8:2FTS	110%	40-300%
	13C3-HFPO-DA	102%	40-130%

Continuing Calibration Blank

Job Number: FC19997
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S9Q40-ICCB	9Q2654.D	1	12/08/24	MB	n/a	n/a	S9Q40

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC19997-1, FC19997-2, FC19997-3

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-4	4:2-FTS	ND	0.020	0.0032	ug/l	
27619-97-2	6:2-FTS	ND	0.020	0.0035	ug/l	
39108-34-4	8:2-FTS	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC19997
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S9Q40-ICCB	9Q2654.D	1	12/08/24	MB	n/a	n/a	S9Q40

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC19997-1, FC19997-2, FC19997-3

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3-FTCA	ND	0.020	0.0045	ug/l	
914637-49-3	5:3-FTCA	ND	0.10	0.0087	ug/l	
812-70-4	7:3-FTCA	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	98%	10-130%
	13C5-PFPeA	103%	40-130%
	13C5-PFHxA	102%	40-130%
	13C4-PFHpA	101%	40-130%
	13C8-PFOA	102%	40-130%
	13C9-PFNA	94%	40-130%
	13C6-PFDA	98%	40-130%
	13C7-PFUnDA	111%	30-130%
	13C2-PFDoDA	112%	10-130%
	13C2-PFTeDA	115%	10-130%
	13C3-PFBS	98%	40-135%
	13C3-PFHxS	104%	40-130%
	13C8-PFOS	101%	40-130%
	13C8-FOSA	93%	40-130%
	d3-MeFOSA	94%	10-130%
	d5-EtFOSA	93%	10-130%
	d3-MeFOSAA	115%	40-170%
	d5-EtFOSAA	114%	25-135%
	d7-MeFOSE	94%	10-130%
	d9-EtFOSE	91%	10-130%
	13C2-4:2FTS	106%	40-200%
	13C2-6:2FTS	133%	40-200%
	13C2-8:2FTS	142%	40-300%
	13C3-HFPO-DA	102%	40-130%

Continuing Calibration Blank

Job Number: FC19997
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S9Q40-ICCB	9Q2665.D	1	12/08/24	MB	n/a	n/a	S9Q40

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC19997-4, FC19997-5, FC19997-6, FC19997-7, FC19997-8

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-4	4:2-FTS	ND	0.020	0.0032	ug/l	
27619-97-2	6:2-FTS	ND	0.020	0.0035	ug/l	
39108-34-4	8:2-FTS	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC19997
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S9Q40-ICCB	9Q2665.D	1	12/08/24	MB	n/a	n/a	S9Q40

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

FC19997-4, FC19997-5, FC19997-6, FC19997-7, FC19997-8

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3-FTCA	ND	0.020	0.0045	ug/l	
914637-49-3	5:3-FTCA	ND	0.10	0.0087	ug/l	
812-70-4	7:3-FTCA	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	97%	10-130%
	13C5-PFPeA	103%	40-130%
	13C5-PFHxA	104%	40-130%
	13C4-PFHpA	100%	40-130%
	13C8-PFOA	103%	40-130%
	13C9-PFNA	94%	40-130%
	13C6-PFDA	104%	40-130%
	13C7-PFUnDA	111%	30-130%
	13C2-PFDoDA	104%	10-130%
	13C2-PFTeDA	110%	10-130%
	13C3-PFBS	94%	40-135%
	13C3-PFHxS	96%	40-130%
	13C8-PFOS	104%	40-130%
	13C8-FOSA	99%	40-130%
	d3-MeFOSA	95%	10-130%
	d5-EtFOSA	95%	10-130%
	d3-MeFOSAA	121%	40-170%
	d5-EtFOSAA	121%	25-135%
	d7-MeFOSE	95%	10-130%
	d9-EtFOSE	90%	10-130%
	13C2-4:2FTS	112%	40-200%
	13C2-6:2FTS	141%	40-200%
	13C2-8:2FTS	146%	40-300%
	13C3-HFPO-DA	102%	40-130%

Continuing Calibration Blank

Job Number: FC19997
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S9Q40-ICCB	9Q2677.D	1	12/09/24	MB	n/a	n/a	S9Q40

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

OP6523-MS

CAS No.	Compound	Result	RL	MDL	Units	Q
375-22-4	Perfluorobutanoic acid	ND	0.016	0.0019	ug/l	
2706-90-3	Perfluoropentanoic acid	ND	0.0080	0.00094	ug/l	
307-24-4	Perfluorohexanoic acid	ND	0.0040	0.00050	ug/l	
375-85-9	Perfluoroheptanoic acid	ND	0.0040	0.00050	ug/l	
335-67-1	Perfluorooctanoic acid	ND	0.0040	0.00050	ug/l	
375-95-1	Perfluorononanoic acid	ND	0.0040	0.00061	ug/l	
335-76-2	Perfluorodecanoic acid	ND	0.0040	0.00050	ug/l	
2058-94-8	Perfluoroundecanoic acid	ND	0.0040	0.00060	ug/l	
307-55-1	Perfluorododecanoic acid	ND	0.0040	0.00060	ug/l	
72629-94-8	Perfluorotridecanoic acid	ND	0.0040	0.00084	ug/l	
376-06-7	Perfluorotetradecanoic acid	ND	0.0040	0.00050	ug/l	
375-73-5	Perfluorobutanesulfonic acid	ND	0.0040	0.00050	ug/l	
2706-91-4	Perfluoropentanesulfonic acid	ND	0.0050	0.0011	ug/l	
355-46-4	Perfluorohexanesulfonic acid	ND	0.0040	0.00070	ug/l	
375-92-8	Perfluoroheptanesulfonic acid	ND	0.0040	0.00050	ug/l	
1763-23-1	Perfluorooctanesulfonic acid	ND	0.0040	0.00054	ug/l	
68259-12-1	Perfluorononanesulfonic acid	ND	0.0040	0.00057	ug/l	
335-77-3	Perfluorodecanesulfonic acid	ND	0.0040	0.00064	ug/l	
79780-39-5	Perfluorododecanesulfonic aci	ND	0.0050	0.0011	ug/l	
757124-72-4	4:2-FTS	ND	0.020	0.0032	ug/l	
27619-97-2	6:2-FTS	ND	0.020	0.0035	ug/l	
39108-34-4	8:2-FTS	ND	0.020	0.0041	ug/l	
754-91-6	PFOSA	ND	0.0040	0.00067	ug/l	
31506-32-8	MeFOSA	ND	0.0080	0.0010	ug/l	
4151-50-2	EtFOSA	ND	0.0080	0.0010	ug/l	
2355-31-9	MeFOSAA	ND	0.0050	0.0010	ug/l	
2991-50-6	EtFOSAA	ND	0.0050	0.0013	ug/l	
24448-09-7	MeFOSE	ND	0.040	0.0044	ug/l	
1691-99-2	EtFOSE	ND	0.040	0.0074	ug/l	
13252-13-6	HFPO-DA (GenX)	ND	0.0040	0.0010	ug/l	
919005-14-4	ADONA	ND	0.0080	0.0019	ug/l	
377-73-1	PFMPA	ND	0.0080	0.0010	ug/l	
863090-89-5	PFMBA	ND	0.0080	0.0011	ug/l	
151772-58-6	NFDHA	ND	0.0080	0.0012	ug/l	
756426-58-1	9Cl-PF3ONS (F-53B Major)	ND	0.0080	0.0014	ug/l	
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	ND	0.0080	0.0018	ug/l	

Continuing Calibration Blank

Job Number: FC19997
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
S9Q40-ICCB	9Q2677.D	1	12/09/24	MB	n/a	n/a	S9Q40

The QC reported here applies to the following samples: **Method:** EPA DRAFT 1633

OP6523-MS

CAS No.	Compound	Result	RL	MDL	Units	Q
113507-82-7	PFEESA	ND	0.0080	0.00078	ug/l	
356-02-5	3:3-FTCA	ND	0.020	0.0045	ug/l	
914637-49-3	5:3-FTCA	ND	0.10	0.0087	ug/l	
812-70-4	7:3-FTCA	ND	0.10	0.0079	ug/l	

CAS No.	ID Standard Recoveries		Limits
	13C4-PFBA	97%	10-130%
	13C5-PFPeA	102%	40-130%
	13C5-PFHxA	99%	40-130%
	13C4-PFHpA	100%	40-130%
	13C8-PFOA	107%	40-130%
	13C9-PFNA	99%	40-130%
	13C6-PFDA	100%	40-130%
	13C7-PFUnDA	111%	30-130%
	13C2-PFDoDA	110%	10-130%
	13C2-PFTeDA	112%	10-130%
	13C3-PFBS	96%	40-135%
	13C3-PFHxS	97%	40-130%
	13C8-PFOS	107%	40-130%
	13C8-FOSA	100%	40-130%
	d3-MeFOSA	97%	10-130%
	d5-EtFOSA	96%	10-130%
	d3-MeFOSAA	128%	40-170%
	d5-EtFOSAA	125%	25-135%
	d7-MeFOSE	98%	10-130%
	d9-EtFOSE	95%	10-130%
	13C2-4:2FTS	107%	40-200%
	13C2-6:2FTS	147%	40-200%
	13C2-8:2FTS	142%	40-300%
	13C3-HFPO-DA	97%	40-130%

Blank Spike Summary

Job Number: FC19997
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6523-LLBS	9Q2656.D	1	12/08/24	MB	11/19/24	OP6523	S9Q40

The QC reported here applies to the following samples: **Method:** EPA 1633

FC19997-1, FC19997-2, FC19997-3, FC19997-4, FC19997-5, FC19997-6, FC19997-7, FC19997-8

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.016	0.0146	91	70-140
2706-90-3	Perfluoropentanoic acid	0.008	0.0070	88	65-135
307-24-4	Perfluorohexanoic acid	0.004	0.0035	88	70-145
375-85-9	Perfluoroheptanoic acid	0.004	0.0036	90	70-150
335-67-1	Perfluorooctanoic acid	0.004	0.0036	90	70-150
375-95-1	Perfluorononanoic acid	0.004	0.0033	83	70-150
335-76-2	Perfluorodecanoic acid	0.004	0.0038	95	70-140
2058-94-8	Perfluoroundecanoic acid	0.004	0.0035	88	70-145
307-55-1	Perfluorododecanoic acid	0.004	0.0036	90	70-140
72629-94-8	Perfluorotridecanoic acid	0.004	0.0030	75	65-140
376-06-7	Perfluorotetradecanoic acid	0.004	0.0032	80	60-140
375-73-5	Perfluorobutanesulfonic acid	0.00355	0.0033	93	60-145
2706-91-4	Perfluoropentanesulfonic acid	0.00376	0.0034	90	65-140
355-46-4	Perfluorohexanesulfonic acid	0.00366	0.0032	88	65-145
375-92-8	Perfluoroheptanesulfonic acid	0.00381	0.0035	92	70-150
1763-23-1	Perfluorooctanesulfonic acid	0.00371	0.0036	97	55-150
68259-12-1	Perfluorononanesulfonic acid	0.00385	0.0032	83	65-145
335-77-3	Perfluorodecanesulfonic acid	0.00386	0.0034	88	60-145
79780-39-5	Perfluorododecanesulfonic aci	0.00388	0.0026	67	50-145
757124-72-4	4:2-FTS	0.015	0.0129	86	70-145
27619-97-2	6:2-FTS	0.0152	0.0138	91	65-155
39108-34-4	8:2-FTS	0.0154	0.0143	93	60-150
754-91-6	PFOSA	0.004	0.0037	93	70-145
31506-32-8	MeFOSA	0.008	0.0072	90	60-150
4151-50-2	EtFOSA	0.008	0.0070	88	65-145
2355-31-9	MeFOSAA	0.004	0.0033	83	50-140
2991-50-6	EtFOSAA	0.004	0.0034	85	70-145
24448-09-7	MeFOSE	0.02	0.0166	83	70-145
1691-99-2	EtFOSE	0.02	0.0153	77	70-135
13252-13-6	HFPO-DA (GenX)	0.008	0.0072	90	70-140
919005-14-4	ADONA	0.00756	0.0069	91	65-145
377-73-1	PFMPA	0.008	0.0070	88	55-140
863090-89-5	PFMBA	0.008	0.0071	89	60-150
151772-58-6	NFDHA	0.008	0.0075	94	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.00748	0.0065	87	70-155
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.00756	0.0059	78	55-160

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC19997
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6523-LLBS	9Q2656.D	1	12/08/24	MB	11/19/24	OP6523	S9Q40

The QC reported here applies to the following samples: **Method:** EPA 1633

FC19997-1, FC19997-2, FC19997-3, FC19997-4, FC19997-5, FC19997-6, FC19997-7, FC19997-8

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.00712	0.0061	86	70-140
356-02-5	3:3-FTCA	0.02	0.0177	89	65-130
914637-49-3	5:3-FTCA	0.1	0.0859	86	70-135
812-70-4	7:3-FTCA	0.1	0.0800	80	50-145

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	98%	10-130%
	13C5-PFPeA	102%	40-130%
	13C5-PFHxA	102%	40-130%
	13C4-PFHpA	100%	40-130%
	13C8-PFOA	102%	40-130%
	13C9-PFNA	92%	40-130%
	13C6-PFDA	96%	40-130%
	13C7-PFUnDA	97%	30-130%
	13C2-PFDoDA	89%	10-130%
	13C2-PFTeDA	75%	10-130%
	13C3-PFBS	91%	40-135%
	13C3-PFHxS	93%	40-130%
	13C8-PFOS	92%	40-130%
	13C8-FOSA	81%	40-130%
	d3-MeFOSA	56%	10-130%
	d5-EtFOSA	55%	10-130%
	d3-MeFOSAA	104%	40-170%
	d5-EtFOSAA	99%	25-135%
	d7-MeFOSE	56%	10-130%
	d9-EtFOSE	56%	10-130%
	13C2-4:2FTS	107%	40-200%
	13C2-6:2FTS	123%	40-200%
	13C2-8:2FTS	139%	40-300%
	13C3-HFPO-DA	100%	40-130%

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC19997
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6523-BS	9Q2655.D	1	12/08/24	MB	11/19/24	OP6523	S9Q40

The QC reported here applies to the following samples: **Method:** EPA 1633

FC19997-1, FC19997-2, FC19997-3, FC19997-4, FC19997-5, FC19997-6, FC19997-7, FC19997-8

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
375-22-4	Perfluorobutanoic acid	0.1	0.0906	91	70-140
2706-90-3	Perfluoropentanoic acid	0.05	0.0425	85	65-135
307-24-4	Perfluorohexanoic acid	0.025	0.0208	83	70-145
375-85-9	Perfluoroheptanoic acid	0.025	0.0213	85	70-150
335-67-1	Perfluorooctanoic acid	0.025	0.0203	81	70-150
375-95-1	Perfluorononanoic acid	0.025	0.0219	88	70-150
335-76-2	Perfluorodecanoic acid	0.025	0.0215	86	70-140
2058-94-8	Perfluoroundecanoic acid	0.025	0.0209	84	70-145
307-55-1	Perfluorododecanoic acid	0.025	0.0206	82	70-140
72629-94-8	Perfluorotridecanoic acid	0.025	0.0212	85	65-140
376-06-7	Perfluorotetradecanoic acid	0.025	0.0223	89	60-140
375-73-5	Perfluorobutanesulfonic acid	0.0222	0.0189	85	60-145
2706-91-4	Perfluoropentanesulfonic acid	0.0235	0.0200	85	65-140
355-46-4	Perfluorohexanesulfonic acid	0.0229	0.0191	84	65-145
375-92-8	Perfluoroheptanesulfonic acid	0.0238	0.0213	89	70-150
1763-23-1	Perfluorooctanesulfonic acid	0.0232	0.0189	81	55-150
68259-12-1	Perfluorononanesulfonic acid	0.0241	0.0212	88	65-145
335-77-3	Perfluorodecanesulfonic acid	0.0241	0.0210	87	60-145
79780-39-5	Perfluorododecanesulfonic aci	0.0243	0.0205	85	50-145
757124-72-4	4:2-FTS	0.0938	0.0813	87	70-145
27619-97-2	6:2-FTS	0.095	0.0833	88	65-155
39108-34-4	8:2-FTS	0.096	0.0862	90	60-150
754-91-6	PFOSA	0.025	0.0213	85	70-145
31506-32-8	MeFOSA	0.05	0.0432	86	60-150
4151-50-2	EtFOSA	0.05	0.0439	88	65-145
2355-31-9	MeFOSAA	0.025	0.0208	83	50-140
2991-50-6	EtFOSAA	0.025	0.0215	86	70-145
24448-09-7	MeFOSE	0.125	0.107	86	70-145
1691-99-2	EtFOSE	0.125	0.102	82	70-135
13252-13-6	HFPO-DA (GenX)	0.05	0.0443	89	70-140
919005-14-4	ADONA	0.0473	0.0419	89	65-145
377-73-1	PFMPA	0.05	0.0555	111	55-140
863090-89-5	PFMBA	0.05	0.0427	85	60-150
151772-58-6	NFDHA	0.05	0.0434	87	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0468	0.0423	90	70-155
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0473	0.0431	91	55-160

* = Outside of Control Limits.

Blank Spike Summary

Job Number: FC19997
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6523-BS	9Q2655.D	1	12/08/24	MB	11/19/24	OP6523	S9Q40

The QC reported here applies to the following samples: **Method:** EPA 1633

FC19997-1, FC19997-2, FC19997-3, FC19997-4, FC19997-5, FC19997-6, FC19997-7, FC19997-8

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
113507-82-7	PFEESA	0.0445	0.0376	84	70-140
356-02-5	3:3-FTCA	0.125	0.137	110	65-130
914637-49-3	5:3-FTCA	0.625	0.520	83	70-135
812-70-4	7:3-FTCA	0.625	0.509	81	50-145

CAS No.	ID Standard Recoveries	BSP	Limits
	13C4-PFBA	84%	10-130%
	13C5-PFPeA	118%	40-130%
	13C5-PFHxA	119%	40-130%
	13C4-PFHpA	117%	40-130%
	13C8-PFOA	124%	40-130%
	13C9-PFNA	111%	40-130%
	13C6-PFDA	121%	40-130%
	13C7-PFUnDA	126%	30-130%
	13C2-PFDoDA	128%	10-130%
	13C2-PFTeDA	114%	10-130%
	13C3-PFBS	113%	40-135%
	13C3-PFHxS	119%	40-130%
	13C8-PFOS	115%	40-130%
	13C8-FOSA	104%	40-130%
	d3-MeFOSA	93%	10-130%
	d5-EtFOSA	92%	10-130%
	d3-MeFOSAA	131%	40-170%
	d5-EtFOSAA	136%* [a]	25-135%
	d7-MeFOSE	85%	10-130%
	d9-EtFOSE	83%	10-130%
	13C2-4:2FTS	151%	40-200%
	13C2-6:2FTS	162%	40-200%
	13C2-8:2FTS	176%	40-300%
	13C3-HFPO-DA	116%	40-130%

(a) Outside control limits.

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC19997
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6523-MS	9Q2679.D	1	12/09/24	MB	11/19/24	OP6523	S9Q40
FC20304-2	9Q2678.D	1	12/09/24	MB	11/19/24	OP6523	S9Q40

The QC reported here applies to the following samples: **Method:** EPA 1633

FC19997-1, FC19997-2, FC19997-3, FC19997-4, FC19997-5, FC19997-6, FC19997-7, FC19997-8

CAS No.	Compound	FC20304-2 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
375-22-4	Perfluorobutanoic acid	0.0085	U	0.111	0.106	95	70-140
2706-90-3	Perfluoropentanoic acid	0.0043	U	0.0556	0.0495	89	65-135
307-24-4	Perfluorohexanoic acid	0.0021	U	0.0278	0.0246	89	70-145
375-85-9	Perfluoroheptanoic acid	0.0021	U	0.0278	0.0246	89	70-150
335-67-1	Perfluorooctanoic acid	0.0021	U	0.0278	0.0250	90	70-150
375-95-1	Perfluorononanoic acid	0.0021	U	0.0278	0.0250	90	70-150
335-76-2	Perfluorodecanoic acid	0.0021	U	0.0278	0.0249	90	70-140
2058-94-8	Perfluoroundecanoic acid	0.0021	U	0.0278	0.0242	87	70-145
307-55-1	Perfluorododecanoic acid	0.0021	U	0.0278	0.0250	90	70-140
72629-94-8	Perfluorotridecanoic acid	0.0021	U	0.0278	0.0252	91	65-140
376-06-7	Perfluorotetradecanoic acid	0.0021	U	0.0278	0.0245	88	60-140
375-73-5	Perfluorobutanesulfonic acid	0.0021	U	0.0246	0.0225	91	60-145
2706-91-4	Perfluoropentanesulfonic acid	0.0021	U	0.0261	0.0247	94	65-140
355-46-4	Perfluorohexanesulfonic acid	0.0021	U	0.0254	0.0239	94	65-145
375-92-8	Perfluoroheptanesulfonic acid	0.0021	U	0.0265	0.0252	95	70-150
1763-23-1	Perfluorooctanesulfonic acid	0.0021	U	0.0258	0.0229	89	55-150
68259-12-1	Perfluorononanesulfonic acid	0.0021	U	0.0267	0.0227	85	65-145
335-77-3	Perfluorodecanesulfonic acid	0.0021	U	0.0268	0.0245	91	60-145
79780-39-5	Perfluorododecanesulfonic aci	0.0021	U	0.0269	0.0223	83	50-145
757124-72-4	4:2-FTS	0.0085	U	0.104	0.100	96	70-145
27619-97-2	6:2-FTS	0.0085	U	0.106	0.100	95	65-155
39108-34-4	8:2-FTS	0.0085	U	0.107	0.0962	90	60-150
754-91-6	PFOSA	0.0021	U	0.0278	0.0259	93	70-145
31506-32-8	MeFOSA	0.0043	U	0.0556	0.0502	90	60-150
4151-50-2	EtFOSA	0.0043	U	0.0556	0.0529	95	65-145
2355-31-9	MeFOSAA	0.0021	U	0.0278	0.0239	86	50-140
2991-50-6	EtFOSAA	0.0021	U	0.0278	0.0255	92	70-145
24448-09-7	MeFOSE	0.021	U	0.139	0.131	94	70-145
1691-99-2	EtFOSE	0.021	U	0.139	0.126	91	70-135
13252-13-6	HFPO-DA (GenX)	0.0043	U	0.0556	0.0512	92	70-140
919005-14-4	ADONA	0.0085	U	0.0525	0.0504	96	65-145
377-73-1	PFMPA	0.0043	U	0.0556	0.0528	95	55-140
863090-89-5	PFMBA	0.0043	U	0.0556	0.0495	89	60-150
151772-58-6	NFDHA	0.0043	U	0.0556	0.0489	88	50-150
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0085	U	0.0519	0.0514	99	70-155
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0085	U	0.0525	0.0482	92	55-160

* = Outside of Control Limits.

Matrix Spike Summary

Job Number: FC19997
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6523-MS	9Q2679.D	1	12/09/24	MB	11/19/24	OP6523	S9Q40
FC20304-2	9Q2678.D	1	12/09/24	MB	11/19/24	OP6523	S9Q40

The QC reported here applies to the following samples: **Method:** EPA 1633

FC19997-1, FC19997-2, FC19997-3, FC19997-4, FC19997-5, FC19997-6, FC19997-7, FC19997-8

CAS No.	Compound	FC20304-2 ug/l	Q	Spike ug/l	MS ug/l	MS %	Limits
113507-82-7	PFEESA	0.0043	U	0.0494	0.0443	90	70-140
356-02-5	3:3-FTCA	0.011	U	0.139	0.132	95	65-130
914637-49-3	5:3-FTCA	0.053	U	0.694	0.614	88	70-135
812-70-4	7:3-FTCA	0.053	U	0.694	0.631	91	50-145

CAS No.	ID Standard Recoveries	MS	FC20304-2	Limits
	13C4-PFBA	84%	101%	10-130%
	13C5-PFPeA	91%	105%	40-130%
	13C5-PFHxA	91%	106%	40-130%
	13C4-PFHpA	90%	104%	40-130%
	13C8-PFOA	91%	108%	40-130%
	13C9-PFNA	88%	98%	40-130%
	13C6-PFDA	92%	105%	40-130%
	13C7-PFUnDA	99%	104%	30-130%
	13C2-PFDoDA	93%	102%	10-130%
	13C2-PFTeDA	90%	92%	10-130%
	13C3-PFBS	84%	99%	40-135%
	13C3-PFHxS	87%	98%	40-130%
	13C8-PFOS	83%	98%	40-130%
	13C8-FOSA	79%	80%	40-130%
	d3-MeFOSA	69%	63%	10-130%
	d5-EtFOSA	64%	61%	10-130%
	d3-MeFOSAA	99%	108%	40-170%
	d5-EtFOSAA	96%	103%	25-135%
	d7-MeFOSE	61%	67%	10-130%
	d9-EtFOSE	57%	63%	10-130%
	13C2-4:2FTS	100%	126%	40-200%
	13C2-6:2FTS	121%	148%	40-200%
	13C2-8:2FTS	137%	158%	40-300%
	13C3-HFPO-DA	87%	101%	40-130%

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC19997
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6523-DUP	9Q2674.D	1	12/08/24	MB	11/19/24	OP6523	S9Q40
FC20285-2	9Q2673.D	1	12/08/24	MB	11/19/24	OP6523	S9Q40

The QC reported here applies to the following samples: **Method:** EPA 1633

FC19997-1, FC19997-2, FC19997-3, FC19997-4, FC19997-5, FC19997-6, FC19997-7, FC19997-8

CAS No.	Compound	FC20285-2 ug/l	Q	DUP ug/l	Q	RPD	Limits
375-22-4	Perfluorobutanoic acid	0.0914		0.0899		2	21
2706-90-3	Perfluoropentanoic acid	0.0883		0.0851		4	23
307-24-4	Perfluorohexanoic acid	0.0861		0.0857		0	24
375-85-9	Perfluoroheptanoic acid	0.0900		0.0877		3	28
335-67-1	Perfluorooctanoic acid	0.0888		0.0869		2	27
375-95-1	Perfluorononanoic acid	0.0907		0.0862		5	28
335-76-2	Perfluorodecanoic acid	0.0898		0.0872		3	26
2058-94-8	Perfluoroundecanoic acid	0.0883		0.0857		3	29
307-55-1	Perfluorododecanoic acid	0.0896		0.0874		2	21
72629-94-8	Perfluorotridecanoic acid	0.0746		0.0669		11	29
376-06-7	Perfluorotetradecanoic acid	0.0714		0.0663		7	27
375-73-5	Perfluorobutanesulfonic acid	0.0780		0.0759		3	23
2706-91-4	Perfluoropentanesulfonic acid	0.0836		0.0837		0	25
355-46-4	Perfluorohexanesulfonic acid	0.0807		0.0786		3	27
375-92-8	Perfluoroheptanesulfonic acid	0.0852		0.0788		8	30
1763-23-1	Perfluorooctanesulfonic acid	0.0794		0.0716		10	29
68259-12-1	Perfluorononanesulfonic acid	0.0888		0.0770		14	29
335-77-3	Perfluorodecanesulfonic acid	0.0859		0.0768		11	30
79780-39-5	Perfluorododecanesulfonic aci	ND		ND		nc	35
757124-72-4	4:2-FTS	0.0808		0.0815		1	27
27619-97-2	6:2-FTS	0.0788		0.0794		1	32
39108-34-4	8:2-FTS	0.0924		0.0933		1	33
754-91-6	PFOSA	0.0938		0.0870		8	22
31506-32-8	MeFOSA	ND		ND		nc	30
4151-50-2	EtFOSA	ND		ND		nc	26
2355-31-9	MeFOSAA	0.0817		0.0870		6	32
2991-50-6	EtFOSAA	0.0913		0.0886		3	28
24448-09-7	MeFOSE	ND		ND		nc	29
1691-99-2	EtFOSE	ND		ND		nc	21
13252-13-6	HFPO-DA (GenX)	0.0893		0.0870		3	23
919005-14-4	ADONA	0.0888		0.0862		3	23
377-73-1	PFMPA	ND		ND		nc	23
863090-89-5	PFMBA	ND		ND		nc	27
151772-58-6	NFDHA	ND		ND		nc	37
756426-58-1	9Cl-PF3ONS (F-53B Major)	0.0897		0.0873		3	30
763051-92-9	11Cl-PF3OUdS (F-53B Minor)	0.0839		0.0775		8	35

* = Outside of Control Limits.

Duplicate Summary

Job Number: FC19997
Account: GEOEWAT GeoEngineers, Inc.
Project: WA Ecology-Bailer Hill; Bailer Hill Rd & Straights View Dr, Friday Harbor, WA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP6523-DUP	9Q2674.D	1	12/08/24	MB	11/19/24	OP6523	S9Q40
FC20285-2	9Q2673.D	1	12/08/24	MB	11/19/24	OP6523	S9Q40

The QC reported here applies to the following samples: **Method:** EPA 1633

FC19997-1, FC19997-2, FC19997-3, FC19997-4, FC19997-5, FC19997-6, FC19997-7, FC19997-8

CAS No.	Compound	FC20285-2 ug/l	Q	DUP ug/l	Q	RPD	Limits
113507-82-7	PFEESA	ND		ND		nc	25
356-02-5	3:3-FTCA	ND		ND		nc	23
914637-49-3	5:3-FTCA	ND		ND		nc	24
812-70-4	7:3-FTCA	ND		ND		nc	34

CAS No.	ID Standard Recoveries	DUP	FC20285-2	Limits
	13C4-PFBA	105%	99%	10-130%
	13C5-PFPeA	111%	103%	40-130%
	13C5-PFHxA	110%	103%	40-130%
	13C4-PFHpA	106%	98%	40-130%
	13C8-PFOA	111%	103%	40-130%
	13C9-PFNA	102%	101%	40-130%
	13C6-PFDA	111%	102%	40-130%
	13C7-PFUnDA	112%	106%	30-130%
	13C2-PFDoDA	106%	98%	10-130%
	13C2-PFTeDA	80%	78%	10-130%
	13C3-PFBS	99%	91%	40-135%
	13C3-PFHxS	100%	93%	40-130%
	13C8-PFOS	112%	95%	40-130%
	13C8-FOSA	87%	75%	40-130%
	d3-MeFOSA	52%	50%	10-130%
	d5-EtFOSA	52%	47%	10-130%
	d3-MeFOSAA	113%	109%	40-170%
	d5-EtFOSAA	115%	103%	25-135%
	d7-MeFOSE	60%	55%	10-130%
	d9-EtFOSE	54%	50%	10-130%
	13C2-4:2FTS	122%	112%	40-200%
	13C2-6:2FTS	147%	138%	40-200%
	13C2-8:2FTS	151%	137%	40-300%
	13C3-HFPO-DA	109%	101%	40-130%

* = Outside of Control Limits.

Appendix C

Additional Data Review Memorandum
Laboratory Analytical Reports

GeoEngineers Unique Parcel ID: P-2
Sample ID: P-2_240922w

Anatek Labs, Inc.

1282 Alturas Drive - Moscow, ID 83843 - (208) 883-2839 - email moscow@anateklabs.com
504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - email spokane@anateklabs.com

Client: [redacted]
Address:
Attn:

Work Order: [redacted]
Project: PFAS 533
Reported: 10/8/2024 13:50

Analytical Results Report

System ID# [redacted]
Reference Number: [redacted]
Multiple Source Nos:
Date Received: 09/24/24 12:00
Sample Location: [redacted]
Matrix: Drinking Water

System Name: [redacted]
Collect Date: 09/22/24 17:00
Sample Type: Before
Sample Purpose: O - Other

DOH Source #:
County: San Juan

Lab/Sample Number: 125-78302

Per- and Polyfluoroalkyl Substances (PFAS)

DOH #	Analyte	Result	Units	LRL	SDRL	SAL	MCL	Analyzed	Analyst	Method	Qualifier
0434	PFOA Perfluorooctanoic acid	79.2	ng/L	2.00	2	10		10/2/24 22:48	ZHW	EPA 533	
0433	PFOS Perfluorooctanesulfonic acid	229	ng/L	2.00	2	15		10/2/24 22:48	ZHW	EPA 533	
0431	PFHxS Perfluorohexanesulfonic acid	990	ng/L	2.00	2	65		10/2/24 22:48	ZHW	EPA 533	
0432	PFNA Perfluorononanoic acid	121	ng/L	2.00	2	9		10/2/24 22:48	ZHW	EPA 533	
0429	PFBS Perfluorobutanesulfonic acid	342	ng/L	2.00	2	345		10/2/24 22:48	ZHW	EPA 533	
0430	PFHpA Perfluoroheptanoic acid	107	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0435	PFHxA Perfluorohexanoic acid	276	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0436	PFDA Perfluorodecanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0437	PFUnA Perfluoroundecanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0438	PFDoA Perfluorododecanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0445	ADONA 4,8-Dioxa-3H-perfluorononanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0446	9Cl-PF3ONS	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0447	HFPO-DA Hexafluoropropylene oxide dimer acid	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0448	11Cl-PF3OUdS	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0450	4:2FTS 1H,1H,2H,2H-Perfluorohexane sulfonic acid	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0451	6:2FTS 1H,1H,2H,2H-Perfluorooctane sulfonic acid	40.7	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0452	8:2FTS 1H,1H,2H,2H-Perfluorodecane sulfonic acid	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0453	NFDHA Nonafluoro-3,6-dioxaheptanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0454	PFBA Perfluorobutanoic acid	80.0	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	

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504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - email spokane@anateklabs.com

Client: [redacted]
Address:

Attn:

Work Order: [redacted]
Project: PFAS 533
Reported: 10/8/2024 13:50

Analytical Results Report

System ID# [redacted]
Reference Number: [redacted]
Multiple Source Nos:
Date Received: 09/24/24 12:00
Sample Location: [redacted]
Matrix: Drinking Water

System Name: [redacted]
Collect Date: 09/22/24 17:00
Sample Type: Before
Sample Purpose: O - Other

DOH Source #:
County: San Juan

Lab/Sample Number: 125-78302

Per- and Polyfluoroalkyl Substances (PFAS)

DOH #	Analyte	Result	Units	LRL	SDRL	SAL	MCL	Analyzed	Analyst	Method	Qualifier
0455	PFHpS Perfluoroheptanesulfonic acid	15.7	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0456	PFMBA Perfluoro-4-methoxybutanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0457	PFMPA Perfluoro-3-methoxypropanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0458	PFPeA Perfluoropentanoic acid	213	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0459	PFPeS Perfluoropentanesulfonic acid	324	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0460	PFEESA Perfluoro(2-ethoxyethane) sulfonic acid	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	

Authorized Signature,

Justin Doty For Todd Taruscio, Laboratory Manager

LRL	Lab Reporting Limit
SDRL	State Detection Reporting Limit
ND	Not Detected
MCL	EPA's Maximum Contaminant Level
Dry	Sample results reported on a dry weight basis
SAL	State Action Level
*	Not a certified analyte

GeoEngineers Unique Parcel ID: P-11
Sample ID: P-11_241021w

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504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - email spokane@anateklabs.com

Client: [redacted]
Address:

Attn:

Work Order: [redacted]
Project: PFAS 533
Reported: 11/13/2024 12:34

Analytical Results Report

System ID# [redacted]
Reference Number: [redacted]
Multiple Source Nos:
Date Received: 10/23/24 14:27
Sample Location: [redacted]
Matrix: Drinking Water

System Name: [redacted]
Collect Date: 10/21/24 16:52
Sample Type:
Sample Purpose: O - Other

DOH Source #:
County: San Juan

Lab/Sample Number: 125-82002

Per- and Polyfluoroalkyl Substances (PFAS)

DOH #	Analyte	Result	Units	LRL	SDRL	SAL	MCL	Analyzed	Analyst	Method	Qualifier
0434	PFOA Perfluorooctanoic acid	97.0	ng/L	2.00	2	10		11/1/24 16:12	ZHW	EPA 533	
0433	PFOS Perfluorooctanesulfonic acid	363	ng/L	2.00	2	15		11/1/24 16:12	ZHW	EPA 533	
0431	PFHxS Perfluorohexanesulfonic acid	1030	ng/L	2.00	2	65		11/1/24 16:12	ZHW	EPA 533	
0432	PFNA Perfluorononanoic acid	67.1	ng/L	2.00	2	9		11/1/24 16:12	ZHW	EPA 533	
0429	PFBS Perfluorobutanesulfonic acid	278	ng/L	2.00	2	345		11/1/24 16:12	ZHW	EPA 533	
0430	PFHpA Perfluoroheptanoic acid	45.5	ng/L	2.00	2	--		11/1/24 16:12	ZHW	EPA 533	
0435	PFHxA Perfluorohexanoic acid	206	ng/L	2.00	2	--		11/1/24 16:12	ZHW	EPA 533	
0436	PFDA Perfluorodecanoic acid	ND	ng/L	2.00	2	--		11/1/24 16:12	ZHW	EPA 533	
0437	PFUnA Perfluoroundecanoic acid	ND	ng/L	2.00	2	--		11/1/24 16:12	ZHW	EPA 533	
0438	PFDoA Perfluorododecanoic acid	ND	ng/L	2.00	2	--		11/1/24 16:12	ZHW	EPA 533	
0445	ADONA 4,8-Dioxa-3H-perfluorononanoic acid	ND	ng/L	2.00	2	--		11/1/24 16:12	ZHW	EPA 533	
0446	9Cl-PF3ONS	ND	ng/L	2.00	2	--		11/1/24 16:12	ZHW	EPA 533	
0447	HFPO-DA Hexafuoropropylene oxide dimer acid	ND	ng/L	2.00	2	--		11/1/24 16:12	ZHW	EPA 533	
0448	11Cl-PF3OUdS	ND	ng/L	2.00	2	--		11/1/24 16:12	ZHW	EPA 533	
0450	4:2FTS 1H,1H,2H,2H-Perfluorohexane sulfonic acid	ND	ng/L	2.00	2	--		11/1/24 16:12	ZHW	EPA 533	
0451	6:2FTS 1H,1H,2H,2H-Perfluorooctane sulfonic acid	27.9	ng/L	2.00	2	--		11/1/24 16:12	ZHW	EPA 533	
0452	8:2FTS 1H,1H,2H,2H-Perfluorodecane sulfonic acid	ND	ng/L	2.00	2	--		11/1/24 16:12	ZHW	EPA 533	
0453	NFDHA Nonafluoro-3,6-dioxaheptanoic acid	ND	ng/L	2.00	2	--		11/1/24 16:12	ZHW	EPA 533	
0454	PFBA Perfluorobutanoic acid	56.7	ng/L	2.00	2	--		11/1/24 16:12	ZHW	EPA 533	

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Client: [redacted]
Address:

Attn:

Work Order: [redacted]
Project: PFAS 533
Reported: 11/13/2024 12:34

Analytical Results Report

System ID# [redacted]
Reference Number: [redacted]
Multiple Source Nos:
Date Received: 10/23/24 14:27
Sample Location: [redacted]
Matrix: Drinking Water

System Name: [redacted]
Collect Date: 10/21/24 16:52
Sample Type:
Sample Purpose: O - Other

DOH Source #:
County: San Juan

Lab/Sample Number: 125-82002

Per- and Polyfluoroalkyl Substances (PFAS)

DOH #	Analyte	Result	Units	LRL	SDRL	SAL	MCL	Analyzed	Analyst	Method	Qualifier
0455	PFHpS Perfluoroheptanesulfonic acid	22.0	ng/L	2.00	2	--		11/1/24 16:12	ZHW	EPA 533	
0456	PFMBA Perfluoro-4-methoxybutanoic acid	ND	ng/L	2.00	2	--		11/1/24 16:12	ZHW	EPA 533	
0457	PFMPA Perfluoro-3-methoxypropanoic acid	ND	ng/L	2.00	2	--		11/1/24 16:12	ZHW	EPA 533	
0458	PFPeA Perfluoropentanoic acid	150	ng/L	2.00	2	--		11/1/24 16:12	ZHW	EPA 533	
0459	PFPeS Perfluoropentanesulfonic acid	283	ng/L	2.00	2	--		11/1/24 16:12	ZHW	EPA 533	
0460	PFEESA Perfluoro(2-ethoxyethane) sulfonic acid	ND	ng/L	2.00	2	--		11/1/24 16:12	ZHW	EPA 533	

GeoEngineers Unique Parcel ID: P-12
Sample ID: P-12_241008w

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Client: [redacted]
Address:

Attn:

Work Order: [redacted]
Project: PFAS 533
Reported: 10/8/2024 13:50

Analytical Results Report

System ID# [redacted]
Reference Number:
Multiple Source Nos:
Date Received: 09/24/24 12:00
Sample Location: [redacted]
Matrix: Drinking Water

System Name: [redacted]
Collect Date: 09/22/24 18:00
Sample Type: Before
Sample Purpose: O - Other

DOH Source #:
County: San Juan

Lab/Sample Number: 125-78301

Per- and Polyfluoroalkyl Substances (PFAS)

DOH #	Analyte	Result	Units	LRL	SDRL	SAL	MCL	Analyzed	Analyst	Method	Qualifier
0434	PFOA Perfluorooctanoic acid	ND	ng/L	2.00	2	10		10/2/24 22:22	ZHW	EPA 533	
0433	PFOS Perfluorooctanesulfonic acid	ND	ng/L	2.00	2	15		10/2/24 22:22	ZHW	EPA 533	
0431	PFHxS Perfluorohexanesulfonic acid	2.58	ng/L	2.00	2	65		10/2/24 22:22	ZHW	EPA 533	
0432	PFNA Perfluorononanoic acid	ND	ng/L	2.00	2	9		10/2/24 22:22	ZHW	EPA 533	
0429	PFBS Perfluorobutanesulfonic acid	ND	ng/L	2.00	2	345		10/2/24 22:22	ZHW	EPA 533	
0430	PFHpA Perfluoroheptanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:22	ZHW	EPA 533	
0435	PFHxA Perfluorohexanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:22	ZHW	EPA 533	
0436	PFDA Perfluorodecanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:22	ZHW	EPA 533	
0437	PFUnA Perfluoroundecanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:22	ZHW	EPA 533	
0438	PFDoA Perfluorododecanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:22	ZHW	EPA 533	
0445	ADONA 4,8-Dioxa-3H-perfluorononanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:22	ZHW	EPA 533	
0446	9Cl-PF3ONS	ND	ng/L	2.00	2	--		10/2/24 22:22	ZHW	EPA 533	
0447	HFPO-DA Hexafuoropropylene oxide dimer acid	ND	ng/L	2.00	2	--		10/2/24 22:22	ZHW	EPA 533	
0448	11Cl-PF3OUdS	ND	ng/L	2.00	2	--		10/2/24 22:22	ZHW	EPA 533	
0450	4:2FTS 1H,1H,2H,2H-Perfluorohexane sulfonic acid	ND	ng/L	2.00	2	--		10/2/24 22:22	ZHW	EPA 533	
0451	6:2FTS 1H,1H,2H,2H-Perfluorooctane sulfonic acid	ND	ng/L	2.00	2	--		10/2/24 22:22	ZHW	EPA 533	
0452	8:2FTS 1H,1H,2H,2H-Perfluorodecane sulfonic acid	ND	ng/L	2.00	2	--		10/2/24 22:22	ZHW	EPA 533	
0453	NFDHA Nonafluoro-3,6-dioxaheptanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:22	ZHW	EPA 533	
0454	PFBA Perfluorobutanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:22	ZHW	EPA 533	

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504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - email spokane@anateklabs.com

Client: [redacted]
Address:

Attn:

Work Order: [redacted]
Project: PFAS 533
Reported: 10/8/2024 13:50

Analytical Results Report

System ID# [redacted]
Reference Number:
Multiple Source Nos:
Date Received: 09/24/24 12:00
Sample Location: [redacted]
Matrix: Drinking Water

System Name: [redacted]
Collect Date: 09/22/24 18:00
Sample Type: Before
Sample Purpose: O - Other

DOH Source #:
County: San Juan

Lab/Sample Number: 125-78301

Per- and Polyfluoroalkyl Substances (PFAS)

DOH #	Analyte	Result	Units	LRL	SDRL	SAL	MCL	Analyzed	Analyst	Method	Qualifier
0455	PFHpS Perfluoroheptanesulfonic acid	ND	ng/L	2.00	2	--		10/2/24 22:22	ZHW	EPA 533	
0456	PFMBA Perfluoro-4-methoxybutanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:22	ZHW	EPA 533	
0457	PFMPA Perfluoro-3-methoxypropanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:22	ZHW	EPA 533	
0458	PFPeA Perfluoropentanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:22	ZHW	EPA 533	
0459	PFPeS Perfluoropentanesulfonic acid	ND	ng/L	2.00	2	--		10/2/24 22:22	ZHW	EPA 533	
0460	PFEESA Perfluoro(2-ethoxyethane) sulfonic acid	ND	ng/L	2.00	2	--		10/2/24 22:22	ZHW	EPA 533	

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504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - email spokane@anateklabs.com

Client: [redacted]
Address:

Attn:

Work Order: [redacted]
Project: PFAS 533
Reported: 10/8/2024 13:50

Analytical Results Report

System ID# [redacted]
Reference Number: [redacted]
Multiple Source Nos:
Date Received: 09/24/24 12:00
Sample Location: [redacted]
Matrix: Drinking Water

System Name: [redacted]
Collect Date: 09/22/24 17:00
Sample Type: Before
Sample Purpose: O - Other

DOH Source #:
County: San Juan

Lab/Sample Number: 125-78302

Per- and Polyfluoroalkyl Substances (PFAS)

DOH #	Analyte	Result	Units	LRL	SDRL	SAL	MCL	Analyzed	Analyst	Method	Qualifier
0434	PFOA Perfluorooctanoic acid	79.2	ng/L	2.00	2	10		10/2/24 22:48	ZHW	EPA 533	
0433	PFOS Perfluorooctanesulfonic acid	229	ng/L	2.00	2	15		10/2/24 22:48	ZHW	EPA 533	
0431	PFHxS Perfluorohexanesulfonic acid	990	ng/L	2.00	2	65		10/2/24 22:48	ZHW	EPA 533	
0432	PFNA Perfluorononanoic acid	121	ng/L	2.00	2	9		10/2/24 22:48	ZHW	EPA 533	
0429	PFBS Perfluorobutanesulfonic acid	342	ng/L	2.00	2	345		10/2/24 22:48	ZHW	EPA 533	
0430	PFHpA Perfluoroheptanoic acid	107	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0435	PFHxA Perfluorohexanoic acid	276	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0436	PFDA Perfluorodecanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0437	PFUnA Perfluoroundecanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0438	PFDoA Perfluorododecanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0445	ADONA 4,8-Dioxa-3H-perfluorononanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0446	9Cl-PF3ONS	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0447	HFPO-DA Hexafuoropropylene oxide dimer acid	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0448	11Cl-PF3OUdS	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0450	4:2FTS 1H,1H,2H,2H-Perfluorohexane sulfonic acid	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0451	6:2FTS 1H,1H,2H,2H-Perfluorooctane sulfonic acid	40.7	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0452	8:2FTS 1H,1H,2H,2H-Perfluorodecane sulfonic acid	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0453	NFDHA Nonafluoro-3,6-dioxaheptanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0454	PFBA Perfluorobutanoic acid	80.0	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	

Anatek Labs, Inc.

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504 E Sprague Ste. D - Spokane, WA 99202 - (509) 838-3999 - email spokane@anateklabs.com

Client: [redacted]
Address:

Attn:

Work Order: [redacted]
Project: PFAS 533
Reported: 10/8/2024 13:50

Analytical Results Report

System ID# [redacted]
Reference Number: [redacted]
Multiple Source Nos:
Date Received: 09/24/24 12:00
Sample Location: [redacted]
Matrix: Drinking Water

System Name: [redacted]
Collect Date: 09/22/24 17:00
Sample Type: Before
Sample Purpose: O - Other

DOH Source #:
County: San Juan

Lab/Sample Number: 125-78302

Per- and Polyfluoroalkyl Substances (PFAS)

DOH #	Analyte	Result	Units	LRL	SDRL	SAL	MCL	Analyzed	Analyst	Method	Qualifier
0455	PFHpS Perfluoroheptanesulfonic acid	15.7	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0456	PFMBA Perfluoro-4-methoxybutanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0457	PFMPA Perfluoro-3-methoxypropanoic acid	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0458	PFPeA Perfluoropentanoic acid	213	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0459	PFPeS Perfluoropentanesulfonic acid	324	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	
0460	PFEESA Perfluoro(2-ethoxyethane) sulfonic acid	ND	ng/L	2.00	2	--		10/2/24 22:48	ZHW	EPA 533	

Authorized Signature,

Justin Doty For Todd Taruscio, Laboratory Manager

LRL	Lab Reporting Limit
SDRL	State Detection Reporting Limit
ND	Not Detected
MCL	EPA's Maximum Contaminant Level
Dry	Sample results reported on a dry weight basis
SAL	State Action Level
*	Not a certified analyte

ANATEK LABS

☐ 1282 Alturas Drive, Moscow ID 83843 208-883-2839 moscow@anateklabs.com EP
☐ 504 E Sprague Ste D, Spokane WA 99202 509-838-3999 spokane@anateklabs.com E

[redacted]

Due: 10/08/24

Washington Chain of Custody - Drinking Water Analys

WATER SYSTEM	[redacted]	Water System #	[redacted]
SEND REPORT TO		Phone Number	
ADDRESS		E-Mail	
CITY STATE ZIP		County	

Sample Type		Sample Purpose	
☒	Before (B)	☐	Compliance (C)
☐	After (A)	☒	Investigative (I)
☐	Unknown (U)	☐	Other Purpose (B)

Date & Time Collected: 9/22/24 1810

Sampler Name: [redacted]

Sampler Signature:

Payment due with samples unless credit has been established

Sample Location (required)

DOH Source # (Check one and fill in where necessary)

- ☒ Single Well Source Number: [redacted]
- ☐ Flowing Distribution (92)
- ☐ Composite Sampling (95) List source #'s_____
- ☐ Blended Sample (96) List source #'s_____

Receiving Check List

- ☐ Received Intact
- ☐ No Headspace
- ☐ Labels & Chains Agree
- ☐ Temp: _____
- ☐ Ice/Ice-Packs Present:_____
- ☐ Custody Seals Present:_____
- ☐ Preservatives:_____

Check Desired Analyses

IOCs	VOCs & DBPs	SOCs	PFC/PFAS	Other (specify):
☐ Lead	☐ VOC (VOC1)	☐ Phase II SOC	☒ PFAS by EPA 533	
☐ Copper	☐ TTHM	☐ Semivolatiles (PEST1)		
☐ Arsenic	☐ HAA5	☐ Herbicides (HERB1)		
	☐ TOC	☐ Carbamates (INSECT1)		
☐ Nitrate	☐ Alkalinity	☐ Pesticides (PEST1)		
	RADs	☐ EDB		
☐ Nitrite	☐ Gross Alpha	☐ Phase V SOC		
	☐ Gross Beta	☐ Diquat		
☐ WA Complete IOC	☐ RAD 226	☐ Endothall		
	☐ RAD 228	☐ Glyphosate		
☐ Asbestos	☐ Uranium	☐ Dioxin		

Customer Signature	[redacted]	Received By	SM
Shipping/Delivery Date		Date/Time Rec'd	9/24 1200

Samples submitted to Anatek Labs may be subcontacted to other accredited labs if necessary. This message serves as notice of this possibility.
Subcontracted analyses will be clearly noted on the analytical report.

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Washington Chain of Custody - Drinking Water Analysis

WATER SYSTEM	[redacted]	Water System #	[redacted]
SEND REPORT TO		Phone Number	
ADDRESS		E-Mail	
CITY STATE ZIP		County	

Sample Type		Sample Purpose	
☒	Before (B)	☐	Compliance (C)
☐	After (A)	☒	Investigative (I)
☐	Unknown (U)	☐	Other Purpose (B)

Date & Time Collected: 9/22/24 1707

Sampler Name: [redacted]

Sampler Signature:

Payment due with samples unless credit has been established

Sample Location (required)

DOH Source # (Check one and fill in where necessary)

- ☒ Single Well Source Number: [redacted]
- ☐ Flowing Distribution (92)
- ☐ Composite Sampling (95) List source #'s_____
- ☐ Blended Sample (96) List source #'s_____

Receiving Check List

- ☐ Received Intact
- ☐ No Headspace
- ☐ Labels & Chains Agree
- ☐ Temp: _____
- ☐ Ice/Ice-Packs Present:_____
- ☐ Custody Seals Present:_____
- ☐ Preservatives:_____

Check Desired Analyses

IOCs	VOCs & DBPs	SOCs	PFC/PFAS	Other (specify):
☐ Lead	☐ VOC (VOC1)	☐ Phase II SOC	☒ PFAS by EPA 533	
☐ Copper	☐ TTHM	☐ Semivolatiles (PEST1)		
☐ Arsenic	☐ HAA5	☐ Herbicides (HERB1)		
	☐ TOC	☐ Carbamates (INSECT1)		
☐ Nitrate	☐ Alkalinity	☐ Pesticides (PEST1)		
	RADs	☐ EDB		
☐ Nitrite	☐ Gross Alpha	☐ Phase V SOC		
	☐ Gross Beta	☐ Diquat		
☐ WA Complete IOC	☐ RAD 226	☐ Endothall		
	☐ RAD 228	☐ Glyphosate		
☐ Asbestos	☐ Uranium	☐ Dioxin		

Customer Signature	[redacted]	Received By	
Shipping/Delivery Date		Date/Time Rec'd	

Samples submitted to Anatek Labs may be subcontacted to other accredited labs if necessary. This message serves as notice of this possibility.
Subcontracted analyses will be clearly noted on the analytical report.

Anatek Labs, Inc.

Sample Receipt and Preservation Form

Client Name: [redacted]

TAT: (Normal) RUSH: _____ days

Samples Received From: (FedEx) UPS USPS Client Courier Other: _____

Custody Seal on Cooler/Box: Yes (No) Custody Seals Intact: Yes No (N/A)

Number of Coolers/Boxes: 1 Type of Ice: (Wet Ice) Ice Packs Dry Ice None

Packing Material: Bubble Wrap (Bags) Foam/Peanuts Paper None Other: _____

Cooler Temp As Read (°C): 4.3 Cooler Temp Corrected (°C): _____ Thermometer Used: IR-4 (IR-6)

				Comments:
Samples Received Intact?	(Yes)	No	N/A	
Chain of Custody Present/Complete?	(Yes)	No	N/A	
Labels and Chains Agree?	(Yes)	No	N/A	
Samples Received Within Hold Time?	(Yes)	No	N/A	
Correct Containers Received?	(Yes)	No	N/A	
Anatek Bottles Used?	(Yes)	No	Unknown	
Total Number of Sample Bottles Received: 6				

				Initial pH:	pH Paper ID:
Samples Properly Preserved?	(Yes)	No	N/A	<2 or	
If No, record preservation and pH-after details					
VOC Vials Free of Headspace (<6mm)?	Yes	No	(N/A)		
VOC Trip Blanks Present?	Yes	No	(N/A)		

Record preservatives (and lot numbers, if known) for containers below:

P250 NH_4 Acetate (2316) 533 (6)

Notes, comments, etc. (also use this space if contacting the client - record names and date/time)

Received/Inspected By: SA Date/Time: 9/24/24 1200

Form F19.01 - Eff 1 Dec 2022

Appendix D
Archaeological Technical Memorandum

CULTURAL RESOURCES REPORT COVER SHEET

DAHP Project Number: 2024-02-01277

Author: Yonara Carrilho and Ron Adams

Title of Report: Archaeological Mointoring for the Bailer Hill Area PFAS Technical Support Project

Date of Report: May 2, 2025

County(ies): San Juan Section: 30 Township: 35 N Range: 3 W

Quad: False Bay, WA Acres: 0.97

PDF of report submitted (REQUIRED) ☒ Yes

Historic Property Inventory Forms to be Approved Online? ☐ Yes ☒ No

Archaeological Site(s)/Isolate(s) Found or Amended? ☐ Yes ☒ No

TCP(s) found? ☐ Yes ☒ No

Replace a draft? ☐ Yes ☒ No

Satisfy a DAHP Archaeological Excavation Permit requirement? ☐ Yes # ☒ No

Were Human Remains Found? ☐ Yes DAHP Case # ☒ No

DAHP Archaeological Site #:

- Submission of PDFs is required.
- Please be sure that any PDF submitted to DAHP has its cover sheet, figures, graphics, appendices, attachments, correspondence, etc., compiled into one single PDF file.
- Please check that the PDF displays correctly when opened.

WILLAMETTE
CULTURAL RESOURCES ASSOCIATES, LTD.

TECHNICAL MEMORANDUM

Archaeological Monitoring for the Bailer Hill Area PFAS Site Technical Support Project

Yonara Carrilho, B.A.
Ron Adams, Ph.D., R.P.A.

May 2, 2025

Introduction

Willamette Cultural Resources Associates, Ltd., (WillametteCRA) has completed archaeological monitoring for the Bailer Hill Area PFAS Site Technical Support Project (Project). The Project consists of a Per-and polyfluoroalkyl substances (PFAS) data review with a limited soil/groundwater PFAS investigation of Little Mountain Fire Station 33. The Project is being done to assist the Washington State Department of Ecology (Ecology) in identifying PFAS sources for the Bailer Hill Site (FSID #100000405) under the Model Toxics Control Act (MTCA). The Project's overall objective is to provide technical support to Ecology regarding sources and extent of PFAS contamination in the area. The Bailer Hill Site is mainly comprised of single-family homes under the umbrella of the Hannah Heights Homeowner's Association (Hannah Heights). Hannah Heights owns and maintains two (2) drinking water wells (Well No. 1 and Well No. 2) that supply the single-family homes within the Bailer Hill Site.

GeoEngineers Inc. (GeoEngineers) led the Bailer Hill Site fieldwork on behalf of Ecology. GeoEngineers subcontracted WillametteCRA to conduct archaeological monitoring of their environmental boreholes (BH) during soil and groundwater investigations surrounding Well No. 2 to identify and better understand contaminant pathway. No significant cultural resources were identified during monitoring. The following provides a summary of the Project and results of the monitoring effort.

Regulatory Setting

The Project is being conducted to comply with Washington State's MTCA regulations (WAC 173-340) and is being supported by funds provided by Ecology. As a project involving State of Washington funds, it requires compliance with State of Washington Executive Order (EO) 21-02. EO 21-02 requires state agencies funding projects to determine potential impacts on significant cultural resources. In accordance with EO 21-02, Ecology has conducted a consultation with affected Tribes and the Washington State Department of Archaeology and Historic Preservation

(DAHP). Based on this consultation, Ecology determined that a professional archaeologist should provide technical assistance and conduct field monitoring and data recovery (in the event of an inadvertent discovery) during the soil and groundwater investigations, and DAHP concurred.

Project Location and Description

The Project is located on the west side of San Juan Island at the Little Mountain Fire Station 33, San Juan County Tax Parcel 353050029000, in Section 30, Township 35 North, Range 3 West, Willamette Meridian (Figures 1 and 2). The Project Site sits on a hillside gently sloping southeast toward a valley. The somewhat square-shaped parcel is bounded by Bailer Hill Road on the north, Straits View Drive on the east, and barbed-wire fences covered by shrubby vegetation on the south and west sides.

Archaeological Monitoring Plan

Prior to the excavation of environmental bores, WillametteCRA completed an archaeological monitoring plan (AMP) outlining the procedures to be conducted during the archaeological monitoring of the environmental investigations (WillametteCRA 2024). The AMP also included an inadvertent discovery plan (IDP) developed by Ecology that was to be followed in the event of the discovery of archaeological deposits and/or human remains during the monitoring. The AMP and IDP are appended to this memo (Appendix A).

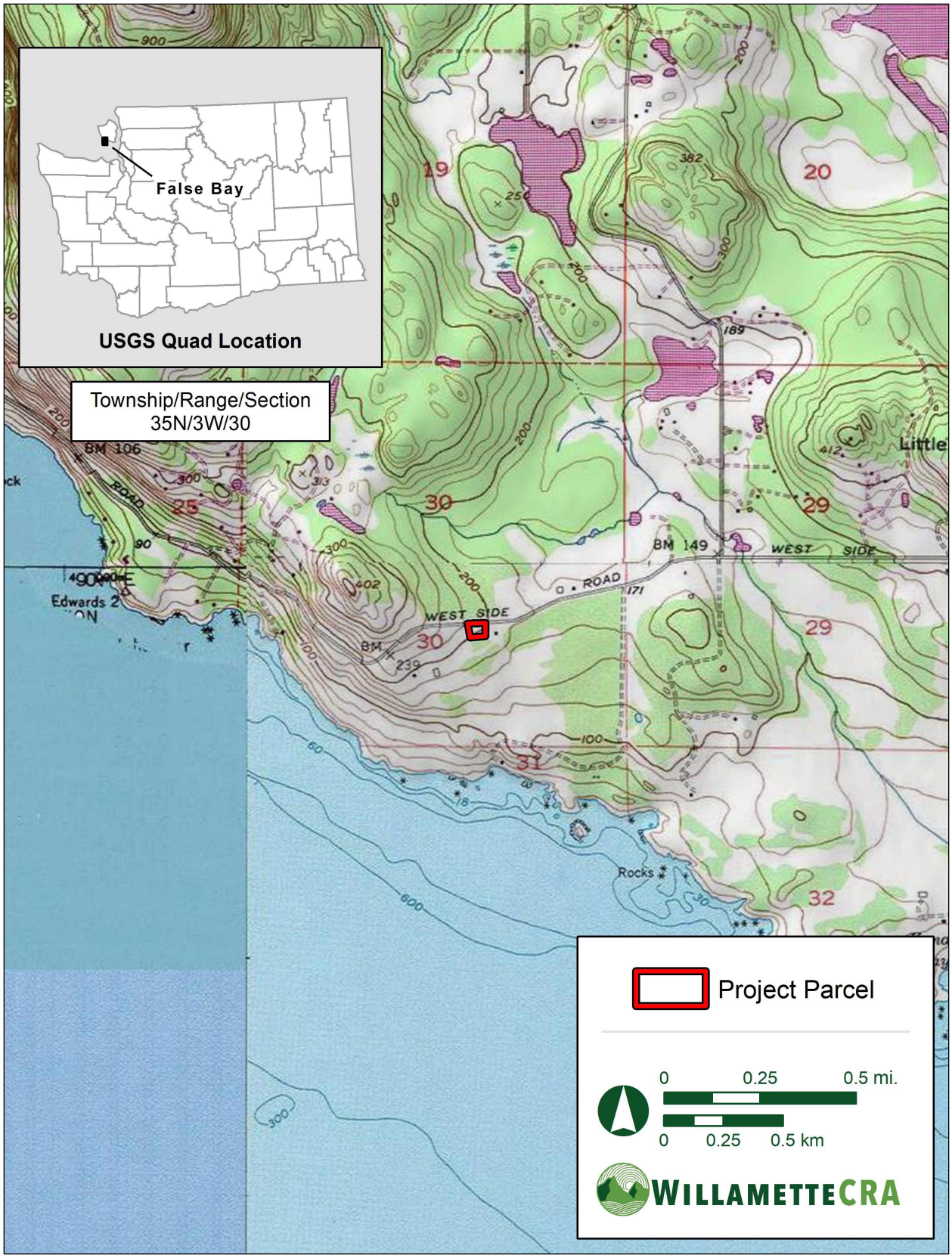

Figure 1. Project location map.

Figure 2. Project location on modern air photo.

Natural Setting, Cultural Setting, and Expectations for Cultural Resources

The appended AMP describes the natural and cultural setting of the Project Site, as well as its archaeological potential. To summarize, there is abundant evidence for human presence on San Juan Island during the past 4,000 years before present (BP). Based on the presence of archaeological sites in the vicinity of the island dating to well over 10,000 BP (e.g., Wilson et al. 2009), it is likely that people have been residing on the island and utilizing its resources for a similarly extensive period in antiquity. The natural setting of the island would have provided numerous plant foods (e.g., camas and wapato), terrestrial mammals (e.g., deer and elk), and abundant marine resources (e.g., salmon, mussels, clams, and cockles) to support peoples for centuries (Wessen 1986).

The presence of non-indigenous peoples on the island began in the mid-nineteenth century. The early period of this postcontact history of the island was dominated by the "Pig War," which extended from 1859 to 1872, with the focus of activities being at American Camp and English Camp, at the eastern and western ends of San Juan Island respectively (Thomas and Thomson 1992). Later postcontact history was associated with agricultural pursuits throughout the island, lime processing at Roche Harbor at the western end of the island, and salmon canning at the eastern end of the island at Friday Harbor, which emerged as the commercial center of the island (Riddle 2010).

The DAHP predictive model assesses the Project Site as having a moderate to high risk for archaeological resources. The results of previous archaeological investigations in the surrounding vicinity suggest that the Project Site would perhaps more appropriately considered to have a low to moderate probability for containing archaeological resource in comparison to areas adjacent to the shoreline, where the vast majority of archaeological sites in the area have been documented previously.

Monitoring Methods

The WillametteCRA archaeological monitor followed the monitoring protocol outlined for the Project in the AMP (Appendix A). Monitoring documentation included recording observations of the environmental setting, field conditions, contacts, boring and sampling methods, and soil encountered on standard forms. Digital photographs of the location and various stages of drilling were taken and recorded on photo logs. A handheld GPS unit was used during Session 1 to record the location of BHs and pertinent features. GPS was not used during Session 2, although the locations of all borings were recorded by GeoEngineers. All forms and photographs are on file at the WillametteCRA, Seattle office.

Monitoring Results

WillametteCRA archaeologist Yonara Carrilho conducted the archaeological monitoring during two sessions of environmental investigations, Session 1, conducted from August 12 through 14, 2024, and Session 2, conducted on October 14 and 15, 2024. A total of 14 environmental borings were drilled for this Project, 12 during the first session and 2 during the second session. All borehole log schematic stratigraphy can be found in Appendix B. These borehole logs were created for archaeological monitoring purposes and not intended for geologic interpretation. The results of the archaeological monitoring are described below.

Session 1 Archaeological Monitoring

Session 1 entailed drilling 12 shallow direct push bores throughout the Project Site to identify shallow contaminant source areas (Figure 3). GeoEngineers geologist Meredith Bush directed fieldwork under the supervision of Field Team Lead geologist Katy Ataktürk. Bush collected soil samples and kept a log of her observations, while Tim Watson with Cascade Drilling LP (Cascade) conducted the drilling. Ecology Hydrogeologist Vance Atkins, Toxicologist Kim Wooten and Washington State Department of Health (WSDOH) Health Educator Claire Nitsche visited the Project Site on the second day of Session 1. Prior to the bore drilling work, Carrilho briefly familiarized field personnel with the types of cultural resources that may be present within the Project Site, the legal context for cultural resources protection, and the procedures to be followed in the event that potentially significant cultural resources were identified during monitoring. Weather conditions during the three days of monitoring were partially cloudy, mostly dry and with temperatures in the mid-60 degrees Fahrenheit.

Figure 3. Project location and sampling locations on modern air photo.

The soil investigation environmental borings were drilled using a 7822DT Geoprobe (direct push system) remote-controlled compact-crawler rig using the Geoprobe DT22 Soil Sampling System (Figure 4). The system is designed to collect continuous core samples of unconsolidated material from within a sealed casing Geoprobe 2.25-inch (in.) outside diameter probe rods. The soil sampler collects and retrieves the core within a soil sample tube or liner that is threaded onto the leading end of a string of Geoprobe 1.25 in. outside diameter center rods and are inserted to the bottom of the outer casing (Kejr, Inc. 2024). Core runs were taken at 5-foot (ft.) increments. Each 5 ft. sample tube was cut in half in order to provide the geologist access to log and sample the core. If water was present, a temporary monitoring well (MW) was installed for a single groundwater sample (Figure 5). The spoils were then dumped into 50-gallon drums that were sealed and later removed from Project Site for proper disposal.

Figure 4. Geoprobe 7822DT drilling rig used during the soil investigations at bore location BH-4, view west.

Figure 5. Core logging and sampling station, view west.

The Session 1 direct push bores were drilled from the ground surface to the top of bedrock to depths ranging between 8 and 22 ft. below surface (fbs; Appendix B). Bush collected soil samples from the bores and water samples if groundwater was present. Carrilho then visually inspected and photographed each core run. The order of this procedure was designed to provide GeoEngineers with quality samples free of cross-contamination.

Six of the twelve bores (BH-1, BH-2, BH-3, BH-5, BH-8, and BH-9) were drilled on the upland, northwest side of the Project Site surrounding the Fire Station building (Figure 6). Imported gravel was observed at the Fire Station entrance with landscaped grass surrounding the building. In general, the bores drilled in the upland side of the Project Site yielded soil and stratigraphic profiles reflecting the artificially modified landform on which they were placed. Dark brown silt and gravelly fine sandy silt fill deposits were present in the upper 2 ft. of the bores, which overlayed a gray gravelly very fine sandy silt to an average depth of 9 fbs. Wet soil with common redder and yellower redox concentrations was generally present around 7 fbs. Interbedded gray and yellowish-gray fine to coarse sand and silt (likely glacial deposits) that became coarser with depth was observed toward the bottom of the bores. The deepest observed deposits consisted of a gray to bluish-gray fine to coarse sand on top of hard bedrock that consisted of very dark greenish-gray flaky schist (Figures 7 and 8).

Figure 6. Bores BH-1 in the foreground and BH-2 in front of the white truck on the left side of the photo, view southeast.

Figure 7. BH-8 core samples from surface (lower right) to 15 fbs (upper left).

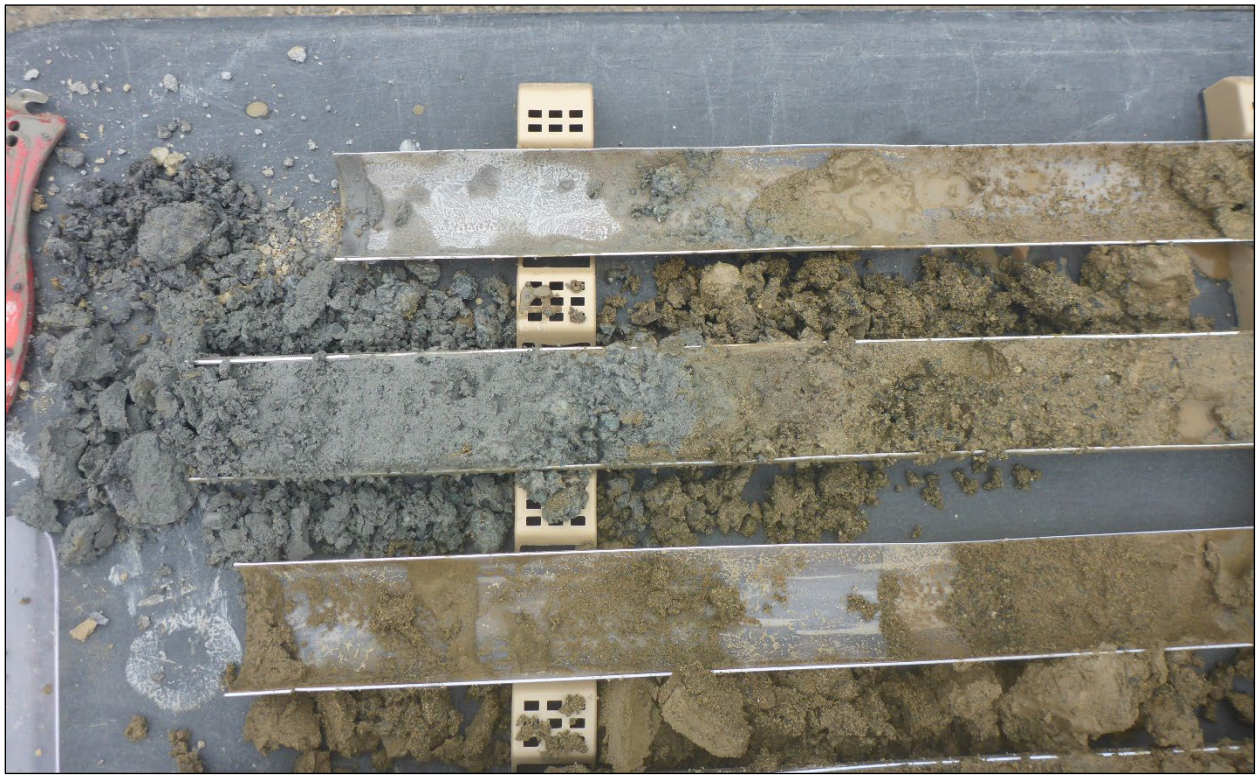

Figure 8. Bottom of BH-8 showing bluish-gray gravelly coarse sand at 16.5 fbs.

Exceptions to this overall pattern were observed n BH-3 and BH-9. BH-3 was drilled near the drain field on the parcel and displayed little depositional variability (Figure 9). The soil from this bore appeared to have been reworked and contained coarser gravels in the upper 10 fbs before the bore reached bedrock at 11.5 fbs (Figure 10). BH-9 contained dark gray clay with traces of silt and fibrous woody debris between 9 and 14 fbs (Figure 11). A thin layer of yellowish-gray fine to medium sand was also observed at the bottom of the borehole overlying the schist bedrock at 15.5 fbs (Figure 12).

Figure 9. Bore BH-3 location near the drain field, view northeast.

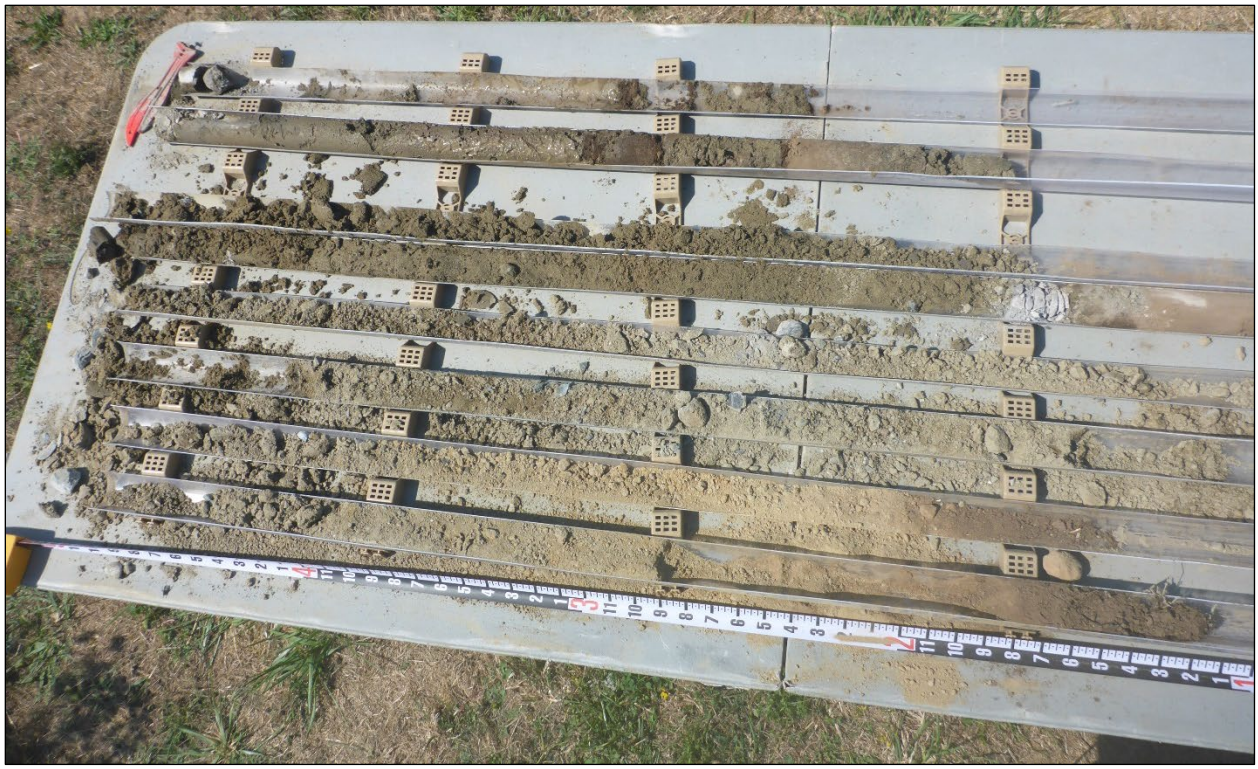

Figure 10. BH-3 core samples. Soil from the base of the bore are in the third core run sample up from the bottom of the view (the whitish-gray crushed rock on the right of the photo). The lowest two runs in the view consist of collapsed spoils.

Figure 11. View of BH-9 core runs showing gray clay deposit between 9 and 14 fbs.

Figure 12. Core runs from the lowest depths of BH-9 showing sand under the clay and on top of the bedrock (left side of photo).

Bores BH-6, BH-10, BH-11, and BH-12 were drilled in the downslope, eastern and southeastern portions of the parcel. BH-6 and BH-10 were excavated in a brushy portion of the parcel from which vegetation had been removed prior to the drilling, and BH-11 and BH-12 were drilled in an improvised driveway that was used to access Well No. 2 (Figure 13). The soil from the four bores all exhibited similar stratigraphic sequences that generally consisted of interbedded layers of grayish-brown and gray silt and fine sand to depths of approximately 14 fbs. The upper 2 ft. of soil in these bores appeared to have been reworked and redeposited as fill. The interbedded silt and sand layers overlaid gray and yellowish-gray interbedded fine and medium to coarse sand (likely glacial in origin) that became gravellier at the lowest depths of the bores (Figure 14).

Figure 13. Bores BH-6 (background) and BH-5 (foreground), view east.

Figure 14. Core run samples from BH-11 showing stratigraphic deposition from 5 fbs (bottom right) to the bedrock at 22 fbs (upper left).

BH-4 and BH-7 were drilled within the right-of-way adjacent to Straights View Drive at the lowest elevation within the Project Site (Figure 15). The upper-most foot of each of the two bores contained imported gravel. Below the imported gravel, disturbed and redeposited native soil was present to a depth of approximately 3 fbs. Interbedded yellowish-brown and yellowish-gray clayey silt and fine to medium sand were observed to about 13.5 fbs, overlying the shist bedrock at 14 fbs. Moisture content in the two bores increased between 11.5 and 13.5 fbs, at which depths sand beds became coarser (Figure 16). No cultural material was identified during the monitoring of the Session 1 environmental bores.

Figure 15. BH-4 set up on the edge of Straits View Drive, view south from Bailer Hill Rd.

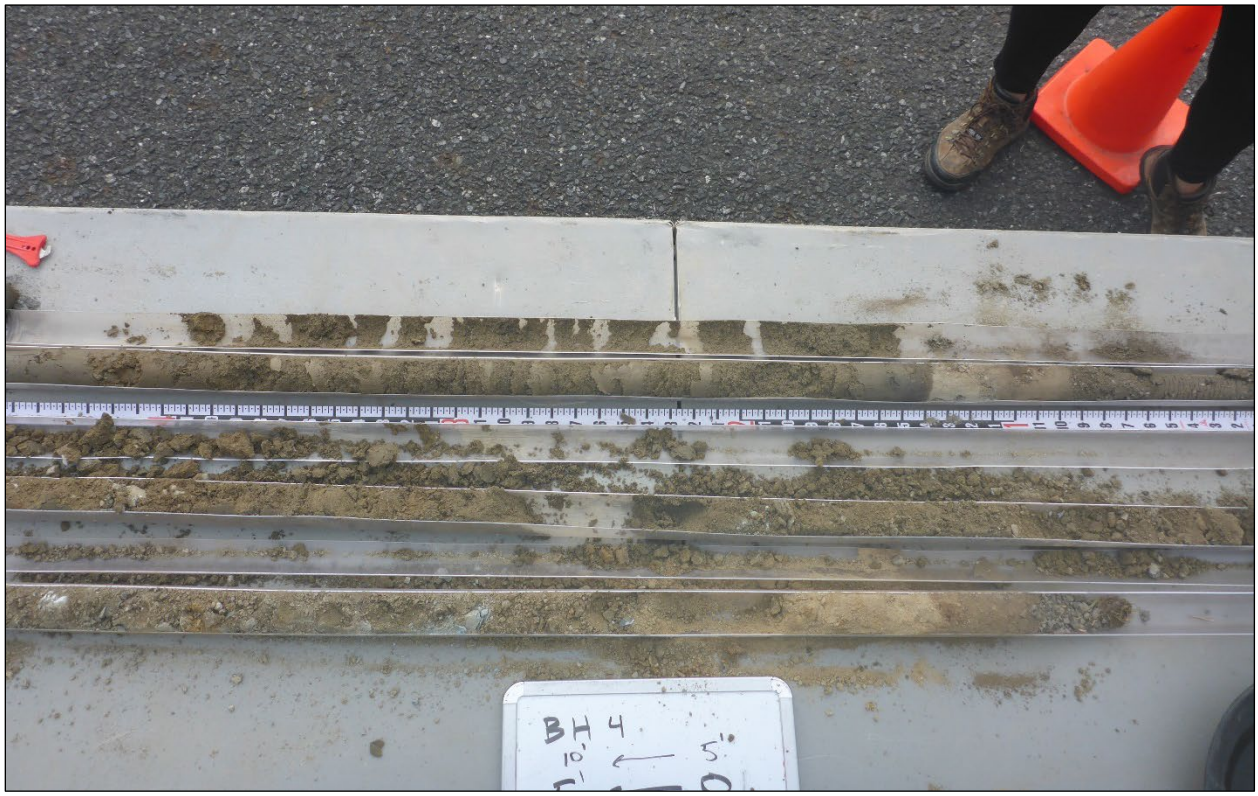

Figure 16. BH-4 core run samples from surface (lower right) to 14 fbs (top left).

Session 2 Archaeological Monitoring

Session 2 was conducted on October 14 and 15, 2024, and entailed drilling groundwater investigation bores deep into bedrock. The bores were then converted to groundwater monitoring wells to assess contaminant impact to groundwater. GeoEngineers determined the Session 2 bore locations based on data collected during Session 1. Geologists Ataktürk and Bush directed the Session 2 drilling, and Cascade Drilling conducted the drilling. As was the case with Session 1, Carrilho briefed the drilling personnel on cultural resources protection, the kind of archaeological materials that may be encountered at the Project Site, the archaeologist's role, and potential treatment measures to be followed in accordance with the AMP. Weather conditions during the two days of monitoring for this session were cloudy and cold with some rain on the first day.

Drilling for the groundwater investigation was conducted using a remote controlled TSi 150cc Compact-Crawler Sonic Drill Rig, track-mounted with a double-cased casing system using an inner core barrel 4 in. diameter and a 6 in. diameter override casing. Core runs were at 5 ft. increments. The crawler rig tracks and ground surface surrounding the bores were protected with thick-milled plastic during drilling to avoid contamination in case of spills (Figure 17). Samples were removed from the core barrel into a plastic sleeve and placed at the sampling station for logging. After the samples were logged, spoils were dumped directly into a 50-gallon drum for later disposal. Bush did not collect samples during this session.

Figure 17. Sonic Drill Rig at BH-MW1 and corresponding workstation, view north.

Two (BH-MW1 and BH-MW4) of the four deep bores were drilled (see Figure 3). BH-MW1 was drilled in the upland portion of the parcel near the Fire Station, approximately 20 ft. west of BH-2 (Figure 19). GeoEngineers planned to drill each bore to a depth of 40 fbs to reach deep groundwater. However, due to the ineffectiveness of the dry-drilling technique used for the bores, BH-MW1 and BH-MW4 were each drilled to maximum depths of to 27.5 and 27 fbs, respectively.

BH-MW1 was drilled to 27.5 fbs. The drill bit became overheated during the dry coring process and the tip of the drill bit broke at the bottom of the hole. The drill bit fragment along with a segment of casing could not be retrieved and the borehole was abandoned. The soil and stratigraphic profile of BH-MW1 consisted of 0.5 feet of imported fill over reworked and interbedded layers of dark brown, yellowish-gray and gray silt and fine sand to approximately 7 fbs. Dark gray crushed and powdered bedrock was observed from 7 to 27.5 fbs (Figures 19 and 20; Appendix B). Due to the fact that BH-MW1 was abandoned, a replacement borehole was drilled in a different location with the same number. The drilling of the replacement borehole was not monitored.

Figure 18. Preparing drill at BH-MW1, view east.

Figure 19. BH-MW1 core sample from surface (top left) to 9 fbs (bottom right), showing glacial deposits overlaying dark gray crushed bedrock starting at 7 fbs.

Figure 20. Garrison schist containing quartz veins and some epidotes (green rock) recovered from approximately 20 fbs in BH-MW1.

BH-MW4 was drilled at lower elevation off Straits View Drive, approximately 10 ft. west of BH-12 on the access driveway to Well #2 (Figure 21). The stratigraphic profile of BH-MW4 consisted of interbedded layers of glacial deposits. Brown, yellowish-gray and gray silt and fine sand with few gravels observed to about 21 fbs. The metasedimentary dark gray crushed and powdered bedrock was observed between 21 and 27 fbs (Figure 22; Appendix B). No cultural material was identified during the monitoring of the Session 2 environmental bores.

Figure 21. Preparing drill at BH-MW4 adjacent to Straits View Drive, view west.

Figure 22. BH-MW4 core samples from surface (top left) to 25 fbs (bottom right), showing glacial deposits overlying dark gray metasedimentary bedrock.

Discussion and Recommendations

WillametteCRA identified no archaeological resources during the monitoring of environmental bores drilled for the Bailer Hill Area PFAS Site Technical Support Project. Observations of the borings indicate a low overall potential for intact archaeological deposits. The upper depths of many of the borings contained disturbed soil and/or imported fill and lacked any apparent intact A horizon. There were also no stable buried surfaces indicative of a paleosol where deeply buried cultural material may otherwise be present. As such, WillametteCRA recommends no additional archaeological monitoring for the remaining groundwater investigation bores so long as the stipulations of the Project IDP are followed during the drilling work. Importantly, these recommendations only pertain to the current Project. Any future work within the Project Site may require an archaeological assessment pending local, state, and/or federal regulatory requirements. The subsurface logs created by the archaeological monitor are intended solely to document conditions observed for the purpose of archaeological evaluation. These logs are not intended to serve as environmental, geotechnical, or soil classification boring logs and should not be used for those purposes. They are an independent product created to support archaeological findings and interpretations only.

References

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Thomas, Bryn H., and James W. Thomson. 1992. Historic Treatment of a Prehistoric Landscape. In *Deciphering a Shell Midden* edited by J. K. Stein. San Diego, Academic Press, Inc.:61–70.

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Wilson, Michael C., Stephen M. Kenady, and Randall F. Schalk. 2009. Late Pleistocene *Bison antiquus* from Orcas Island, Washington, and the Biogeographic Importance of an Early Postglacial Land Mammal Dispersal Corridor from the Mainland to Vancouver Island. *Quaternary Research* 71(1):49–61.

Appendix A:
Archaeological Monitoring Plan

Archaeological Monitoring Plan for the Bailer Hill Area PFAS Site Technical Support Project

July 12, 2024

1. Introduction

The Bailer Hill Area PFAS Site Technical Support Project (Project) consists of a Per-and polyfluoroalkyl substances (PFAS) data review with a limited soil/groundwater PFAS investigation of Litte Mountain Fire Station 33 to assist the Washington State Department of Ecology (Ecology) in identifying PFAS sources for the Bailer Hill Site (FSID #100000405) under the Model Toxics Control Act (MTCA). The Bailer Hill Site is mainly comprised of single-family homes under the umbrella of the Hannah Heights Homeowner's Association (Hannah Heights). Hannah Heights owns and maintains two (2) drinking water wells (Well #1 and Well #2) that supply the single-family homes within the Bailer Hill Site.

The Project includes assisting Ecology with a review of existing groundwater data associated with the Bailer Hill Site and its vicinity (1-mile [mi.] radius around the Site) from available sources and conducting soil and groundwater investigations to better define the contaminant pathway affecting Well #2 (Well #1 is not being investigated) and prepare a summary report compiling soil and groundwater data with a discussion of source identification, potential contaminant pathways, and recommendations for next steps. The soil and groundwater investigations at Little Mountain Fire Station 33 will entail the drilling of 12 2-inch (in.) direct push borings and 4 6-in. sonic core borings.

GeoEngineers has retained Willamette Cultural Resources Associates, Ltd. (WillametteCRA) to conduct archaeological monitoring of all of the direct push and sonic core borings to be drilled for the Project. This archaeological monitoring plan (AMP) outlines the procedures to be conducted during the archaeological monitoring of the borings.

Regulatory Context

The Project is being conducted to comply with Washington State's MTCA regulations (WAC 173-340) and is being supported by funds provided by Ecology. As a project involving State of Washington funds, it requires compliance with State of Washington Executive Order (EO) 21-02. EO 21-02 requires state agencies funding projects to determine potential impacts on

significant cultural resources. In accordance with EO 21-02, Ecology has conducted a consultation with affected Tribes and the Washington State Department of Archaeology and Historic Preservation (DAHP). Based on this consultation, it has been deemed necessary by Ecology and concurred with by DAHP that a professional archaeologist will provide technical assistance and conduct field monitoring and data recovery (in the event of an inadvertent discovery) during the soil and groundwater investigations.

Project Location

The Project is located in San Juan County Tax Parcel 353050029000, which is situated in the southwestern part of San Juan Island in Section 30, Township 35 North, Range 3 West, Willamette Meridian. This parcel is referred to as the Project Parcel in this document and is depicted on Figures 1 and 2.

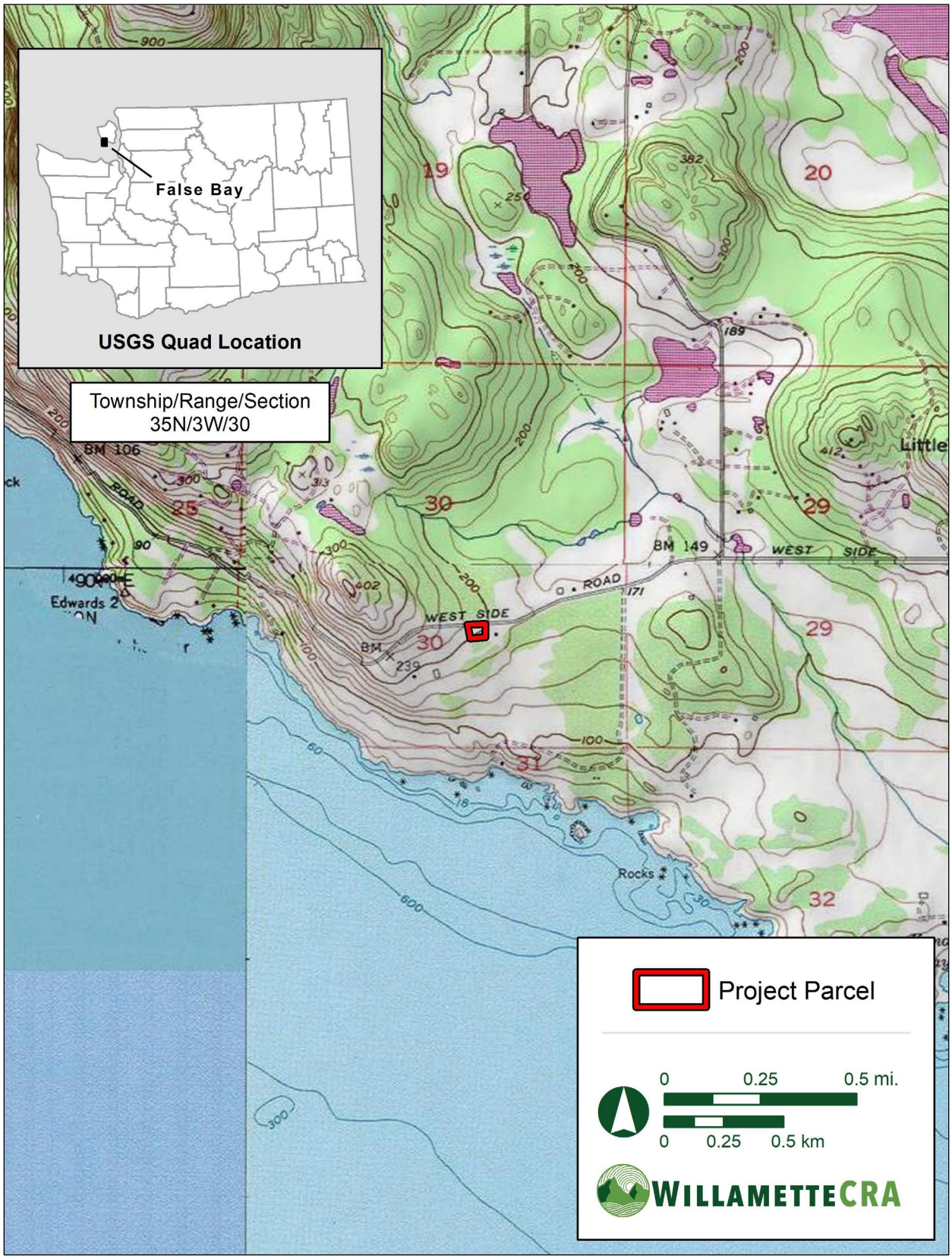

Figure 1. Project location.

Figure 2. Project Parcel on modern aerial photo.

2. Natural and Cultural Background

Environmental Setting

Geology, paleoenvironment, and previous ethnographic and archaeological studies provide general expectations that inform our field survey methodology and provide context for interpreting the depositional environment, integrity, and significance of cultural resources that may be inadvertently discovered during archaeological monitoring.

Geology

Past global climate change caused the advance and retreat of large ice sheets that shaped the landscape of the Salish Sea. During the cool Fraser glaciation period 30–10,000 years ago, the Puget lobe of the Cordilleran Ice Sheet advanced into the Puget Lowland between the Olympic and Cascade Mountain Ranges. The ice retreated when the climate warmed toward the end of that period, and by circa (ca.) 15,000 years ago, it had left behind glacial drift and Vashon till on the deglaciated landscape (Armstrong et al. 1965; Dragovich et al. 2002; Easterbrook 1986; Porter and Swanson 1998).

Sea level history in this region is complex due to isostatic depression and rebound, eustatic sea-level change, and tectonic processes. In the Cascadia region, as the glaciers melted and isostatic rebound began, relative sea-level fell from 75 meters above present-day sea level down to roughly modern levels by 11,600 years ago. The land continued to emerge, and sea level may have been 10 meters below its present level at 8,100 years ago. At 3,800 years ago, relative sea level rose to within 2 meters of modern sea level because eustatic sea level change outpaced tectonic uplift. Sea level rose to within a meter of its present position within the last 2,000 years (Dethier et al. 1995; James et al. 2005; Mosher and Hewitt 2004).

The Project Parcel is located in an area where surface geology is comprised of Mesozoic metasedimentary rocks (MZms) comprised of pre-Tertiary metaconglomerate (WA DNR 2024). The soils that form in this glacial parent material within the western portion of the Project Parcel are mapped as the Roche-Killebrew-Rock Outcrop complex (5 to 35% slopes). This soil complex consists of a moderately well-drained loam and sandy loam that forms in glacial drift over glaciomarine deposits. The soil complex is generally shallow with A and B horizons overlying parent material at approximately 70 to 100 centimeters below the ground surface (cmgs; U.S. Department of Agriculture Natural Resources Conservation Service [USDA NRCS] 2024).

Plants and Animals

Alongside glaciation and sea-level changes, climate shifts altered vegetation communities in the Salish Sea and shaped the landscape of this region into its present condition. Due to the rainshadow effect of the Olympic Mountains, the San Juan Islands are drier than the adjacent

mainland, and freshwater sources are limited. Dominant tree species include Douglas fir, Pacific madrone, white oak, big leaf maple, grand fir, lodge pole pine, Pacific yew, western hemlock, western red cedar, and red alder. Understory species include ocean spray, snowberry, nootka (wild) rose, and salal (Mitchell 1971; Wessen 1986a). Important plants for native communities include camas, wapato, and a variety of berries (Barnett 1955; Suttles 1990; Wessen 1986a).

Faunal communities on the San Juan Islands have been affected by changes in climate, vegetation, and human predation. Bison, mammoth, and other large mammals were present in the greater Puget Sound and Straits region until the end of the Ice Age (Wilson et al. 2009). Native communities hunted terrestrial mammals including river otter, Columbia black-tailed deer, bear, and elk (Wessen 1986a). Bears were extirpated during European American settlement. Native communities exploited waterfowl such as cormorants, sea ducks, and diving ducks (Bovy 2005).

People relied on both terrestrial resources and the nearshore environment for shellfish, fish, and plant resources. Due to mixing of cold and highly saline ocean waters with brackish surface waters, the diverse marine environment of the Strait of Georgia is characterized by rich kelp forests and eelgrass beds. Change over time in sea surface temperature and upwelling both have important implications for the productivity of marine flora and fauna (Daniels 2009). The archaeological record of the San Juan Islands indicates that people collected littleneck clam, butter clam, and blue mussel. People also gathered cockle, horse clam, snail, limpet, dogwinkle, periwinkle, barnacle, bentnose clam, and sea urchin (Daniels 2009; Kozloff 1996; Wessen 1986a).

The San Juan Islands offer a fishing advantage in that salmon returning to the Fraser River to spawn must pass through narrow passages between the islands (Mitchell 1971). People also fished for steelhead, eulachon, smelt, sturgeon, Pacific lamprey, halibut, Pacific herring, cod, dogfish, perch, sculpins, and flatfish (Suttles 1990). Hunter Bay on Lopez Island is an important herring spawning location (Kerwin 2002). A variety of marine mammals were available for hunting including northern elephant seal, California sea lion, northern sea lion, Dall's porpoise, and harbor seal (Wessen 1986a).

Precontact Archaeological Context

The coastal archaeological record of the Salish Sea region is dominated by shell midden sites, discrete areas along the shoreline that contain shell, fire and pit features, and other cultural materials such as ground and flaked stone tools and byproducts of manufacture, fire-modified rock, bone tools, and remains of fish, mammals, and birds that people processed and ate nearby. Because shell neutralizes acidic soils, bone is preserved in shell middens (Álvarez et al. 2011). Human remains may be preserved in shell midden contexts, discovered as a result of disturbance or erosion of midden deposits. Upland bluff sites above beaches are somewhat common on the San Juan Islands, but farther inland sites are scarce due to poor preservation of

organic material in acidic soil and limited research. The inland sites that have been investigated are characterized by isolated finds of lithic artifacts, although there is a case of a surface lithic scatter on a high bedrock outcrop on San Juan Island (Kenady et al. 2008; Taylor et al. 2009). Current research in the Salish Sea is consistent with change through time in patterns of land use and social interaction, use of food resources, and manufacture of technology.

Late Pleistocene – 5,000 Years Ago

The earliest archaeological evidence of native communities on the San Juan Islands is from the Ayers Pond site (45SJ454) on Orcas Island where an extinct form of Ice Age Bison (*Bison antiquus*) with potential human-caused cutmarks was found in a limestone basin pond. The bone dates to over 13,000 years ago (Wilson et al. 2009). A small number of fluted points have been found in surface contexts in the broader Salish Sea region (Croes et al. 2008). This point type dates to approximately 13,500–12,800 years ago elsewhere in the west but has not been precisely dated in Western Washington. Likewise, there have been no subsurface finds of willow-leaf shaped projectile points that are characteristic of the period about 9,000–5,000 years ago in Western Washington (Chatters et al. 2011). Landowners have reported these types of projectile points as surface finds or in gardens or plowed fields (Taylor et al. 2009). No shell midden sites older than 4,000 years old have been reported in the San Juan Islands (Taylor et al. 2011).

4,500–2,500 Years Ago

Traditional culture historical schemes emphasize first settlements situated to maximize accessibility to coastal and estuarine environments after 5,000 years ago (Mitchell 1971); however, little work has been done to investigate archaeological materials submerged during sea-level change (Mackie et al. 2013). The earliest dates for the San Juan Islands are from 45SJ278 on Mud Bay on Lopez Island. This site is a large shell midden site that dates to 3,960–3,080 years ago.

Technological changes reported for the Strait of Georgia for this time period include the introduction of stemmed projectile points, slate knives, more complex tools such as carved bone and stone pieces, large stone mauls, adzes, and wedges thought to be associated with the use of cedar for plank houses and clothing (Stein 2000). Mitchell (1971) also lists as distinctive characteristics of this phase microblades and cores, slate and sandstone knives, celts, labrets, grooved or notched sinkers, bilaterally barbed antler points, toggling harpoons, and clay-lined depressions.

2,500–1,500 Years Ago

The complex social and economic relations observed by European American ethnographers and explorers in the Strait of Georgia region are thought to have developed after approximately 2,500 years ago, although it is unclear if the San Juan Islands record fits this chronology. In

southern British Columbia, researchers report an increase in sites, house size, and settlement size; they hypothesize an increase in population density and sedentism (Lepofsky et al. 2005). Lepofsky et al. (2005) suggest that social changes may reflect a warmer and drier climate that concentrated resources and social prestige in communities closer to large rivers. In the San Juan Islands, number and size of sites increased to a total of 10 sites during this time period of which 6 are large sites and 4 are small shell lenses (Taylor et al. 2011). The English Camp site (45SJ24), located approximately 6.3 mi. north/northwest of the Project Parcel, is a large shell midden site on Garrison Bay on northern San Juan Island that was inhabited from approximately 2,200 years ago until historic times. There is evidence of one possible house structure in one area of the site; however, much of the topography of the site was altered by the use of the site for parade grounds during the British military occupation (1860–1872; Stein 1992). Approximately 4.8 mi. northwest of the Project Parcel in Argyle Lagoon, shell middens 45SJ407 and 45SJ2 date to about 2,000–2,500 years ago. These sites consist of discontinuous areas of thick shell midden deposits (Taylor 2012).

Mitchell (1971) lists as distinctive features of the Marpole culture type (the culture history phase associated with this period of time) greater variety in projectile points, microblades, large ground-slate points and fish knives, celts, disk beads, labrets, stone hand mauls, perforated stones, stone sculpture, large needles, split bone awls, barbed non-toggling harpoon points, and unilaterally barbed antler points.

1,500 Years Ago – Historic Period

The post-Marpole period is thought to be very similar to the Marpole period preceding it with a potential population increase, minor changes in material culture, and changes in boundary defense practices. In the San Juan Islands, there is a marked increase in the number of shell midden sites, especially small shell middens, 1,000–500 years ago. A majority of dates from these sites fall between 650 and 300 years ago, including many on San Juan Island. Differential impact of erosion may be one factor in explaining a larger number of recorded sites dating to the late Holocene. Sites that are older disappeared because they were exposed to wave action and other erosion processes over time (Taylor et al. 2011). Throughout the Coast Salish region, including British Columbia, there is a reported increase in fortified defensive sites at 1,600–500 years ago and again during European American colonization (Angelbeck 2009). Radiocarbon dating on trench embankment sites shows an increase in sites approximately 400 years ago (Angelbeck 2009:262). Culture histories for the Strait of Georgia emphasize a decrease in lithic artifacts but continued use of triangular points, use of bone objects and woodworking tools, unbarbed and unilaterally barbed bone points, composite fishhooks, toggle-headed harpoons, and flat-topped mauls (Carlson 1954). Schaepe (2006, 2009) describes multi-village corporate family group defensive systems using built and natural structures. These systems may have been less common in the San Juan Islands (Suttles 1951:70), although Angelbeck (2009) reports four trench-embankment fortifications on the southern islands including a rock-wall fortification on Hunter Bay on Lopez Island. Angelbeck (2009:224–225) notes that although

some archaeologists have assumed that the Coast Salish were defending their territory against people who lived to the north, there is no concentration of defensive sites in the northern part of their territory, rather these sites are relatively evenly dispersed throughout the region.

Native Peoples

Coast Salish ancestors have lived on or visited the San Juan Islands for thousands of years. Ethnographers recorded Coast Salish communities in the San Juan Islands, Canadian Gulf Islands, Vancouver Island, and neighboring mainland coastal areas. These communities are connected to traditional territories based on descent from an ancestor who fell from the sky in the distant past in the time of the Transformers. Families trace their line and rights to property, knowledge, and resources to the First Ancestors (Barnett 1955:141, 291; Suttles 1987:9; Thom 2005:84–85).

Some sources suggest that people lived in large winter villages on the mainland and inhabited the San Juan Islands during the warmer months (Stern 1934; Suttles 1974). There have been changes in land use since the beginning of the twentieth century when smaller groups were pushed into larger villages. Groups split, reunited, and relocated based on resource availability. Some families practiced farming in the warmer months (Nugent 1999:275). Coast Salish communities had salmon camps in the spring, traveled to high-elevation berry patches in the summer, held potlatch ceremonies and hunting trips in the fall, and fished for sturgeon and held large gatherings in the winter (Suttles 1960). Angelbeck (2009) suggests that construction of defensive sites among the Coast Salish increased after European colonization began, perhaps due to social disruptions caused by a smallpox epidemic, uneven distribution of firearms, and conflicts between Coast Salish groups, traders, and colonists. Family group status was demonstrated through public gifting during feasts and potlatches secured access to family resources (Thom 2005).

Important food procurement activities include creation and care for clam beds, maintenance and processing of camas gathering areas on prairies, hunting for waterfowl, deer, mountain goat, sturgeon, and seal, and fishing for salmon with weirs, traps, and reef nets (Nugent 1999; Suttles 1974). Salmon weirs and traps were sometimes controlled by a village rather than a family (Thom 2005:320). Resources that were extremely abundant, such as salal berries and shellfish, were rarely restricted (Carlson 2010:47). Kin and marriage alliances enabled resource sharing, which balanced out temporal and spatial fluctuations in subsistence resources (Carlson 2010; Suttles 1960).

Important technologies or crafts of the Coast Salish include woodworking using cedar to make canoes, plank houses, tools, and art, and weaving of cedar bark and roots, cattail, nettle fiber, and other plants to make baskets, mats, clothes, and other items (Nugent 1999:17; Suttles 1974). Large winter houses of Straits peoples described by Suttles (1974:256) were 30–50 feet wide and 50–200 feet long at minimum with a single slope shed roof with the higher side toward

the shoreline and pairs of posts forming rows connected by crossbeams with roof and walls made from cedar planks. More temporary shelters were made from mats and poles.

Coast Salish place names have been documented in the ethnographic literature throughout the island. The nearest ethnographically documented village to the Project location was likely ṗqi?elwaɬ at Mitchell Bay approximately 5.6 mi. to the northwest, which was associated with the ɬəleqamiš, a group with ties to the Lummi and possibly other groups (Boxberger 1994:20). Nearer to the Project Parcel is a traditional fishing location at snəu, a kelp bed off of Pile Point, located 1.4 mi. to the southeast of the Project Parcel. An associated fishing camp was located on the bay adjacent to Pile Point (Boxberger 1994:22). In addition, about 5.5 mi. southeast of the Project Parcel on the southern tip of San Juan Island is a place known as Tl'íkweneng where Cattle Point, Mount Finlayson, and South Beach area beaches were used for collecting fish and shellfishing and processing these resources (Samish Indian Nation 2021).

Postcontact Historical Developments

The Vancouver and Broughton expeditions describe early European American visits to the San Juan Islands and Puget Sound in the 1790s. They encountered few native peoples, possibly due to a devastating smallpox epidemic in the 1780s started by earlier British colonizers (Harris 1994; MacDonald 1990). European American presence on the San Juan Islands expanded gradually after the 1840s when the United States Exploring Expedition under Commander Charles Wilkes traveled through the region, and the British Hudson's Bay Company established a base on Vancouver Island (MacDonald 1990). The Hudson's Bay Company established a fishing station and Bellevue farm on southern San Juan Island in 1853 (Thompson 1972:4). In the 1850s, the treaties of Point Elliott and Point No Point established a reservation system for Tribes in the region, but most Tribal groups continued to inhabit their land through the end of the nineteenth century (Boxberger 1993; Suttles 1990).

The 1850s and 1860s were characterized by a dispute over the islands between the British and the United States, although some settlers established homesteads during this time, particularly gold prospectors turned farmers. The position of the United States was that the islands were part of the Oregon Territory. After limited military action during the "Pig War", the San Juan Islands were determined to be part of the United States through foreign mediation in 1872 (Thomas and Thomson 1992; Vouri 1999, 2004).

Americans, as well as Canadians, Germans, native Hawaiians, and other nationalities homesteaded the islands. They farmed, fished, logged, and raised sheep (Avery 2004). The 1875 General Land Office (GLO) plat shows the homestead of James Hannah approximately 0.25 mi. to the southeast of the Project Parcel (GLO 1875). The Project Parcel is within the 160 acres issued to James and Minerva Hannah under the authority of the 1862 Homestead Act (U.S. Bureau of Land Management [BLM] 2024; Figure 3). James and Minerva Hannah

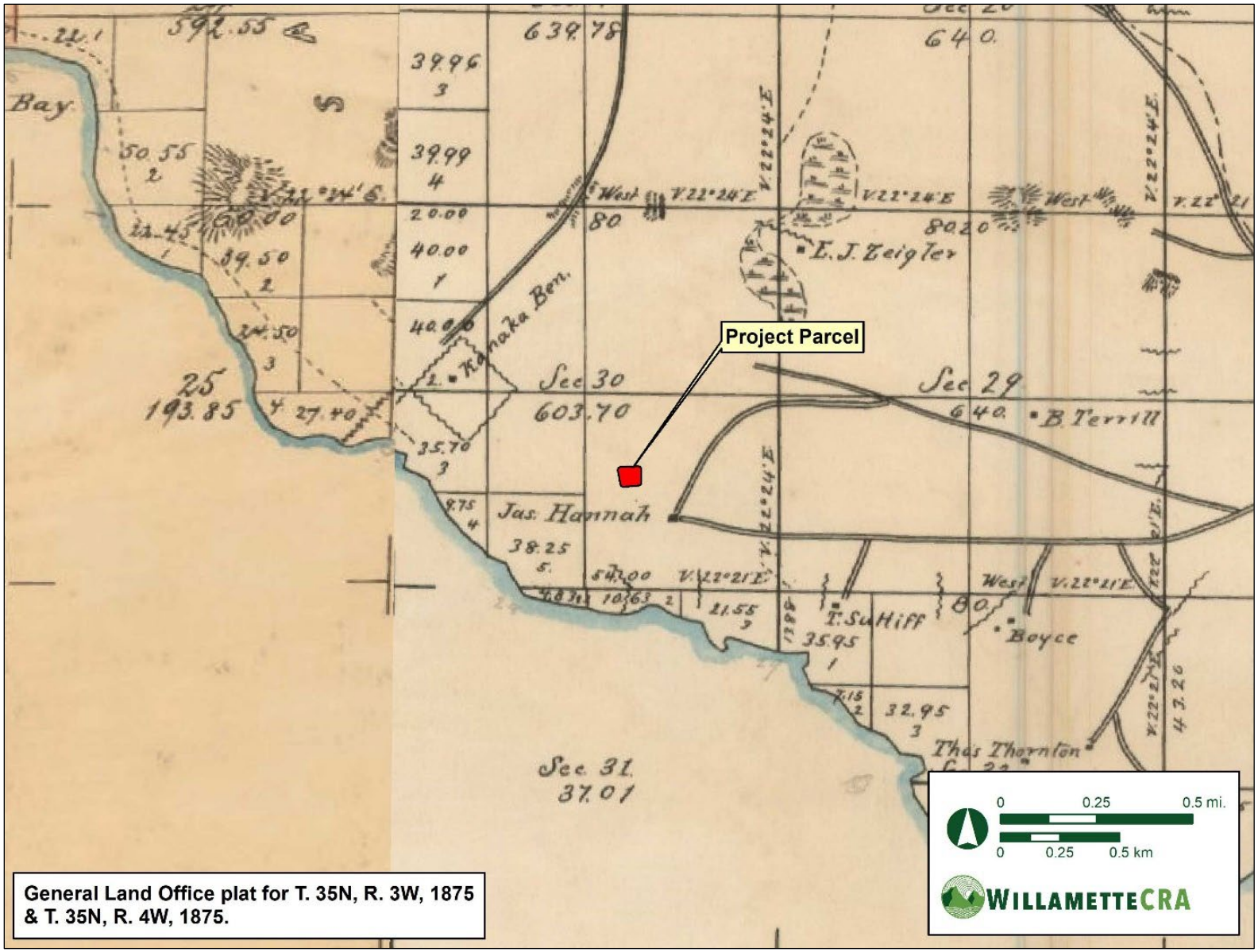

Figure 1. Project Parcel on 1875 GLO plat.

arrived on San Juan Island in 1864 from Victoria, British Columbia (Baily-Cummings and Cummings 1987:106).

During these early years of European American settlement, development was concentrated at the eastern end of San Juan Island. Early towns included Argyle, located at a natural harbor (Argyle Bay) approximately 4 mi. to the east/northeast of the Project Parcel. Argyle was established by Israel Katz and Herman Moore in 1873. Many of the businesses that had previously been located at San Juan Town near American Camp at the southeast corner of the island moved north to Argyle in the aftermath of the Pig War (Cardle 1982). The town had several buildings, including a general store, mill, brickworks and post office by the 1880s. There was also a steamship dock and wharf at Argyle (Riddle 2010).

Friday Harbor, named for a Hawaiian sheepherder employed by the Hudson's Bay Company named Peter Friday, eclipsed Argyle as the primary hub of commercial activity and residential settlement on the island by the turn of the twentieth century (Garrett 1965; Riddle 2010). Early commercial enterprises at Friday Harbor included a salmon cannery that opened in 1894, and a lumber mill that was established by 1904 (Riddle 2010).

Although there was a lime kiln (Roche Harbor Lime Works) operating at Roche Harbor in the northwestern part of the island, development in the early twentieth century on San Juan Island remained focused at Friday Harbor, which served as the main port for shipping agricultural commodities and canned salmon from Friday Harbor's salmon cannery off of the island (Riddle 2010). Increased shipping costs later in the twentieth century made the shipment of commodities to markets on the mainland less profitable, and the salmon cannery at Friday Harbor ceased operations by 1966. The San Juan Island economy subsequently became more and more focused on tourism into the late twentieth century (Riddle 2010).

Throughout the twentieth century the Project Parcel vicinity remained a rural and lightly populated part of San Juan Island. The 1933 Metsker Map Company Atlas of San Juan County depicts the Project Parcel as being on land owned by B.F. Hannah with the present-day alignment of Bailer Hill Rd extending through an area of large parcels in the Project vicinity (Metsker Map Company 1933). The 1954 U.S. Geological Survey (USGS) topographic quad map of the area labels present-day Bailer Hill Rd as "West Side Road" and shows very few buildings in the Project vicinity (USGS 1954). The 1961 Metsker Map Company Atlas indicates that the land on which the Project Parcel is situated was owned by "HANNAH HTS. INC" (presently Hannah Heights Owner's Association) at around this time (Metsker Map Company 1961). Very little subsequent development is depicted on the 1963 and 1978 USGS topographic quad maps of the area (USGS 1963, 1978). According to air photo imagery the Little Mountain Fire Station 33 garage currently standing in the Project Parcel appears to have been built between 1990 and 2006 (National Environmental Title Research 2024).

3. Previous Cultural Resource Investigations

WillametteCRA reviewed records on file with the DAHP online database (WISAARD) on July 1, 2024, to identify previous cultural resources studies and archaeological or historical resources recorded within 1 mi. of the Project Parcel. The results of the records review are presented below.

The WISAARD review indicated that seven cultural resources studies have been conducted within 1 mi. of the Project Parcel. Four archaeological sites and one cemetery have also been documented within 1 mi. of the Project Parcel. In addition, one historic built environment resource has been documented within 1 mi. of the Project Parcel.

Among the seven cultural resources investigations conducted within 1 mi. of the Project Parcel, the nearest was conducted approximately 440 feet (ft.) to the northwest and consisted of a site identification survey conducted for the New Hannah Farm LLC project. The study consisted of a pedestrian survey and excavation of shovel probes and identified no archaeological resources (Munsell 2020). The next nearest survey to Project Parcel was a Cultural Resources Assessment conducted for a proposed construction project at 655 MacGinitie Rd located 0.36 mi. to the southeast of the Project Parcel. The cultural resources assessment consisted of a pedestrian survey and excavation of shovel probes and identified no archaeological resources (Baldwin and Berry 2019). The remaining previous cultural resources studies conducted in the vicinity of the Project Parcel were conducted between 0.4 and 0.55 mi. to the northeast, east, northwest, and west (Table 1). The one previous cultural resources study conducted within 1 mi. of the Project Parcel that resulted in the identification of an archaeological site was a cultural resources assessment for a construction project at 535 MacGinitie Rd, which identified a precontact lithic material site (45SJ584) approximately 0.55 mi. to the southeast (Baldwin and Howard 2018).

Previously documented archaeological sites within 1 mi. of the Project Parcel consists of three precontact lithic material sites (45SJ369, 45SJ584, and 45SJ659) and one precontact shell midden site (45SJ406). The sites are all located near the shoreline of Haro Strait to the northwest, west, and southeast of the Project Parcel. In addition to a precontact shell midden, site 45SJ406 also contains precontact burials and represents the nearest cemetery to the Project Parcel (Kenady 1989). This archaeological site/cemetery is located approximately 0.92 mi. to the northwest of the Project Parcel. The nearest previously documented archaeological site to the Project Parcel is located approximately 0.5 mi. to the west and consists of a scatter of precontact basalt leaf-shaped points, basalt preforms, flaked cobbles, and debitage (Wessen 1986b; see Table 2).

The one historic built environment resource previously documented within 1 mi. of the Project Parcel is a private residence (the Mulligan House) built in 1958 (Property ID 733485). The

house has been determined not eligible for listing in the National Register of Historic Places (NRHP; Hovezak 2024).

Table 1. Previous Cultural Resource Studies Within 1 Mi. of the Project Parcel.

Author and Date	Project and Type of Investigation	Archaeological Sites Documented Within 1 mi. of Project Parcel	Relation to Project Parcel
Munsell 2020	NRCS Cultural Resources Survey for the New Hannah Farm LLC, EQIP 2020 Project, Contract No. 7405462000X	None	440 ft. NW
Baldwin and Berry 2019	Cultural Resources Assessment for 655 MacGinitie Road, Friday Harbor, San Juan County, Washington	None	0.36 mi. SE
Munsell 2018	NRCS Cultural Resources Survey for the Red Roof Acres LLC-EQIP 2018 Projects, Contract No. 740546180TK	None	0.4 mi. E/NE
Baldwin and Dipo 2020	Cultural Resources Assessment for a Proposed Garage Construction at 535 MacGinitie Road (TPN:353111003000), Friday Habor, San Juan Island, Washington	None	0.46 mi. SE
Baldwin and Howard 2018	Cultural Resources Assessment for 535 MacGinitie Road, Friday Harbor, San Juan Island, Washington	45SJ584	0.5 mi. SE
Nelson and Trost 2014	Archaeological Survey for a Proposed Garage/Studio at the Chutuk Property, Bailer Hill Road, San Juan Island, Washington	None	0.5 mi. W
Hovezak 2007	Archaeological Survey and Assessment of the Charles B. Turek Short Plat Lot 1, San Juan Island, San Juan County, Washington	None	0.55 mi. W/NW

Note: All reports can be found at the DAHP online database system (WISAARD). Only those reports referenced in text are included in the **References** section.

Table 2. Previously Documented Archaeological Sites Within 1 Mi. of the Project Parcel.

Site No.	Site Name	Site Type	Relation to Project Parcel	Significance
45SJ369	N/A	Precontact Lithic Material	0.5 mi. W	Unevaluated
45SJ584	N/A	Precontact Lithic Material	0.55 mi. SE	Unevaluated
45SJ659	N/A	Precontact Shell Midden	0.56 mi. W/NW	Unevaluated
45SJ406	N/A	Precontact Shell Midden/Burials	0.92 mi. NW	Not Evaluated; Recommended not Eligible for Listing in the NRHP

4. Expectations for Cultural Resources

The DAHP predictive model defines the Project Parcel as having a moderate to high risk for archaeological resources. Within the Project vicinity, the risk for archaeological resources increases toward shoreline areas to the northwest, west, and south of the Project Parcel. This pattern is reflected in the locations of previously documented precontact archaeological resources in the vicinity, which are all situated near the shoreline area of Haro Strait. No historic archaeological resources have been documented in the vicinity of the Project Parcel. Based on the results of previous archaeological studies, which have not identified archaeological resources in the vicinity, the Project should be considered to have low to moderate probability of containing archaeological sites. If present, such sites would most likely be comprised of scatters of precontact lithic material, perhaps associated with the procurement of inland plant and animal resources. Large precontact villages or camps that may be represented by shell midden deposits are less likely to occur given the Project's position away from the saltwater shore or major drainages. Historic archaeological resources within the Project Parcel are most likely to consist of isolated artifacts or sparse scatters of debris associated with informal disposal of ceramic, glass, and/or metal objects, perhaps as part of roadside trash disposal.

5. Areas Requiring Monitoring

Archaeological monitoring will be required for each of the 12 direct push borings and 4 sonic core borings. The locations of these borings within the Project Parcel have not yet been established.

6. Monitoring Procedures

A minimum of 48 hours advance notice is required to schedule a monitor. The Archaeological Monitor will ensure that every reasonable effort is made to fully document archaeological resources discovered during drilling. The Archaeological Monitor will be allowed to document the discovery of any precontact and historic archaeological materials exposed during drilling. Monitoring may include examination of spoils, if it can be done safely, to identify and record cultural material that may be exposed during excavation.

A. *Health and Safety.* The Archaeological Monitor will be informed of and adhere to specialized safety procedures that need to be followed while on site and will provide necessary personal protective equipment. The Archaeological Monitor will work in close proximity to the drilling activities, and subject to safety constraints, and will be allowed to be at adjacent to the drilling rig.

B. *Pre-Field Work Briefing.* Prior to drilling, or on the first day of drilling, the Archaeological Monitor will survey the Project Parcel to identify any archaeological materials that may be on the surface. The Archaeological Monitor will brief field

personnel on cultural resource issues. The briefing will include information on the legal context of cultural resources protection and on the kinds of cultural resources that may be encountered during drilling. The primary goal of the briefing is to familiarize field personnel with the monitoring procedures and contact protocol to be followed if archaeological resources are discovered during drilling.

C. *Personnel Qualifications and Chain of Communication*. All monitoring activities will be supervised by staff (Monitoring Supervisor) who meet the Secretary of the Interior's Professional Qualifications Standards for Archeology (48 FR 44738). One Archaeological Monitor is required to be on site during the project-related ground disturbance as described above in Section 1.

D. *Notification of Discoveries*. The Archaeological Monitor will be responsible for notifying the Monitoring Supervisor of any archaeological discoveries. The Monitoring Supervisor is responsible for notifying DAHP of any significant archaeological find. All contact numbers are listed at the end of this AMP.

E. *General Monitoring Procedures*. The Archaeological Monitor will visually inspect ground disturbances and physically examine excavated sediments wherever possible. Other duties of the Monitor will include photo-documentation of borings and exposures, describing both horizontal and vertical exposures, and maintaining a detailed monitoring log.

F. The Archaeological Monitor will check in daily with the Field Supervisor via phone or in person regarding results of previous day’s monitoring and schedule for the next day, if applicable. The Archaeological Monitor must receive up-to-date drilling plans and schedules.

G. Drilling activities and discovery locations will be documented on scale plans and site maps and plotted using GPS.

H. The Archaeological Monitor may communicate with the Field Supervisor about equipment movement, placement of spoils for examination, or access to areas in a manner that follows established safety protocols. The Archaeological Monitor may also communicate directly with equipment operators to determine the appropriate timing and procedures for accessing open excavations, although accessible open excavations are not expected during the drilling program. The Archaeological Monitor may request that operators temporarily pause or modify excavations to avoid suspected intact archaeological deposits and modify excavation procedures to remove sediments in thin lifts to assess potential archaeological discoveries.

I. If the Archaeological Monitor suspects or observes that archaeological materials or features are present, the Archaeological Monitor will halt drilling in the immediate vicinity, determine the extent and nature of the find, to the extent possible, and consult with Ecology and DAHP to determine the appropriate level of documentation

and treatment of the resource. All precontact and historic cultural material observed during the Project shall be professionally recorded on a State of Washington Archaeological Site Inventory or Isolate Form using standard techniques. Site overviews, features, and artifacts shall be photographed; stratigraphic profiles and soil/sediment descriptions shall be prepared for any subsurface exposures. Discovery locations shall be documented on scaled site plans and site location maps. If assessment activity exposes human remains (burials, isolated teeth, or bones) all defined procedures outlined in Section 7 shall be followed. Sites, features, and artifacts will be digitally photographed as applicable.

J. *Moving or Proceeding with Drilling:* Drilling outside of the discovery location may continue while documentation and assessment of the cultural resources proceed, if logistically possible, and the horizontal extent of the resource has been established.

K. To protect the integrity of a discovery, on-site field staff shall take appropriate steps to protect the discovery site by ceasing all work within a 30-foot radius of the find spot to provide for the security, protection, and integrity of the resource. The protected area around the find will be marked with flagging or other visible materials. Vehicles, equipment, and unauthorized personnel shall not be permitted to traverse the discovery site. Work outside of the 30-foot radius may continue once the resource is secure, and if an Archaeological Monitor is present to observe drilling.

L. Examples of cultural material that would not result in the stoppage of ground disturbance include the following:

- non-diagnostic historic isolates,
- mass produced utilities,
- mixed construction debris,
- pilings,
- unstratified historic debris,
- fire-modified rock or burned wood absent any other cultural indicators.

M. The Archaeological Monitor will not collect or remove any archaeological material from the site.

7. Special Procedures For The Discovery Of Human Skeletal Material

Upon discovery of human remains, immediately call:

- Monitoring Supervisor (Ron Adams) (503) 860-1693
- San Juan County Sheriff's Office (360) 378-4151
- San Juan County Coroner's Office (360) 378-4101
- Dr. Guy Tasa, State Physical Anthropologist, DAHP (360) 790-1633

Do Not Speak to the Media. Any human skeletal remains, regardless of ethnic origin, which may be discovered during this project, shall be treated with dignity and respect at all times.

A. During all Project operations, if any field staff or subcontractors believe that he or she has made an unanticipated discovery of human skeletal remains, all work adjacent to the discovery shall cease immediately and the above contacts be notified. A 50-foot work stoppage area shall be maintained around the discovery to provide for the total security, protection, and integrity of the human skeletal remains, in accordance with Washington State Law. The remains shall not be touched, moved, or further disturbed. No persons other than the proper law enforcement personnel shall be authorized direct access to the discovery location after the area is secured. The strict control of a burial location is mandated to ensure the safety and integrity of the burial feature and remains.

B. Field staff are responsible for taking appropriate steps to protect the discovery. A 50-foot diameter area shall be secured to provide for the total security, protection, and integrity of the resource. Vehicles, equipment, and unauthorized personnel shall not be permitted to traverse or enter the discovery site.

C. Following the specific guidance set forth here, the Monitoring Supervisor shall immediately verify that local law enforcement officials (San Juan County Sheriff and the San Juan County Coroner) have been contacted and shall insure an individual competent and qualified to identify human skeletal remains is present. The county coroner will assume jurisdiction over the human skeletal remains and determine whether those remains are forensic or non-forensic. If the county coroner determines the remains are non-forensic, then they will report that finding to DAHP who will then take jurisdiction over the remains. DAHP personnel will notify any appropriate cemeteries and all affected Tribes of the find. The State Physical Anthropologist will determine whether the remains are Indian or Non-Indian and report that finding to any appropriate cemeteries and the affected Tribes. The State Physical Anthropologist will then handle all consultation with the affected parties as to the future preservation, excavation, and disposition of the remains. If the human skeletal

remains are determined to be Indian, the participating parties shall consult to determine what treatment is appropriate for the human remains.

8. INADVERTENT DISCOVERY PROCEDURES

If drilling activities cause disturbance to underground cultural/archaeological resources, *when the Archaeological Monitor is not present*, follow the procedures in the Ecology Inadvertent Discovery Plan appended to this plan (Appendix A).

9. REPORTING PROCEDURES

Within 90 days of concluding fieldwork, a management summary describing any and all monitoring and resultant archaeological observations shall be provided to the DAHP.

10. Phone List

Contact	Organization/Agency	Phone Number
Dr. Rob Whitlam	State Archaeologist, Department of Archaeology & Historic Preservation (DAHP)	Ofc (360) 586-3065 Cell (360) 890-2615
Dr. Guy Tasa	State Physical Anthropologist, Department of Archaeology & Historic Preservation (DAHP)	(360) 790-1633
	San Juan County Sheriff's Office	(360) 378-4151
	San Juan County Coroner's Office	(360) 378-4151
Jacob Letts	GeoEngineers	(206) 228-4375
Katy Atakturk	GeoEngineers	(206)419-4290
Ron Adams	WillametteCRA Monitoring Supervisor	(503) 860-1693
Yonara Carrilho	WillametteCRA Archaeological Monitor	(206) 992-1805
Lena Tso	Lummi Nation Tribal Historic Preservation Officer (THPO)	(360) 312-2257
Jacquelyn Ferry	Samish Indian Nation THPO	(360) 293-6404, ext. 126
Josephine Jefferson	Swinomish Indian Tribal Community THPO	(360) 466-7352
Richard Young	Tulalip Tribes Cultural Resources	(425) 239-0182

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Appendix A:
Washington State Department of Ecology Inadvertent Discovery Plan

INADVERTENT DISCOVERY PLAN

PLAN AND PROCEDURES FOR THE DISCOVERY OF CULTURAL RESOURCES AND HUMAN SKELETAL REMAINS

To request ADA accommodation, including materials in a format for the visually impaired, call Ecology at 360-407-6000 or visit https://ecology.wa.gov/accessibility. People with impaired hearing may call Washington Relay Service at 711. People with a speech disability may call TTY at 877-833-6341.

Site Name(s): Bailer Hill area Location: Friday Harbor, Washington

Project Lead/Organization: Department of Ecology County: San Juan

If this Inadvertent Discovery Plan (IDP) is for multiple (batched) projects, ensure the location information covers all project areas.

1. INTRODUCTION

The IDP outlines procedures to perform in the event of a discovery of archaeological materials or human remains, in accordance with applicable state and federal laws. An IDP is required, as part of Agency Terms and Conditions for all grants and loans, for any project that creates disturbance above or below the ground. An IDP is not a substitute for a formal cultural resource review (Executive 21-02 or Section 106).

Once completed, **the IDP should always be kept at the project site** during all project activities. All staff, contractors, and volunteers should be familiar with its contents and know where to find it.

2. CULTURAL RESOURCE DISCOVERIES

A cultural resource discovery could be prehistoric or historic. Examples include (see images for further examples):

- An accumulation of shell, burned rocks, or other food related materials.
- Bones, intact or in small pieces.
- An area of charcoal or very dark stained soil with artifacts.
- Stone tools or waste flakes (for example, an arrowhead or stone chips).
- Modified or stripped trees, often cedar or aspen, or other modified natural features, such as rock drawings.
- Agricultural or logging materials that appear older than 50 years. These could include equipment, fencing, canals, spillways, chutes, derelict sawmills, tools, and many other items.
- Clusters of tin cans or bottles, or other debris that appear older than 50 years.
- Old munitions casings. ***Always assume these are live and never touch or move.***
- Buried railroad tracks, decking, foundations, or other industrial materials.
- Remnants of homesteading. These could include bricks, nails, household items, toys, food containers, and other items associated with homes or farming sites.

The above list does not cover every possible cultural resource. When in doubt, assume the material is a cultural resource.

3. ON-SITE RESPONSIBILITIES

If any employee, contractor, or subcontractor believes that they have uncovered cultural resources or human remains at any point in the project, take the following steps to ***Stop-Protect-Notify***. **If you suspect that the discovery includes human remains, also follow Sections 5 and 6.**

STEP A: Stop Work.

All work must stop immediately in the vicinity of the discovery.

STEP B: Protect the Discovery.

Leave the discovery and the surrounding area untouched and create a clear, identifiable, and wide boundary (30 feet or larger) with temporary fencing, flagging, stakes, or other clear markings. Provide protection and ensure integrity of the discovery until cleared by the Department of Archaeological and Historical Preservation (DAHP) or a licensed, professional archaeologist.

Do not permit vehicles, equipment, or unauthorized personnel to traverse the discovery site. Do not allow work to resume within the boundary until the requirements of this IDP are met.

STEP C: Notify Project Archaeologist (if applicable).

If the project has an archaeologist, notify that person. If there is a monitoring plan in place, the archaeologist will follow the outlined procedure.

STEP D: Notify Project and Washington Department of Ecology (Ecology) contacts.

Project Lead Contacts

Primary Contact		Alternate Contact	
Name:	Jacob Letts	Name:	
Organization:	GeoEngineers	Organization:	GeoEngineers
Phone:	206.228.4375	Phone:	
Email:	jletts@geoengineers.com	Email:	

Ecology Contacts (completed by Ecology Project Manager)

Ecology Project Manager		Alternate or Cultural Resource Contact	
Name:	Vance Atkins	Name:	Jon Klem
Program:	TCP, NWRO	Program:	TCP, NWRO
Phone:	(425) 324-1438	Phone:	(206) 556-5584
Email:	vance.atkins@ecy.wa.gov	Email:	jon.klem@ecy.wa.gov

STEP E: Ecology will notify DAHP.

Once notified, the Ecology Cultural Resource Contact or the Ecology Project Manager will contact DAHP to report and confirm the discovery. To avoid delay, the Project Lead/Organization will contact DAHP if they are not able to reach Ecology.

DAHP will provide the steps to assist with identification. DAHP, Ecology, and Tribal representatives may coordinate a site visit following any necessary safety protocols. DAHP may also inform the Project Lead/Organization and Ecology of additional steps to further protect the site.

Do not continue work until DAHP has issued an approval for work to proceed in the area of, or near, the discovery.

DAHP Contacts:

Name: Rob Whitlam, PhD
Title: State Archaeologist
Cell: 360-890-2615
Email: Rob.Whitlam@dahp.wa.gov
Main Office: 360-586-3065

Human Remains/Bones:

Name: Guy Tasa, PhD
Title: State Anthropologist
Cell: 360-790-1633 (24/7)
Email: Guy.Tasa@dahp.wa.gov

4. TRIBAL CONTACTS

In the event cultural resources are discovered, the following tribes will be contacted. See Section 10 for Additional Resources.

Tribe:	Lummi Nation	Tribe:	Samish Tribe
Name:	Lena Tso	Name:	Jacquelyn Ferry
Title:	Cultural Resources	Title:	Cultural Resources
Phone:	360-312-2257	Phone:	360-293-6404 ext. 126
Email:	lenat@lummi-nsn.gov	Email:	jferry@samishtribe.nsn.us
Tribe:	Swinomish Indian Tribal Community	Tribe:	Tulalip Tribes
Name:	Josephine Jefferson	Name:	Richard Young
Title:	Cultural Resources	Title:	Cultural Resources
Phone:	360-466-7352	Phone:	425-239-0182
Email:	jjefferson@swinomish.nsn.us	Email:	ryoung@tulaliptribes-nsn.gov

Please provide contact information for additional tribes within your project area, if needed, in Section 11.

5. FURTHER CONTACTS (if applicable)

If the discovery is confirmed by DAHP as a cultural or archaeological resource, or as human remains, and there is a partnering federal or state agency, Ecology or the Project Lead/Organization will ensure the partnering agency is immediately notified.

Federal Agency:		State Agency:	
Agency:		Agency:	
Name:		Name:	
Title:		Title:	
Phone:		Phone:	
Email:		Email:	

6. SPECIAL PROCEDURES FOR THE DISCOVERY OF HUMAN SKELETAL MATERIAL

Any human skeletal remains, regardless of antiquity or ethnic origin, will at all times be treated with dignity and respect. Follow the steps under ***Stop-Protect-Notify.*** For specific instructions on how to handle a human remains discovery, see: *RCW 68.50.645: Skeletal human remains—Duty to notify—Ground disturbing activities—Coroner determination—Definitions*.

Suggestion: If you are unsure whether the discovery is human bone or not, contact Guy Tasa with DAHP, for identification and next steps. Do not pick up the discovery.

Guy Tasa, PhD State Physical Anthropologist
Guy.Tasa@dahp.wa.gov
(360) 790-1633 (Cell/Office)

For discoveries that are confirmed or suspected human remains, follow these steps:

1. Notify law enforcement and the Medical Examiner/Coroner using the contacts below. **Do not call 911** unless it is the only number available to you.

   Enter contact information below (required):
   - Local Medical Examiner or Coroner name and phone: San Juan Co. Prosecuting Attny 360-378-4101
   - Local Law Enforcement main name and phone: San Juan Co. Sheriffs Office 360-378-4151
   - Local Non-Emergency phone number (911 if without a non-emergency number): San Juan Co. Tip Line 360-370-7629
2. The Medical Examiner/Coroner (with assistance of law enforcement personnel) will determine if the remains are human or if the discovery site constitutes a crime scene and will notify DAHP.
3. **DO NOT speak with the media, allow photography or disturbance of the remains, or release any information about the discovery on social media.**
4. If the remains are determined to be non-forensic, Cover the remains with a tarp or other materials (not soil or rocks) for temporary protection and to shield them from being photographed by others or disturbed.

Further activities:

- Per RCW 27.44.055, RCW 68.50, and RCW 68.60, DAHP will have jurisdiction over non-forensic human remains. Ecology staff will participate in consultation. Organizations may also participate in consultation.
- Documentation of human skeletal remains and funerary objects will be agreed upon through the consultation process described in RCW 27.44.055, RCW 68.50, and RCW 68.60.
- When consultation and documentation activities are complete, work in the discovery area may resume as described in Section 8.

If the project occurs on federal lands (such as a national forest or park or a military reservation) the provisions of the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) apply and the responsible federal agency will follow its provisions. Note that state highways that cross federal lands are on an easement and are not owned by the state.

If the project occurs on non-federal lands, the Project Lead/Organization will comply with applicable state and federal laws, and the above protocol.

7. DOCUMENTATION OF ARCHAEOLOGICAL MATERIALS

Archaeological resources discovered during construction are protected by state law RCW 27.53 and assumed eligible for inclusion in the National Register of Historic Places under Criterion D until a formal Determination of Eligibility is made.

The Project Lead/Organization must ensure that proper documentation and field assessment are made of all discovered cultural resources in cooperation with all parties: the federal agencies (if any), DAHP, Ecology, affected tribes, and the archaeologist.

The archaeologist will record all prehistoric and historic cultural material discovered during project construction on a standard DAHP archaeological site or isolate inventory form. They will photograph site overviews, features, and artifacts and prepare stratigraphic profiles and soil/sediment descriptions for minimal subsurface exposures. They will document discovery locations on scaled site plans and site location maps.

Cultural features, horizons, and artifacts detected in buried sediments may require the archaeologist to conduct further evaluation using hand-dug test units. They will excavate units in a controlled fashion to expose features, collect samples from undisturbed contexts, or to interpret complex stratigraphy. They may also use a test unit or trench excavation to determine if an intact occupation surface is present. They will only use test units when necessary to gather information on the nature, extent, and integrity of subsurface cultural deposits to evaluate the site's significance. They will conduct excavations using standard archaeological techniques to precisely document the location of cultural deposits, artifacts, and features.

The archaeologist will record spatial information, depth of excavation levels, natural and cultural stratigraphy, presence or absence of cultural material, and depth to sterile soil, regolith, or bedrock for each unit on a standard form. They will complete test excavation unit level forms, which will include plan maps for each excavation level and artifact counts and material types, number, and vertical provenience (depth below

surface and stratum association where applicable) for all recovered artifacts. They will draw a stratigraphic profile for at least one wall of each test excavation unit.

The archaeologist will screen sediments excavated for purposes of cultural resources investigation through 1/8-inch mesh, unless soil conditions warrant 1/4-inch mesh.

The archaeologist will analyze, catalogue, and temporarily curate all prehistoric and historic artifacts collected from the surface and from probes and excavation units. The ultimate disposition of cultural materials will be determined in consultation with the federal agencies (if any), DAHP, Ecology, and the affected tribe(s).

Within 90 days of concluding fieldwork, the archaeologist will provide a technical report describing any and all monitoring and resultant archaeological excavations to the Project Lead/Organization, who will forward the report to Ecology, the federal agencies (if any), DAHP, and the affected tribe(s) for review and comment.

If assessment activities expose human remains (burials, isolated teeth, or bones), the archaeologist and Project Lead/Organization will follow the process described in **Section 6**.

8. PROCEEDING WITH WORK

The Project Lead/Organization shall work with the archaeologist, DAHP, and affected tribe(s) to determine the appropriate discovery boundary and where work can continue.

Work may continue at the discovery location only after the process outlined in this plan is followed and the Project Lead/Organization, DAHP, any affected tribe(s), Ecology, and the federal agencies (if any) determine that compliance with state and federal laws is complete.

9. ORGANIZATION RESPONSIBILITY

The Project Lead/Organization is responsible for ensuring:

- This IDP has complete and accurate information.
- This IDP is immediately available to all field staff at the sites and available by request to any party.
- This IDP is implemented to address any discovery at the site.
- That all field staff, contractors, and volunteers are instructed on how to implement this IDP.

10. ADDITIONAL RESOURCES

Informative Video

Ecology recommends that all project staff, contractors, and volunteers view this informative video explaining the value of IDP protocol and what to do in the event of a discovery. The target audience is anyone working on the project who could unexpectedly find cultural resources or human remains while excavating or digging. The video is also posted on DAHP's inadvertent discovery language website.

Ecology's IDP Video (https://www.youtube.com/watch?v=ioX-4cXfbDY)

Informational Resources

DAHP (https://dahp.wa.gov)

Washington State Archeology (DAHP 2003)
(https://dahp.wa.gov/sites/default/files/Field%20Guide%20to%20WA%20Arch_0.pdf)

Association of Washington Archaeologists (https://www.archaeologyinwashington.com)

Potentially Interested Tribes

Interactive Map of Tribes by Area
(https://dahp.wa.gov/archaeology/tribal-consultation-information)

WSDOT Tribal Contact Website
(https://wsdot.wa.gov/tribal/TribalContacts.htm)

11. ADDITIONAL INFORMATION

Please add any additional contact information or other information needed within this IDP.

Snoqualmie Indian Tribe
Steve Moses, Cultural Resources
425-888-6551

Implement the IDP if you see…

Chipped stone artifacts.

Examples are:

- Glass-like material.
- Angular material.
- “Unusual” material or shape for the area.
- Regularity of flaking.
- Variability of size.

Stone artifacts from Oregon.

Stone artifacts from Washington.

Biface-knife, scraper, or pre-form found in NE Washington. Thought to be a well knapped object of great antiquity. Courtesy of Methow Salmon Rec. Foundation.

Implement the IDP if you see…

Ground stone artifacts.

Examples are:

- Unusual or unnatural shapes or unusual stone.
- Striations or scratching.
- Etching, perforations, or pecking.
- Regularity in modifications.
- Variability of size, function, or complexity.

Above: Fishing Weight - credit CRITFC Treaty Fishing Rights website.

Artifacts from unknown locations (left and right images).

Implement the IDP if you see…

Bone or shell artifacts, tools, or beads.

Examples are:

- Smooth or carved materials.
- Unusual shape.
- Pointed as if used as a tool.
- Wedge shaped like a “shoehorn”.
- Variability of size.
- Beads from shell (dentalium) or tusk.

Upper Left:*Bone Awls from Oregon.*

Upper Center: *Bone Wedge from California.*

Upper Right: *Plateau dentalium choker and bracelet, from Nez Perce National Historical Park, 19th century, made using Antalis pretiosa shells Credit: Nez Perce - Nez Perce National Historical Park, NEPE 8762, Public Domain.*

Above: *Tooth Pendants. Right: Bone Pendants. Both from Oregon and Washington.*

Implement the IDP if you see…

Culturally modified trees, fiber, or wood artifacts.

Examples are:

- Trees with bark stripped or peeled, carvings, axe cuts, de-limbing, wood removal, and other human modifications.
- Fiber or wood artifacts in a wet environment.
- Variability of size, function, and complexity.

Left and Below: *Culturally modified tree and an old carving on an aspen (Courtesy of DAHP).*

Right, Top to Bottom: *Artifacts from Mud Bay, Olympia: Toy war club, two strand cedar rope, wet basketry*.

Implement the IDP if you see…

Strange, different, or interesting looking dirt, rocks, or shells.

Human activities leave traces in the ground that may or may not have artifacts associated with them. Examples are:

- "Unusual" accumulations of rock (especially fire-cracked rock).
- "Unusual" shaped accumulations of rock (such as a shape similar to a fire ring).
- Charcoal or charcoal-stained soils, burnt-looking soils, or soil that has a "layer cake" appearance.
- Accumulations of shell, bones, or artifacts. Shells may be crushed.
- Look for the "unusual" or out of place (for example, rock piles in areas with otherwise few rocks).

Shell Midden pocket in modern fill discovered in sewer trench.

Underground oven. Courtesy of DAHP.

Shell midden with fire cracked rock.

Hearth excavated near Hamilton, WA.

Implement the IDP if you see…

Historic period artifacts (historic archaeology considered older than 50 years).

Examples are:

- Agricultural or logging equipment. May include equipment, fencing, canals, spillways, chutes, derelict sawmills, tools, etc.
- Domestic items including square or wire nails, amethyst colored glass, or painted stoneware.

Left: Top to Bottom: *Willow pattern serving bowl and slip joint pocket knife discovered during Seattle Smith Cove shantytown (45-KI-1200) excavation.*

Right: *Collections of historic artifacts discovered during excavations in eastern Washington cities.*

Implement the IDP if you see…

Historic period artifacts (historic archaeology considered older than 50 years).

Examples are:

- Railway tokens, coins, and buttons.
- Spectacles, toys, clothing, and personal items.
- Items helping to understand a culture or identity.
- Food containers and dishware.

Main Image: *Dishes, bottles, workboot found at the North Shore Japanese bath house (ofuro) site, Courtesy Bob Muckle, Archaeologist, Capilano University, B.C. This is an example of an above ground resource.*

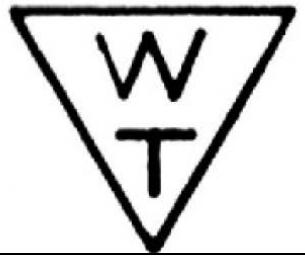
Right, from Top to Bottom: *Coins, token, spectacles and Montgomery Ward pitchfork toy discovered during Seattle Smith Cove shantytown (45-KI-1200) excavation.*

Implement the IDP if you see…

- Old munition casings – if you see ammunition of any type – ***always assume they are live and never touch or move!***
- Tin cans or glass bottles with an older manufacturer's technique – maker's mark, distinct colors such as turquoise, or an older method of opening the container.

Far Left: .303 British cartridge found by a WCC planting crew on Skagit River. Don't ever touch something like this!
Left: Maker's mark on bottom of old bottle.

Right: *Old beer can found in Oregon. ACME was owned by Olympia Brewery. Courtesy of Heather Simmons.*



Logo employed by Whithall Tatum & Co. between 1924 to 1938 (Lockhart et al. 2016).

Can opening dates, courtesy of W.M. Schroeder.

Implement the IDP if you see…

You see historic foundations or buried structures.

Examples are:

- Foundations.
- Railroad and trolley tracks.
- Remnants of structures.

Counter Clockwise, Left to Right: *Historic structure 45KI924, in WSDOT right of way for SR99 tunnel. Remnants of Smith Cove shantytown (45-KI-1200) discovered during Ecology CSO excavation, City of Spokane historic trolley tracks uncovered during stormwater project, intact foundation of historic home that survived the Great Ellensburg Fire of July 4, 1889, uncovered beneath parking lot in Ellensburg.*

Implement the IDP if you see...

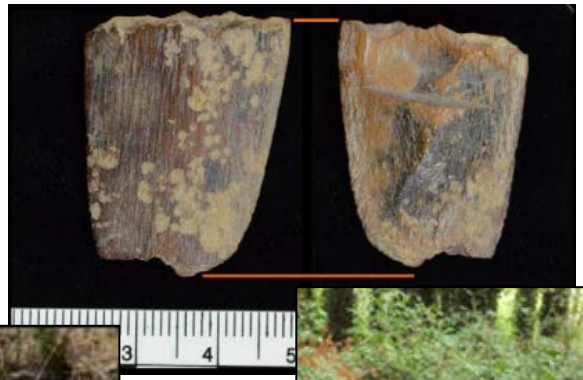
Potential human remains.

Examples are:

- Grave headstones that appear to be older than 50 years.
- Bones or bone tools--intact or in small pieces. It can be difficult to differentiate animal from human so they must be identified by an expert.
- These are all examples of animal bones and are not human.

Center: *Bone wedge tool, courtesy of Smith Cove Shantytown excavation (45KI1200).*

Other images (Top Right, Bottom Left, and Bottom) Center: Courtesy of DAHP.

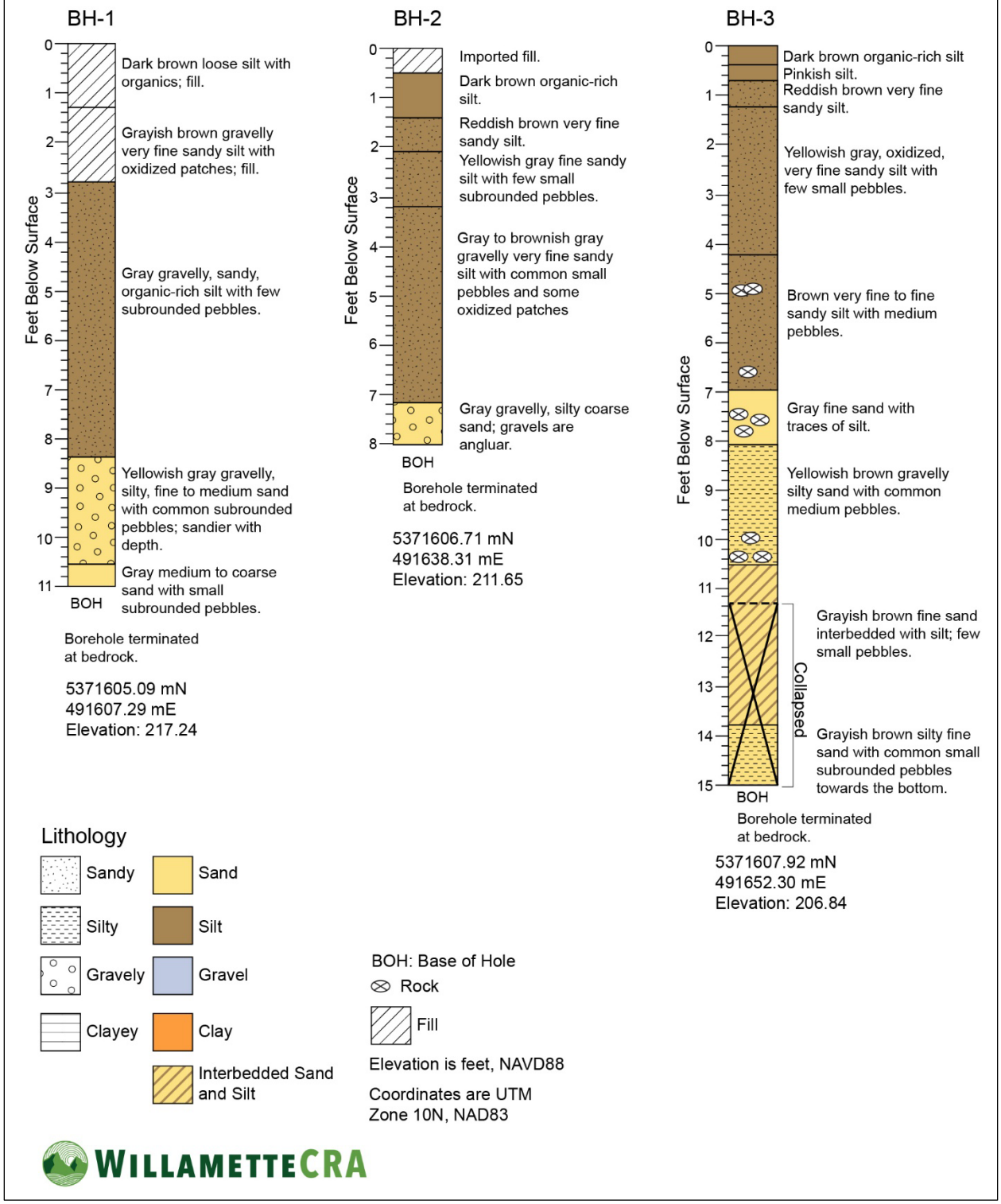


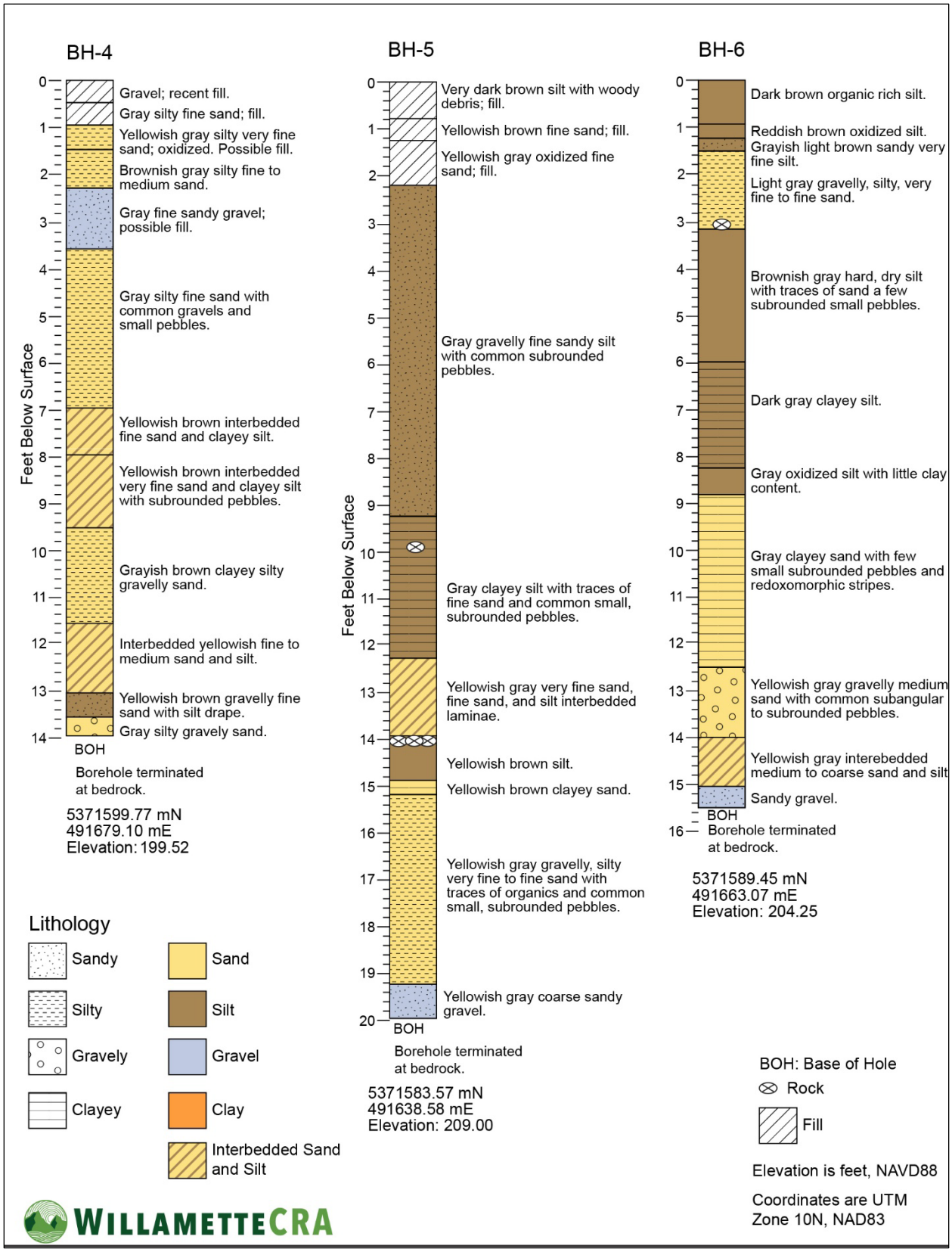
Directly Above: This is a real discovery at an Ecology sewer project site.

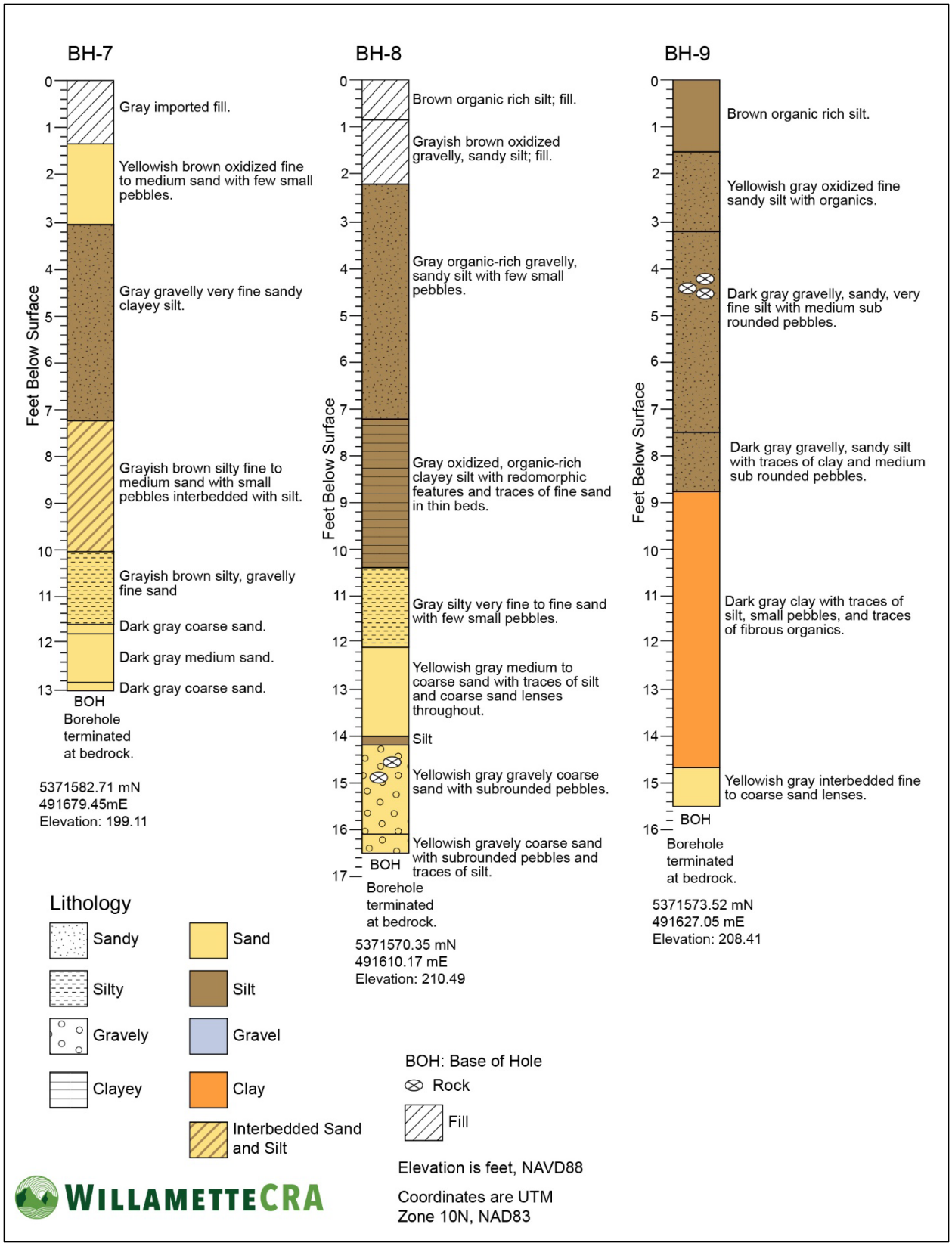
What would you do if you found these items at a site? Who would be the first person you would call?

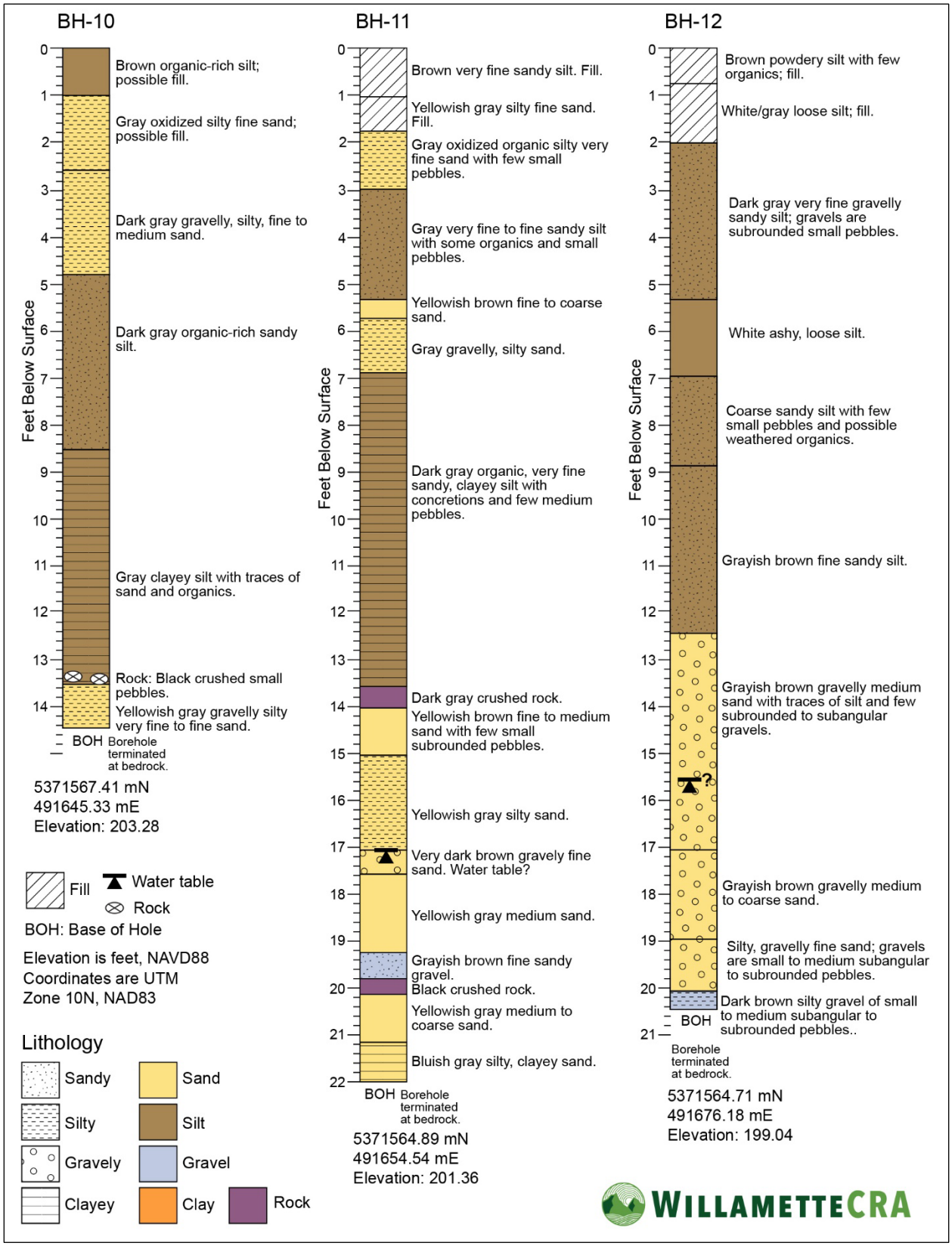
Hint: *Read the plan!*

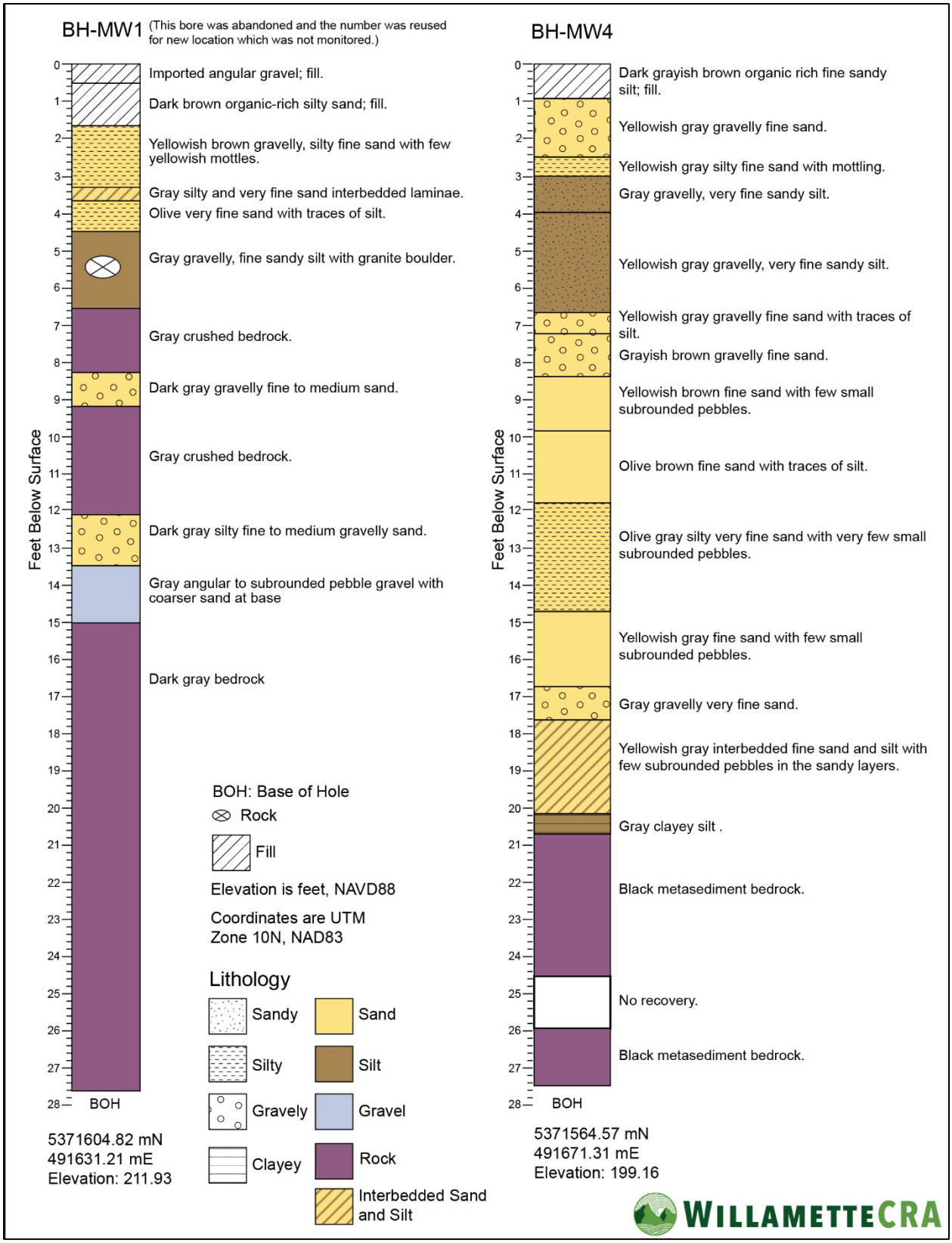
Appendix B:
Bore Logs


BH-1
Feet Below Surface
0
1
2
3
4
5
6
7
8
9
10
11
BOH
Dark brown loose silt with organics; fill.
Grayish brown gravelly very fine sandy silt with oxidized patches; fill.
Gray gravelly, sandy, organic-rich silt with few subrounded pebbles.
Yellowish gray gravelly, silty, fine to medium sand with common subrounded pebbles; sandier with depth.
Gray medium to coarse sand with small subrounded pebbles.
Borehole terminated at bedrock.
5371605.09 mN
491607.29 mE
Elevation: 217.24
BH-2
Feet Below Surface
0
1
2
3
4
5
6
7
8
BOH
Imported fill.
Dark brown organic-rich silt.
Reddish brown very fine sandy silt.
Yellowish gray fine sandy silt with few small subrounded pebbles.
Gray to brownish gray gravelly very fine sandy silt with common small pebbles and some oxidized patches
Gray gravelly, silty coarse sand; gravels are angluar.
Borehole terminated at bedrock.
5371606.71 mN
491638.31 mE
Elevation: 211.65
BH-3
Feet Below Surface
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
BOH
Collapsed
Dark brown organic-rich silt
Pinkish silt.
Reddish brown very fine sandy silt.
Yellowish gray, oxidized, very fine sandy silt with few small pebbles.
Brown very fine to fine sandy silt with medium pebbles.
Gray fine sand with traces of silt.
Yellowish brown gravelly silty sand with common medium pebbles.
Grayish brown fine sand interbedded with silt; few small pebbles.
Grayish brown silty fine sand with common small subrounded pebbles towards the bottom.
Borehole terminated at bedrock.
5371607.92 mN
491652.30 mE
Elevation: 206.84
Lithology
Sandy
Sand
Silty
Silt
Gravely
Gravel
Clayey
Clay
Interbedded Sand and Silt
BOH: Base of Hole
Rock
Fill
Elevation is feet, NAVD88
Coordinates are UTM Zone 10N, NAD83
WILLAMETTECRA


BH-4
Feet Below Surface
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
Gravel; recent fill.
Gray silty fine sand; fill.
Yellowish gray silty very fine sand; oxidized. Possible fill.
Brownish gray silty fine to medium sand.
Gray fine sandy gravel; possible fill.
Gray silty fine sand with common gravels and small pebbles.
Yellowish brown interbedded fine sand and clayey silt.
Yellowish brown interbedded very fine sand and clayey silt with subrounded pebbles.
Grayish brown clayey silty gravelly sand.
Interbedded yellowish fine to medium sand and silt.
Yellowish brown gravelly fine sand with silt drape.
Gray silty gravely sand.
BOH
Borehole terminated at bedrock.
5371599.77 mN
491679.10 mE
Elevation: 199.52
BH-5
Feet Below Surface
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
Very dark brown silt with woody debris; fill.
Yellowish brown fine sand; fill.
Yellowish gray oxidized fine sand; fill.
Gray gravelly fine sandy silt with common subrounded pebbles.
Gray clayey silt with traces of fine sand and common small, subrounded pebbles.
Yellowish gray very fine sand, fine sand, and silt interbedded laminae.
Yellowish brown silt.
Yellowish brown clayey sand.
Yellowish gray gravelly, silty very fine to fine sand with traces of organics and common small, subrounded pebbles.
Yellowish gray coarse sandy gravel.
BOH
Borehole terminated at bedrock.
5371583.57 mN
491638.58 mE
Elevation: 209.00
BH-6
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Dark brown organic rich silt.
Reddish brown oxidized silt.
Grayish light brown sandy very fine silt.
Light gray gravelly, silty, very fine to fine sand.
Brownish gray hard, dry silt with traces of sand a few subrounded small pebbles.
Dark gray clayey silt.
Gray oxidized silt with little clay content.
Gray clayey sand with few small subrounded pebbles and redoxomorphic stripes.
Yellowish gray gravelly medium sand with common subangular to subrounded pebbles.
Yellowish gray interebedded medium to coarse sand and silt
Sandy gravel.
BOH
Borehole terminated at bedrock.
5371589.45 mN
491663.07 mE
Elevation: 204.25
Lithology
Sandy
Silty
Gravely
Clayey
Sand
Silt
Gravel
Clay
Interbedded Sand and Silt
BOH: Base of Hole
Rock
Fill
Elevation is feet, NAVD88
Coordinates are UTM Zone 10N, NAD83
WILLAMETTECRA


BH-7
Feet Below Surface
0
1
2
3
4
5
6
7
8
9
10
11
12
13
Gray imported fill.
Yellowish brown oxidized fine to medium sand with few small pebbles.
Gray gravelly very fine sandy clayey silt.
Grayish brown silty fine to medium sand with small pebbles interbedded with silt.
Grayish brown silty, gravelly fine sand
Dark gray coarse sand.
Dark gray medium sand.
Dark gray coarse sand.
BOH
Borehole terminated at bedrock.
5371582.71 mN
491679.45mE
Elevation: 199.11
BH-8
Feet Below Surface
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Brown organic rich silt; fill.
Grayish brown oxidized gravelly, sandy silt; fill.
Gray organic-rich gravelly, sandy silt with few small pebbles.
Gray oxidized, organic-rich clayey silt with redomorphic features and traces of fine sand in thin beds.
Gray silty very fine to fine sand with few small pebbles.
Yellowish gray medium to coarse sand with traces of silt and coarse sand lenses throughout.
Silt
Yellowish gray gravely coarse sand with subrounded pebbles.
Yellowish gravely coarse sand with subrounded pebbles and traces of silt.
BOH
Borehole terminated at bedrock.
5371570.35 mN
491610.17 mE
Elevation: 210.49
BH-9
Feet Below Surface
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Brown organic rich silt.
Yellowish gray oxidized fine sandy silt with organics.
Dark gray gravelly, sandy, very fine silt with medium sub rounded pebbles.
Dark gray gravelly, sandy silt with traces of clay and medium sub rounded pebbles.
Dark gray clay with traces of silt, small pebbles, and traces of fibrous organics.
Yellowish gray interbedded fine to coarse sand lenses.
BOH
Borehole terminated at bedrock.
5371573.52 mN
491627.05 mE
Elevation: 208.41
Lithology
Sandy
Silty
Gravely
Clayey
Sand
Silt
Gravel
Clay
Interbedded Sand and Silt
BOH: Base of Hole
Rock
Fill
Elevation is feet, NAVD88
Coordinates are UTM Zone 10N, NAD83
WILLAMETTECRA


BH-10
Feet Below Surface
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
Brown organic-rich silt; possible fill.
Gray oxidized silty fine sand; possible fill.
Dark gray gravelly, silty, fine to medium sand.
Dark gray organic-rich sandy silt.
Gray clayey silt with traces of sand and organics.
Rock: Black crushed small pebbles.
Yellowish gray gravelly silty very fine to fine sand.
BOH Borehole terminated at bedrock.
5371567.41 mN
491645.33 mE
Elevation: 203.28
BH-11
Feet Below Surface
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
Brown very fine sandy silt. Fill.
Yellowish gray silty fine sand. Fill.
Gray oxidized organic silty very fine sand with few small pebbles.
Gray very fine to fine sandy silt with some organics and small pebbles.
Yellowish brown fine to coarse sand.
Gray gravelly, silty sand.
Dark gray organic, very fine sandy, clayey silt with concretions and few medium pebbles.
Dark gray crushed rock.
Yellowish brown fine to medium sand with few small subrounded pebbles.
Yellowish gray silty sand.
Very dark brown gravely fine sand. Water table?
Yellowish gray medium sand.
Grayish brown fine sandy gravel.
Black crushed rock.
Yellowish gray medium to coarse sand.
Bluish gray silty, clayey sand.
BOH Borehole terminated at bedrock.
5371564.89 mN
491654.54 mE
Elevation: 201.36
BH-12
Feet Below Surface
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
Brown powdery silt with few organics; fill.
White/gray loose silt; fill.
Dark gray very fine gravelly sandy silt; gravels are subrounded small pebbles.
White ashy, loose silt.
Coarse sandy silt with few small pebbles and possible weathered organics.
Grayish brown fine sandy silt.
Grayish brown gravelly medium sand with traces of silt and few subrounded to subangular gravels.
?
Grayish brown gravelly medium to coarse sand.
Silty, gravelly fine sand; gravels are small to medium subangular to subrounded pebbles.
Dark brown silty gravel of small to medium subangular to subrounded pebbles..
BOH
Borehole terminated at bedrock.
5371564.71 mN
491676.18 mE
Elevation: 199.04
Fill
Water table
Rock
BOH: Base of Hole
Elevation is feet, NAVD88
Coordinates are UTM Zone 10N, NAD83
Lithology
Sandy
Silty
Gravely
Clayey
Sand
Silt
Gravel
Clay
Rock
WILLAMETTECRA


BH-MW1
(This bore was abandoned and the number was reused for new location which was not monitored.)
Feet Below Surface
Imported angular gravel; fill.
Dark brown organic-rich silty sand; fill.
Yellowish brown gravelly, silty fine sand with few yellowish mottles.
Gray silty and very fine sand interbedded laminae.
Olive very fine sand with traces of silt.
Gray gravelly, fine sandy silt with granite boulder.
Gray crushed bedrock.
Dark gray gravelly fine to medium sand.
Gray crushed bedrock.
Dark gray silty fine to medium gravelly sand.
Gray angular to subrounded pebble gravel with coarser sand at base
Dark gray bedrock
BOH
5371604.82 mN
491631.21 mE
Elevation: 211.93
BOH: Base of Hole
Rock
Fill
Elevation is feet, NAVD88
Coordinates are UTM Zone 10N, NAD83
Lithology
Sandy
Sand
Silty
Silt
Gravely
Gravel
Clayey
Rock
Interbedded Sand and Silt
BH-MW4
Feet Below Surface
Dark grayish brown organic rich fine sandy silt; fill.
Yellowish gray gravelly fine sand.
Yellowish gray silty fine sand with mottling.
Gray gravelly, very fine sandy silt.
Yellowish gray gravelly, very fine sandy silt.
Yellowish gray gravelly fine sand with traces of silt.
Grayish brown gravelly fine sand.
Yellowish brown fine sand with few small subrounded pebbles.
Olive brown fine sand with traces of silt.
Olive gray silty very fine sand with very few small subrounded pebbles.
Yellowish gray fine sand with few small subrounded pebbles.
Gray gravelly very fine sand.
Yellowish gray interbedded fine sand and silt with few subrounded pebbles in the sandy layers.
Gray clayey silt .
Black metasediment bedrock.
No recovery.
Black metasediment bedrock.
BOH
5371564.57 mN
491671.31 mE
Elevation: 199.16
WILLAMETTECRA

Appendix E
EIM Submittal Receipts

Sarah Hawley

From: Denell Warren
Sent: Wednesday, April 9, 2025 1:42 PM
To: Katy R. Atakturk; Jacob Letts; Sue Bator; Meredith Bush
Subject: FW: EIM Data Load Notice - Study ID FS100000405

The data for Bailer Hill have been accepted by Ecology and are now viewable in EIM.

From: Masurat, Nicole (ECY) <nmas461@ECY.WA.GOV>
Sent: Wednesday, April 9, 2025 8:13 AM
To: Denell Warren <dwarren@geoengineers.com>; Atkins, Vance (ECY) <VATK461@ECY.WA.GOV>
Subject: EIM Data Load Notice - Study ID FS100000405

Hello Denell and Vance,

Thank you for submitting data for the Bailer Hill Area PFAS study. Submitted data for this study loaded into EIM successfully. Both of you should verify the data and let me know if you have any questions or corrections.

Once the data passes the site manager's review, I can update the status in EIM to Reviewed. Please let me know when this is appropriate.

Below is further information on the loaded data.

Facility Site ID: 100000405

Study ID: FS100000405

Study Name: Bailer Hill Area PFAS

Date Range: 07/23/2024 – 10/30/2024

New Locations: 17

New Results: 1,530

Information for data submitter:

- You can view the data by using the following link: https://apps.ecology.wa.gov/eim/search/Map/Map.aspx?MapType=EIM&StudySystemIds=99972938&StudyUserIds=FS100000405&StudyUserIdSearchType=Equals&MapLocationExtent=-13704969.3546282%2C6189964.61395289%2C-13704836.8181453%2C6190031.51138205

- Verify study, location, and result information.

Information for Ecology employees:

- You can view the data by using the following link: http://ecyeim/search/Map/Map.aspx?MapType=EIM&StudySystemIds=99972938&StudyUserIds=FS100000405&StudyUserIdSearchType=Equals&MapLocationExtent=-13704969.3546282%2C6189964.61395289%2C-13704836.8181453%2C6190031.51138205

- Verify study, location, and result information.

- The EIM Data Entry Review Checklist, updated May 2018, can be found in the EIM Help Center.

- There is a video training on how to review the data.

Thank you,
Nicole

Nicole Masurat (she/her)
EIM Data Coordinator
Toxics Cleanup Program
Washington State Department of Ecology
Email: nicole.masurat@ecy.wa.gov | phone: (564) 669-8294
Monday – Thursday, 6:00 am - 3:30 pm
Friday, 6:00 am – 10:00 am

Sarah Hawley

From: Atkins, Vance (ECY) <VATK461@ECY.WA.GOV>
Sent: Wednesday, January 8, 2025 2:55 PM
To: Jacob Letts
Cc: Katy R. Atakturk; Meredith Bush
Subject: RE: Bailer Hill Project - PFAS Data Uploaded to EIM

Hi, thanks – I just got the confirmation from the EIM coordinator.

Vance Atkins, LG, LHG
Hydrogeologist 4
Toxics Cleanup Program, NWRO
WA State Department of Ecology
425-324-1438 Mobile
206-594-0000 Main

From: Jacob Letts <jletts@geoengineers.com>
Sent: Wednesday, January 8, 2025 2:02 PM
To: Atkins, Vance (ECY) <VATK461@ECY.WA.GOV>
Cc: Katy R. Atakturk <katakturk@geoengineers.com>; Meredith Bush <mbush@geoengineers.com>
Subject: Bailer Hill Project - PFAS Data Uploaded to EIM

Hi Vance – just wanted to give you an update that the soil and groundwater data for the Bailer Hill project have been uploaded to the EIM and the investigation report is in-process. Hope you had a nice holiday break.
Jacob

Jacob Letts, LG, LHG
Senior Hydrogeologist | GeoEngineers, Inc.
Telephone: 253.722.2419
Fax: 253.383.4923
Mobile: 206.228.4375
Email: jletts@geoengineers.com

1101 Fawcett Avenue, Suite 200
Tacoma, WA 98402
www.geoengineers.com

Sarah Hawley

From: Denell Warren
Sent: Wednesday, January 8, 2025 1:32 PM
To: Katy R. Atakturk
Cc: Jacob Letts; Sue Bator; Meredith Bush; Erik Strandhagen
Subject: RE: Upcoming Data Validation Request - Bailer Hill

Hi Katy,

The validation report has been uploaded to the SP link below. I also uploaded a table of the data. It's just a basic table, nothing fancy. If you'd like it revised to meet your project needs, just let me know.
WA Ecology - Bailer Hill PFAS Tier 2 Investigation - SGS EDDs and Lab Reports - All Documents

The data have been submitted to EIM.

Batch Metadata	
Source File Name: Results_FS100000405_BailerHill_20250108.csv	**Batch Number:** 882
Submitted By: dwarren@geoengineers.com	**Batch Upload Date:** 01/08/2025
Submitter Name: Denell Warren	**Batch Type:** RESULT
Owner Name: dwarren@geoengineers.com	**System:** EXTERNAL
Submitting To: TCP-Cleanup	**Total Records in Batch:** 1520
Submitting Entity: GeoEngineers - Tacoma WA	Loaded: 0 Unloaded: 1520 Error: 0 Warning: 0 Duplicate: 0 Deferred: 0

Let me know if you have any questions.
Denell

From: Katy R. Atakturk <katakturk@geoengineers.com>
Sent: Monday, January 6, 2025 11:32 AM
To: Denell Warren <dwarren@geoengineers.com>
Cc: Jacob Letts <jletts@geoengineers.com>; Sue Bator <sbator@geoengineers.com>; Meredith Bush <mbush@geoengineers.com>; Erik Strandhagen <estrandhagen@geoengineers.com>
Subject: RE: Upcoming Data Validation Request - Bailer Hill

One report is preferred.

Thanks,

Katy Ataktürk, LG
Geologist | GeoEngineers, Inc.

Telephone: 425.861.6045
Mobile: 206.419.4290
Email: katakturk@geoengineers.com

2101 4th Ave Ste 950
Seattle, WA 98121
www.geoengineers.com

From: Denell Warren <dwarren@geoengineers.com>
Sent: Monday, January 6, 2025 10:39 AM
To: Katy R. Atakturk <katakturk@geoengineers.com>
Cc: Jacob Letts <jletts@geoengineers.com>; Sue Bator <sbator@geoengineers.com>; Meredith Bush <mbush@geoengineers.com>; Erik Strandhagen <estrandhagen@geoengineers.com>
Subject: RE: Upcoming Data Validation Request - Bailer Hill

Hey Katy,

Would you like a separate validation report for each task? Or is combining into one report ok?

Denell

From: Katy R. Atakturk <katakturk@geoengineers.com>
Sent: Wednesday, December 11, 2024 9:44 AM
To: Denell Warren <dwarren@geoengineers.com>
Cc: Jacob Letts <jletts@geoengineers.com>; Sue Bator <sbator@geoengineers.com>; Meredith Bush <mbush@geoengineers.com>; Erik Strandhagen <estrandhagen@geoengineers.com>
Subject: Upcoming Data Validation Request - Bailer Hill

Hi Denell,

We just received the final EDD for our Bailer Hill PFAS project data set (2 data packages total). We're meeting as a group this Friday to discuss our next steps, but I wanted to give you a heads up and get our project in line for your data validation work flow. This data will need to be uploaded to EIM once validated. Please hold off on getting started until we reach back out in case there are any specific instructions we come up with.

Task 3 Soil and GW Data
Task 4 GW Data

Much appreciated,

Katy Ataktürk, LG
Geologist | GeoEngineers, Inc.
Telephone: 425.861.6045
Mobile: 206.419.4290
Email: katakturk@geoengineers.com

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Seattle, WA 98121
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Appendix F
IDW Manifest and Waste Ticket

Please print or type.
(Form designed for use on elite (12-pitch) typewriter.)

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number: SQG
2. Page 1 of: 1
3. Emergency Response Phone: 503-224-3206
4. Manifest Tracking Number: 113781

5. Generator's Name and Mailing Address
Vance Atkins
PO Box 330316
Shoreline WA 98133-9716
Generator's Phone: 425 324-1438

Generator's Site Address (if different than mailing address)
Vance Atkins
3189 Bailer Hill Rd.
Friday Harbor WA 98250
U.S. EPA ID Number: ORQ0000023150

6. Transporter 1 Company Name: WasteXpress
U.S. EPA ID Number:

7. Transporter 2 Company Name: CHEMICAL WASTE MANAGEMENT of the N.W.
U.S. EPA ID Number: ORD089452353

8. Designated Facility Name and Site Address
CHEMICAL WASTE MANAGEMENT of the N.W.
17629 CEDAR SPRINGS LANE
ARLINGTON OR 97812
Facility's Phone: 541 454-2643
U.S. EPA ID Number: ORD089452353

GENERATOR

9. Waste Shipping Name and Description	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
1. Non-regulated material, Solids, (IDW Sediment)	11 +10 EMO	DM	9300	P	NONE
2. Non-regulated material, Liquids, (IDW Water)	5	DM	1800	P	NONE
3.					
4.					

13. Special Handling Instructions and Additional Information
1) OR360894 10/55
2) OR360895 5/55

14. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.
Generator's/Offeror's Printed/Typed Name: *Confirmed dimensions Kathy
Signature: Kathy
Month 10 Day 20 Year 24

INTL

15. International Shipments: ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit: Date leaving U.S.:

TRANSPORTER

Transporter Signature (for exports only):
16. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Ronald Wells
Signature: Ronald Wells
Month 10 Day 20 Year 24
Transporter 2 Printed/Typed Name:
Signature:
Month Day Year

DESIGNATED FACILITY

17. Discrepancy
17a. Discrepancy Indication Space: ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:
17b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:
17c. Signature of Alternate Facility (or Generator)
Month Day
18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in item 17a
Printed/Typed Name:
Signature:
Month Day Year

Printed in USA by GC Labels 1-800-997-6966

DESIGNATED FACILITY TO GENERATOR

Reorder Part# MANIFEST-C6NHW 913-897-6966

Appendix G
Report Limitations and Guidelines for Use

Appendix G
Report Limitations and Guidelines for Use[3]

This appendix provides information to help you manage your risks with respect to the use of this report.

READ THESE PROVISIONS CLOSELY

Some clients, design professionals and contractors may not recognize that the geosciences practices (geotechnical engineering, geology and environmental science) are far less exact than other engineering and natural science disciplines. This lack of understanding can create unrealistic expectations that could lead to disappointments, claims and disputes. GeoEngineers includes these explanatory "limitations" provisions in our reports to help reduce such risks. Please confer with GeoEngineers if you are unclear how these "Report Limitations and Guidelines for Use" apply to your project or site.

ENVIRONMENTAL SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES, PERSONS AND PROJECTS

This report has been prepared for the exclusive use of the Washington State Department of Ecology, their authorized agents and regulatory agencies. This report is not intended for use by others, and the information contained herein is not applicable to other sites.

GeoEngineers structures our services to meet the specific needs of our clients. For example, an environmental site assessment or remedial action study conducted for a property owner may not fulfill the needs of a prospective purchaser of the same property. Because each environmental study is unique, each environmental report is unique, prepared solely for the specific client and project site. No one except the Washington State Department of Ecology should rely on this report without first conferring with GeoEngineers. This report should not be applied for any purpose or project except the one originally contemplated.

THIS ENVIRONMENTAL REPORT IS BASED ON A UNIQUE SET OF PROJECT-SPECIFIC FACTORS

This report applies to San Juan County Tax Parcel 353050029000, currently occupied by the Little Mountain Fire Station No. 33 (subject property), located at the intersection of Bailer Hill Road and Straits View Drive, outside of Friday Harbor on San Juan Island, Washington. GeoEngineers considered a number of unique, project-specific factors when establishing the scope of services for this project and report. Unless GeoEngineers specifically indicates otherwise, do not rely on this report if it was:

- Not prepared for you,
- Not prepared for your project,
- Not prepared for the specific site explored, or
- Completed before important project changes were made.

[3] Developed based on material provided by GBA, GeoProfessional Business Association; www.geoprofessional.org.

If important changes are made after the date of this report, GeoEngineers should be given the opportunity to review our interpretations and recommendations and provide written modifications or confirmation, as appropriate.

RELIANCE CONDITIONS FOR THIRD PARTIES

No third party may rely on the product of our services unless GeoEngineers agrees in advance, and in writing to such reliance. This is to provide our firm with reasonable protection against open-ended liability claims by third parties with whom there would otherwise be no contractual limits to their actions.

ENVIRONMENTAL REGULATIONS ARE ALWAYS EVOLVING

Some substances may be present in the site vicinity in quantities or under conditions that may have led, or may lead, to contamination of the subject site, but are not included in current local, state or federal regulatory definitions of hazardous substances or do not otherwise present current potential liability. GeoEngineers cannot be responsible if the standards for appropriate inquiry, or regulatory definitions of hazardous substance, change or if more stringent environmental standards are developed in the future.

SUBSURFACE CONDITIONS CAN CHANGE

This report is based on conditions that existed at the time our site studies were performed. The findings and conclusions of this report may be affected by the passage of time, by manmade events such as construction on or adjacent to the site, by new releases of hazardous substances, or by natural events such as floods, earthquakes and slope instability or groundwater fluctuations. Always contact GeoEngineers before applying this report to determine if it is still applicable.

BIOLOGICAL POLLUTANTS

GeoEngineers' Scope of Work specifically excludes the investigation, detection, prevention or assessment of the presence of Biological Pollutants. Accordingly, this report does not include any interpretations, recommendations, findings, or conclusions regarding the detecting, assessing, preventing or abating of Biological Pollutants and no conclusions or inferences should be drawn regarding Biological Pollutants, as they may relate to this project. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria and viruses, and/or any of their byproducts.

If Client desires these specialized services, they should be obtained from a consultant who offers services in this specialized field.

DO NOT REDRAW THE EXPLORATION LOGS

Environmental scientists prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in an environmental report should never be redrawn for inclusion in other design drawings. Only photographic or electronic reproduction is acceptable but recognize that separating logs from the report can elevate risk.

GEOTECHNICAL, GEOLOGIC AND ENVIRONMENTAL REPORTS SHOULD NOT BE INTERCHANGED

The equipment, techniques and personnel used to perform an environmental study differ significantly from those used to perform a geotechnical or geologic study and vice versa. For that reason, a geotechnical engineering or geologic report does not usually relate any environmental findings, conclusions or recommendations, e.g., about the likelihood of encountering underground storage tanks (USTs) or regulated contaminants. Similarly, environmental reports are not used to address geotechnical or geologic concerns regarding a specific project.

SOIL AND GROUNDWATER END USE

The cleanup levels referenced in this report are subject property- and situation-specific. The cleanup levels may not be applicable for other properties or for other on-property uses of the affected media (soil and/or groundwater). Note that hazardous substances may be present in some of the subject property soil and/or groundwater at detectable concentrations that are less than the referenced cleanup levels. GeoEngineers should be contacted prior to the export of soil or groundwater from the subject site or reuse of the affected media on property to evaluate the potential for associated environmental liabilities. We cannot be responsible for potential environmental liability arising out of the transfer of soil and/or groundwater from the subject property to another location or its reuse on site in instances that we were not aware of or could not control.

ENVIRONMENTAL FINDINGS ARE PROFESSIONAL OPINIONS

Our interpretations of subsurface conditions are based on field observations and chemical analytical data from widely spaced sampling locations at the subject property. Subject property exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. GeoEngineers reviewed field and laboratory data and then applied our professional judgment to render an opinion about subsurface conditions throughout the subject property. Actual subsurface conditions may differ – sometimes significantly – from those indicated in this report. Our report, conclusions and interpretations should not be construed as a warranty of the subsurface conditions.