



Naval Facilities Engineering Systems Command Northwest
Silverdale, Washington

Final

Technical Memorandum

**Results of Investigation of Per- and Polyfluoroalkyl Substances in
Off-Base Drinking Water—Ault Field, Area 6, and
Outlying Landing Field Coupeville, November 2020 to April 2021**

Naval Air Station Whidbey Island
Washington

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Prepared for NAVFAC Northwest
by CH2M HILL, Inc.
Virginia Beach, Virginia
Contract N62470-16-D-9000
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Results of Investigation of Per- and Polyfluoroalkyl Substances in Off-Base Drinking Water—Ault Field, Area 6, and Outlying Landing Field Coupeville, Naval Air Station Whidbey Island, Washington

PREPARED FOR: Naval Facilities Engineering Systems Command (NAVFAC) Atlantic
NAVFAC Northwest
Naval Air Station Whidbey Island

PREPARED BY: CH2M HILL, Inc. (CH2M)

DATE: December 2021

Introduction

CH2M HILL, Inc. (CH2M) was contracted by Naval Facilities Engineering Systems Command (NAVFAC), to evaluate impacts of potential releases of per- and polyfluoroalkyl substances (PFAS) to groundwater near Naval Air Station (NAS) Whidbey Island and collect drinking water samples for PFAS analysis from private drinking water sources near Ault Field and Area 6 located in Oak Harbor, Washington and Outlying Landing Field (OLF) Coupeville located in Coupeville, Washington (**Figure 1**). This technical memorandum (TM) presents the results of the fall 2020 (November) and spring 2021 (April) sampling events performed as part of the semi-annual monitoring program. Both sampling events were conducted in accordance with the *Sampling and Analysis Plan, Investigation of Per- and Polyfluorinated Substances in Off-Base Drinking Water, Ault Field, Area 6, and Outlying Landing Field Coupeville* (SAP) (CH2M, 2020a), field change request (FCR) 01 (CH2M, 2020b), and FCR 02 (CH2M, 2020c). CH2M prepared this TM for the Department of the Navy (Navy) under the NAVFAC Comprehensive Long-term Environmental Action (CLEAN)—Navy 9000 Contract N62470-16-D-9000, Contract Task Order N4425520F4384.

Per- and Polyfluoroalkyl Substances

PFAS are manufactured chemicals that have been used since the 1950s in many household and industrial products because of their stain- and water-repellant properties. Within the Navy's operations, PFAS are most commonly associated with aqueous film-forming foam (AFFF) used primarily for firefighting (including emergency response, equipment testing and/or training, and fire suppression systems in buildings). PFAS can also be found in vapor suppression systems and in waste streams. PFAS are now present virtually everywhere in the world because of the large amounts that have been manufactured and used. Once these compounds are released to the environment, they break down very slowly. PFAS are considered "chemicals of emerging concern" which have no Safe Drinking Water Act regulatory standards or routine water quality testing requirements. The United States Environmental Protection Agency (USEPA) is studying PFAS to determine if national regulation is needed. The State of Washington does not have an established state standard or promulgated screening value for any PFAS constituent in either groundwater or drinking water.

USEPA issued the Third Unregulated Contaminant Monitoring Rule (UCMR 3)¹ in May 2012. The UCMR 3 required monitoring, between 2013 and 2015, for 30 substances, of all large public water systems (PWSs) serving more

¹ The 1996 Safe Drinking Water Act amendments require that once every 5 years USEPA issue a new list of no more than 30 unregulated substances to be monitored by PWSs.

than 10,000 people and 800 representative PWSs serving 10,000 or fewer people. Six PFAS compounds were included in the UCMR 3 analytical parameter list; of these six PFAS, the USEPA has issued lifetime health advisories² for only two, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS), and has published toxicity values for another, perfluorobutane sulfonate (PFBS). Health advisories are not regulatory standards. They are health-based concentrations that should offer a margin of protection for all Americans throughout their lives from adverse health effects resulting from exposure to PFOS and PFOA in drinking water. The USEPA lifetime health advisories for lifetime exposure are 70 nanograms per liter (ng/L) for PFOS and 70 ng/L for PFOA. When both PFOS and PFOA are found in drinking water, the combined concentrations should not exceed 70 ng/L (USEPA, 2016a, 2016b).

Navy Policy

The Navy issued a policy in 2014 (Navy, 2014) requiring on-Base drinking water sampling for PFOS and PFOA for bases where groundwater was used as drinking water and PFAS could have been released nearby. Under the policy, all installations not previously tested under UCMR 3 that produce drinking water from on-Base sources and have an identified or suspected PFAS release within approximately 1-mile upgradient of the drinking water source, were required to sample their finished drinking water by December 2015. In June 2016, the Navy issued additional policy (Navy, 2016b) that required all Navy bases not previously tested under UCMR 3 or the 2014 policy (Navy, 2014) to test their finished drinking water, regardless of the water source (on-Base or municipal) or potential/known source of a PFAS release to the environment. Ault Field's water is supplied by the City of Oak Harbor, and Oak Harbor's water is supplied by the City of Anacortes. The drinking water provided by the City of Anacortes, the City of Oak Harbor, and Ault Field was sampled under UCMR 3, and PFAS were not detected. Two on-Base drinking water wells at OLF Coupeville were sampled for PFAS in October 2016 (ALS Environmental, 2016). PFAS were not detected in the on-Base drinking water well located in the northern portion of the site near Building 11. PFAS were detected in the on-Base drinking water well in the southwestern portion of the OLF near Building 2807 (ALS Environmental, 2016).

In June 2016, the Navy also issued a policy (Navy, 2016c) to identify and prioritize sites for investigation of drinking water resources, on- or off-Base, that are thought to be vulnerable to PFAS impacts from past Navy releases of PFAS, with a focus on release of AFFF. Sites with drinking water sources (water supply wells, surface water bodies used for drinking water, and reservoirs) within 1-mile downgradient of known or potential releases of PFAS were assigned the highest priority. Drinking water near these high-priority, Priority 1 sites was required to be sampled within fiscal year 2017.

Priority 1 sites at NAS Whidbey Island included the Ault Field Runway Ditches/Former Runway Fire Training School (Areas 16/31), Ault Field Current Fire Training Area, and OLF Coupeville. Although not identified as a Priority 1 site for PFAS investigation, the Area 6 Former Landfill was added to the off-Base drinking water investigation due to its history as a municipal and industrial waste disposal facility consistent with possible releases of PFAS. The Navy has sampled 286 drinking water wells downgradient from Ault Field, Area 6, and OLF Coupeville since November 2016 (**Table 1**). From November 2016 to October 2017, initial investigative drinking water sampling for PFAS was conducted for drinking water wells downgradient of identified Priority 1 sites at Ault Field and OLF Coupeville (CH2M, 2017a). Following the initial drinking water sampling investigation, a semi-annual drinking water sampling program was conducted from October 2017 to April 2019 for drinking water wells with exceedances of the USEPA lifetime health advisories and surrounding parcels near Ault Field and OLF Coupeville under the *Sampling and Analysis Plan Investigation of Per- and Polyfluoroalkyl Substances in Drinking Water Ault Field and Outlying Landing Field Coupeville* (CH2M, 2017b, 2018b). In Fall 2019, off-Base locations near Area 6 were added to the semi-annual drinking water sampling program (CH2M, 2020a). The sampling program described in the present report is a continuation of the semi-annual sampling program (CH2M, 2020a), which occurred from fall 2020 (November) to spring 2021 (April).

² USEPA issued lifetime health advisories for PFOS and PFOA in May 2016, superseding the 2009 provisional lifetime health advisories. USEPA has not issued lifetime health advisories for any other PFAS.

Conceptual Site Model

This section presents a brief history of NAS Whidbey Island, background information about potential PFAS release areas at Ault Field, Area 6, and OLF Coupeville, a description of the environmental setting, and an evaluation of drinking water sources in the vicinity. This information comprises the conceptual site model, which describes the relationship between potential on-Base PFAS sources and receptors through potential or actual migration and exposure pathways.

Naval Air Station Whidbey Island Background

NAS Whidbey Island is comprised of three separate installations, Ault Field (includes Area 6), OLF Coupeville, and Seaplane Base (**Figure 1**). NAS Whidbey Island was commissioned on September 21, 1942, and currently supports several types of aircraft, 7,600 military personnel, and 1,300 civilian personnel. The mission of NAS Whidbey Island is to maintain and operate naval aircraft and aviation facilities and provide associated support. The land surrounding Ault Field, Area 6, and OLF Coupeville is used for various agricultural, recreational, residential, and industrial purposes (CH2M, 2020a).

Ault Field

Ault Field is located approximately 50 miles north of Seattle, WA on Whidbey Island directly north of Oak Harbor, WA (**Figure 1**). Ault Field supports Navy tactical electronic attack squadrons flying the EA-18G Growler, the P-3 Orion Maritime Patrol squadrons, and two Fleet Reconnaissance squadrons flying the EP-3E Aries.

In 2015, three areas where AFFF may have been stored, handled, or released at Ault Field (Hangar 5, the Runway Drainage Ditch System [Area 16] and Former Runway Fire School [Area 31]) were investigated within the shallow portion of the aquifer (**Figure 2**) (Navy, 2016a). Sample results indicated the presence of PFAS in groundwater near Hangar 5 and Area 31 (Navy, 2016a).

A preliminary assessment (PA) was conducted in 2018 at Ault Field and identified 35 potential PFAS release areas, including Hangar 5, Area 16, and Area 31 (CH2M, 2018a). Additionally, the PA identified Area 6 Landfill as a potential PFAS release area; however, PFAS at Area 6 is being investigated independent of Ault Field and was initially treated as a separate area for the drinking water investigation prior to being combined into a semi-annual sampling program with Ault Field and OLF Coupeville in 2019.

In 2019, Phase 1 of a site inspection (SI) was conducted and confirmed the presence of PFAS in groundwater at four of the 35 potential PFAS release areas:

- 1959-1969 Landfill (Area 2)
- 1968-1970 Landfill (Area 3)
- Current Firefighting School
- Former Clover Valley Fire School (Area 29)

The Phase 1 SI was also conducted in areas between potential PFAS release areas and the two off-Base residential parcels near Ault Field where PFAS have been detected in drinking water above the USEPA lifetime health advisories (CH2M, 2019e). Phase 2 of the SI was conducted in fall and winter 2019 and summer 2020 to further refine the conceptual site model and identify PFAS release areas and migration pathways (CH2M, 2021a). The Phase 2 SI involved additional on-Base monitoring well installation, PFAS soil and groundwater sampling, and aquifer testing near potential PFAS release areas at Ault Field (CH2M, 2021a). A remedial investigation (RI) at the former Area 31 is planned for winter 2021/2022.

Area 6

Area 6 is a 260-acre tract in the southeastern corner of Ault Field (**Figure 1**). Area 6 is bordered by Ault Field Road to the north, State Highway 20 to the east, and the Oak Harbor landfill on the south and southwest. Privately-owned forested or logged land, and a former commercial sand and gravel quarry operation, are located immediately west of Area 6. Currently, Area 6 is mostly vacant and composed of a compost facility, an

approximate 40-acre engineered landfill cap, and a stormwater detention basin. It also includes various groundwater monitoring and extraction wells and a groundwater treatment plant (URS, 2015). The off-Base land surrounding Area 6 is used for a combination of residential and commercial purposes.

From 2017 to 2019 an SI and off-Base drinking water sampling investigation was conducted at Area 6 for PFAS (CH2M, 2020b). PFAS were detected in 17 groundwater monitoring wells located on-Base at Area 6. Of the 17 groundwater monitoring wells with PFAS detections, one exceeded the USEPA lifetime health advisory for PFOA. The drinking water investigation is summarized in the Previous Off-Base Drinking Water Investigation section (CH2M, 2020b). An RI at Area 6 is planned for summer 2022.

Outlying Landing Field Coupeville

OLF Coupeville is a Navy airfield associated with NAS Whidbey Island, located 2 miles southeast of Coupeville, in Island County, Washington (**Figure 1**). It is composed of a paved runway oriented north-northwest to south-southeast. The paved runway is approximately 5,400 feet long and is bordered by grass maintained by mowing operations extending to the public roads. A runway safety area extends approximately 3,300 feet south of the runway footprint and is bordered by trees and residential parcels. The airfield was commissioned for use by the Navy in 1943 and provides support for day and night field carrier landing practice operations by the Navy for aircraft based out of NAS Whidbey Island.

In 2016, PFAS were first detected in one of the on-Base drinking water wells located in the southwest portion of OLF Coupeville near Building 2807 during groundwater sampling activities conducted under the Navy's June 2016 Policy Memo (DASN [E], 2016). As a result, an expedited SI was conducted, and 31 groundwater monitoring wells were installed and sampled for PFAS in 2016 and 2017 (CH2M, 2019d). Of the 31 groundwater monitoring wells, PFAS were detected in 13 of the wells and PFOA and/or PFOS exceeded the USEPA lifetime health advisories in 6 of the 13 groundwater monitoring wells.

In 2018, a PA was conducted for OLF Coupeville and identified 2 potential PFAS source areas, Building 2709 (Crash Truck Shelter) and Facilities 1, 2, and 11 (Control Tower, Airfield Operations Building, and Potable Water Well Pump House). As a result of the PA findings and the expedited SI results, a supplemental SI was conducted at OLF Coupeville in spring 2020 to further refine the conceptual site model and identify PFAS source areas and migration pathways. The supplemental SI involved monitoring well installation, soil and groundwater sampling, and aquifer testing (CH2M, 2021b). An RI at OLF Coupeville is planned for fall 2021 and winter 2022.

Previous Off-Base Drinking Water Investigations

Off-base drinking water sampling near Ault Field and OLF Coupeville was initially conducted from November 2016 to June 2017 (CH2M, 2019b, 2019c). Sampling was conducted under a phased, voluntary sampling program (**Figures 2 and 3**). The initial sampling areas³ included off-Base drinking water wells within a 1-mile radius in all directions of sites with suspected or confirmed usage of AFFF. Subsequent sampling phases were implemented with expanded sampling areas based on the results of previous phases. Three sampling phases were conducted in areas adjacent to Ault Field, during which PFOS and/or PFOA were detected above the USEPA lifetime health advisories in two off-Base wells. In response to PFAS detections in a stormwater drain near Hangar 6 and in an associated stormwater drainage system, a fourth sampling phase was conducted from January to February 2019, during which no additional off-Base drinking water wells exceeded the USEPA lifetime health advisories for PFOS and/or PFOA. Two sampling phases were conducted in areas adjacent to OLF Coupeville, during which PFOS and/or PFOA were detected above the USEPA lifetime health advisories in seven off-Base wells.

Beginning in October 2017, a semi-annual sampling program was implemented for Ault Field and OLF Coupeville that included all off-Base drinking water wells that had previously had detections of PFOS and/or PFOA (either

³ Subsequent to the initial round of drinking water sampling performed in 2016 and 2017, a preliminary assessment (CH2M, 2018) was conducted at Ault Field and identified 35 potential source areas (including Area 6) with suspected or potential releases requiring further investigation. The initial 1-mile downgradient boundary and subsequent 1/2-mile step-outs defined in the 2016 and 2017 investigation was established from Area 16, Area 31, and the Current Fire Training School; however, the sampling areas also encompass residences within the 1-mile downgradient direction of potential PFAS source areas identified in the PA.

above or below the USEPA lifetime health advisories) and wells on parcels adjacent to those with wells that had previously exceeded the USEPA lifetime health advisories for PFOS and/or PFOA. These adjacent properties included some wells that had not previously been sampled during the phased investigation. During the October 2017 event, PFOA was detected above the USEPA lifetime health advisory in a well on one of these properties in Coupeville that had not previously been sampled for a total number of eight drinking water wells above the USEPA lifetime health advisories in Coupeville.

From February 2018 to April 2019, the Navy conducted drinking water sampling at residences near Area 6 (CH2M, 2020b). Drinking water sampling results from this investigation indicated that PFOS and/or PFOA are present above the USEPA lifetime health advisories in five drinking water wells. In November 2019, an additional drinking water well with PFOS and the sum of PFOS and PFOA present above the USEPA lifetime health advisories was identified for a total of six drinking water wells above the USEPA lifetime health advisories near Area 6.

Temporary interim solution measures have been taken to supply potable water to residences where the drinking water results exceeded the USEPA lifetime health advisories. For most residences, this consists of bottled water delivery which commenced in December 2016 and is ongoing. At one of the residences, a point-of-use water treatment system was installed in May 2018 which treats the impacted well water at one kitchen sink to non-detectable levels of PFOS and PFOA and provides potable water to the residence (CH2M, 2019a). This residence no longer receives bottled water. Additionally, seven residences near OLF Coupeville (4 residences with single party wells and 3 residences that share a multi-party well) were connected to Town of Coupeville water in March 2020. These residences will continue to receive bottled water until final project acceptance.

Geology and Hydrogeology

Ault Field and Area 6

Whidbey Island lies within the Puget Lowland, a topographic and structural depression between the Olympic Mountains and the Cascade Range. The surface soil in the vicinity of Ault Field and Area 6 primarily consists of artificial fill, post-glacial deposits, glaciomarine drift, and glacial deposits. Artificial fill, consisting of coarse- or fine-grained material, underlies the runway areas. Post-glacial deposits, consisting of peaty sand and silt, are generally found in the low-lying marshy areas (Navy, 1994).

There are three main aquifers that underlie Ault Field and Area 6 that are referred to as the shallow aquifer, intermediate aquifer, and sea-level aquifer. Ault Field is located in a valley, with elevated areas to the southwest, northeast, and southeast of the field. In general, groundwater flow in the shallow aquifer mimics topography. In the northwestern portion of Ault Field groundwater in the shallow aquifer flows to the west-northwest toward the Strait of Juan de Fuca (Navy, 1994). Across the remainder of Ault Field, east of the runway, groundwater generally flows to the east, northeast, and southeast toward Clover Valley Stream, Clover Valley Lagoon, and Dugualla Bay. West of the runway and current Firefighting School, there is likely a component of flow to the west toward the Strait of Juan de Fuca. Groundwater flow direction in the intermediate and deep aquifers at Ault Field is not well known due to limited monitoring wells screened within the intermediate and deep aquifers.

At Area 6, groundwater in the shallow aquifer predominantly flows to the south; however, there is a potential local southwesterly component of groundwater flow in the northwestern corner of Area 6. Groundwater flow direction in the intermediate aquifer at Area 6 is predominantly to the southeast, while groundwater flow direction within the deep aquifer ranges from the southeast to southwest (URS, 1993).

Outlying Landing Field Coupeville

Surficial geology at OLF Coupeville consists of the Partridge Gravel, which is composed of sand, gravel, and sand-gravel mixtures with minor inter-layered silt and silty sand. Bedding planes in the formation generally dip toward the west in the vicinity of OLF Coupeville. Undivided Pleistocene deposits lie beneath the Partridge Gravel. These deposits consist of poorly sorted, mildly compact sands (Polenz et al., 2005).

There are three designated hydrogeologic zones present beneath OLF Coupeville that are referred to as the shallow zone, intermediate zone, and deep zone (CH2M, 2018). The shallow, intermediate, and deep elevation zone designations do not indicate three discrete aquifers or water-bearing zones. Rather, the shallow, intermediate, and deep elevation zones are located within the single aquifer system. Most local water supply wells are completed in the intermediate and deep elevation zones.

The dominant flow direction in the intermediate zone is to the southwest in the northern portion of the site, shifting to the south-southeast in the southern portion of the site. Groundwater flow in the deep zone is generally to the south. In general, the overall groundwater flow direction appears to be consistent regardless of tidal influence (CH2M, 2018).

Migration Pathways and Potential Receptors and Exposure Routes

Previous investigations of Ault Field, Area 6, and OLF Coupeville have identified releases of PFAS to soil, groundwater and/or stormwater in the areas. PFAS in groundwater and stormwater have migrated off-base and may have resulted in exceedances of the USEPA lifetime health advisories for PFOS and/or PFOA in off-base private drinking water wells.

Drinking Water Source Evaluation

Water for Ault Field is purchased from the City of Oak Harbor, which obtains its water from the City of Anacortes. The Washington Department of Ecology well database (2016) was used as the primary source for evaluating drinking water receptors off-Base, plus individual letters sent to off-Base property owners within the sampling areas. The Island County Environmental Health database was also used as a source for evaluating off-Base drinking water receptors. Multiple private and community drinking water wells were identified off-Base within 1 mile (or more, depending on drinking water investigation step-outs) of on-Base potential PFAS source areas during the initial drinking water source evaluation conducted as part of the voluntary phased drinking water sampling performed in 2016 and 2017 (CH2M, 2019b, 2020b). Off-Base drinking water wells are located in the phased off-Base sampling areas for Ault Field and Area 6 shown on **Figure 2**.

OLF Coupeville uses two drinking water wells located on-Base, screened within the deep zone of the regional aquifer (approximately 178 feet bgs), one well at Building 2807 and one well at Building 11. The Washington Department of Ecology well database was used as the primary source for evaluating drinking water receptors off-Base, plus individual letters sent to off-Base property owners within the sampling areas. Multiple private and community drinking water wells were identified off-Base within 1 mile of Building 2807, including the Town of Coupeville (Fort Casey well field and Keystone well) supply wells during the initial drinking water source evaluation conducted as part of the voluntary phased drinking water sampling performed in 2016 and 2017 (CH2M, 2019c). Off-Base drinking water wells are located in the phased off-Base sampling areas for OLF Coupeville shown on **Figure 3**.

The total number of drinking water wells sampled at least once near Ault Field, Area 6, and OLF Coupeville since 2016 is presented in **Table 1**.

Summary of Field Activities

This section provides a summary of field investigation activities conducted for two sampling events, including mobilization and dates of fieldwork, sampling activities, and sample packing and shipping procedures. All field activities were conducted in accordance with the standard operating procedures outlined in the SAP (CH2M, 2020a). Sample collection from private or community drinking water wells was conducted only at parcels where permission to collect samples was granted by the owner.

Mobilization

For the fall 2020 sampling event, CH2M staff mobilized to Whidbey Island on November 8, 2020. Scheduled sampling appointments occurred from November 9 through November 18, 2020 at locations in Oak Harbor and Coupeville. An additional mobilization to Whidbey Island occurred on December 30, 2020, to sample three wells that were not able to be sampled during the initial fall event in November 2020. One of these wells was not sampled due to an existing power/electrical problem that prevented the well pump from operating.

For the spring 2021 sampling event, CH2M staff members mobilized to Whidbey Island on April 11, 2021. Scheduled sampling appointments occurred from April 12 through April 21, 2021 at locations in Oak Harbor and Coupeville.

Summary of Sampling Activities

The following samples and associated field quality control samples were collected during the fall 2020 sampling event:

- 11 drinking water samples from off-Base drinking water wells near Ault Field
- 8 drinking water samples from off-Base drinking water wells near Area 6
- 20 drinking water samples from off-Base drinking water wells near OLF Coupeville

The following samples and associated field quality control samples were collected during the spring 2021 sampling event:

- 11 drinking water samples from off-Base drinking water wells near Ault Field
- 8 drinking water samples from off-Base drinking water wells near Area 6
- 20 drinking water samples from off-Base drinking water wells near OLF Coupeville

Samples were collected in accordance with the Standard Operating Procedure for *Drinking Water Sampling when Analyzing for PFAS*, provided in Attachment A of the SAP (CH2M, 2020a). Drinking water was collected from sample ports near the wells, outside spigots, or faucets inside the homes (if no faucets outside). Samples were collected directly into Trizma-preserved 250-milliliter, polypropylene sample bottles. Additional sample details are provided in **Tables 2** through **4**.

Quality control samples included field reagent blanks (FRBs), field duplicates (FDs), and matrix spike/matrix spike duplicates (MS/MSDs).

FRBs were collected at each sampling location by pouring lab-certified PFAS-free water pre-preserved with Trizma (provided by the laboratory) into empty sample bottles. FDs were collected in the same manner as regular samples at a rate of one per every ten sample locations. MS/MSDs were collected in the same manner as regular samples at a rate of one per every twenty sample locations.

Sample Packing and Shipping Procedures

Sample bottles were properly labeled, placed into resealable zipper storage bags, then placed into a heavy-duty garbage bag, which was placed into the shipping coolers provided by the laboratory (Vista Analytical Laboratory). The cooler was then packed with ice. A temperature blank provided by the laboratory and the completed chains-of-custody, provided in **Attachment 1**, were included in each cooler. The coolers were shipped via FedEx priority overnight to the laboratory.

Summary of Sample Results

This section provides a brief discussion of the project action limits (PALs), as well as a summary of laboratory results for the drinking water samples collected for analysis of the following 18 PFAS listed in USEPA Method 537.1: PFOA, PFOS, PFBS, n-ethyl perfluorooctanesulfonamidoacetic acid (EtFOSAA), n-methyl perfluorooctanesulfonamidoacetic acid (MeFOSAA), perfluorodecanoic acid (PFDA), perfluorododecanoic acid

(PFDoA), perfluoroheptanoic acid (PFHpA), perfluorohexanesulfonic acid (PFHxS), perfluorohexanoic acid (PFHxA), perfluorononanoic acid (PFNA), perfluorotetradecanoic acid (PFTeDA), perfluorotridecanoic acid (PFTrDA), perfluoroundecanoic acid (PFUnA), hexafluoropropylene oxide dimer acid (HFPO-DA), 4,8-dioxa-3H-perfluorononanoic acid (ADONA), 11-chloroeicosafuoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS), and 9-chlorohexadecafluoro-3-oxanone-1-sulfonic (9Cl-PF3ONS).

Project Action Limits

As indicated in the SAP (CH2M, 2020a), the PALs for this project are the USEPA lifetime health advisories for PFOA, PFOS, and the sum of PFOS + PFOA⁴ (70 ng/L). Results are screened against the USEPA Regional Screening Level (RSL) for PFBS (600 ng/L) (based on a hazard quotient of 0.1) (USEPA, 2021); however, no actions were taken if the results exceed the RSL. This RSL is provided for informational purposes only. EtFOSAA, MeFOSAA, PFDA, PFDoA, PFHpA, PFHxS, PFHxA, PFNA, PFTeDA, PFTrDA, PFUnA, HFPO-DA, ADONA, 11Cl-PF3OUdS, and 9Cl-PF3ONS currently do not have established screening values for comparison. Data will be archived for future comparison if screening values are established.

Ault Field Sampling Results

Fall 2020

A total of 11 drinking water samples were collected from off-Base drinking water wells near Ault Field. Sampled wells included 10 single-residence drinking water wells and 1 multi-party drinking water well. Of the 11 samples collected during the fall 2020 event, 1 sample exceeded the RSL for PFBS and the PALs for PFOS, PFOA, and the sum of PFOS + PFOA. All samples collected were analyzed for 18 PFAS compounds using USEPA Method 537.1 in accordance with the SAP. A summary of detections and exceedances is provided in **Table 5** and a summary of PFOS and PFOA results for November 2020 is shown in **Figure 4**. Raw data is provided in **Attachment 2**.

- **PFBS** – PFBS was detected in 6 samples, ranging from an estimated 1.58 J⁵ ng/L in sample WI-AF-1RW12-1120 to 1,580 ng/L in sample WI-AF-1RW32-1120. The PFBS concentration in one sample (WI-AF-1RW32-1120) exceeded the RSL for PFBS.
- **PFOS** – PFOS was detected in 5 samples, ranging from an estimated 0.961 J ng/L in sample WI-AF-1RW28-1120 to 43,100 ng/L in sample WI-AF-1RW32-1120. The PFOS concentration in one sample (WI-AF-1RW32-1120) exceeded the PAL for PFOS.
- **PFOA** – PFOA was detected in 5 samples, ranging from 2.35 ng/L in sample WI-AF-1RW12-1120 to 289 ng/L in sample WI-AF-1RW32-1120. The PFOA concentration in one sample (WI-AF-1RW32-1120) exceeded the PAL for PFOA.
- **PFOS + PFOA** – PFOS and PFOA were detected in 5 samples. The sum of PFOS + PFOA ranged from 4.07 ng/L in sample WI-AF-1RW12-1120 to 43,389 ng/L in sample WI-AF-1RW32-1120. The PFOS + PFOA concentrations in one sample (WI-AF-1RW32-1120) exceeded the PAL for PFOS + PFOA.

Spring 2021

A total of 11 drinking water samples were collected from off-Base drinking water wells near Ault Field. Sampled wells included 10 single-residence drinking water wells and 1 multi-party drinking water well. Of the 11 samples collected during the spring 2021 event, one sample exceeded the RSL for PFBS and the PALs for PFOS, PFOA, and the sum of PFOS + PFOA. All samples collected were analyzed for 18 PFAS compounds using USEPA Method 537.1 in accordance with the SAP. A summary of detections and exceedances are provided in **Table 5** and a summary of PFOS and PFOA results are shown in **Figure 5**. Raw data is provided in **Attachment 2**.

⁴ The PAL for the sum of PFOS and PFOA is only applicable if both PFOS and PFOA are detected in the sample.

⁵ The analyte was positively identified; the quantitation is an estimation.

- **PFBS** – PFBS was detected in 7 samples, ranging from an estimated 0.839 J ng/L in sample WI-AF-1RW25-0421 to 1,170 ng/L in sample WI-AF-1RW32-0421. The PFBS concentration in one sample (WI-AF-1RW32-0420) exceeded the RSL for PFBS.
- **PFOS** – PFOS was detected in 5 samples, ranging from an estimated 0.969 J ng/L in sample WI-AF-1RW28-0421 to 46,800 ng/L in sample WI-AF-1RW32-0421. The PFOS concentration in one sample (WI-AF-1RW32-0421) exceeded the PAL for PFOS.
- **PFOA** – PFOA was detected in 5 samples, ranging from 3.20 ng/L in sample WI-AF-1RW140-0421 to 306 ng/L in sample WI-AF-1RW32-0421. The PFOA concentration in one sample (WI-AF-1RW32-0421) exceeded the PAL for PFOA.
- **PFOS + PFOA** – Both PFOS and PFOA were detected in 5 samples. The sum of PFOS + PFOA ranged from 7.11 ng/L in sample WI-AF-1RW40-0421 to 47,106 ng/L in sample WI-AF-1RW32-0421. The PFOS and PFOA concentration in one sample (WI-AF-1RW32-0421) exceeded the PAL for PFOS + PFOA.

Area 6 Sampling Results

Fall 2020

A total of 8 drinking water samples were collected from off-Base drinking water wells near Area 6. Sampled wells included 5 single-residence drinking water wells, 2 multi-party drinking water wells, and 1 backup drinking water well. Of the 8 samples collected during the fall 2020 event, 2 samples exceeded the PAL for PFOS and 4 samples exceeded the PAL for the sum of PFOS + PFOA. All samples collected were analyzed for the 18 PFAS compounds using USEPA Method 537.1 in accordance with the SAP. A summary of detections and exceedances is provided in **Table 6** and is shown on **Figure 4**. Raw data is provided in **Attachment 2**.

- **PFBS** – PFBS was detected in 8 samples, ranging from 18.6 ng/L in sample WI-A06-RW20-1120 to 55.9 ng/L in sample WI-A06-RW14-1120. None of the detections of PFBS exceeded the RSL.
- **PFOS** – PFOS was detected in 8 samples, ranging from 5.81 ng/L in sample WI-A06-RW04-1120 to 206 ng/L in sample WI-A06-RW24-1120. The PFOS concentrations in 2 samples (WI-A06-RW19-1120 and WI-A06-RW24-1120) exceeded the PAL for PFOS.
- **PFOA** – PFOA was detected in 8 samples, ranging from 6.23 ng/L in sample WI-A06-RW04-1120 to 53.5 ng/L in sample WI-A06-RW05-1120. None of the detections of PFOA exceeded the PAL.
- **PFOS + PFOA** – Both PFOS and PFOA were detected in 8 samples. The sum of PFOS + PFOA ranged from 12.04 ng/L in sample WI-A06-RW04-1120 to 258.1 ng/L in sample WI-A06-RW24-1120. PFOS + PFOA concentrations in 4 samples (WI-A06-RW05-1120, WI-A06-RW19-1120, WI-A06-RW20-1120, WI-A06-RW24-1120) exceeded the PAL for PFOS + PFOA.

Spring 2021

A total of 8 drinking water samples were collected from off-Base drinking water wells near Area 6. Sampled wells included 5 single-residence drinking water wells, 2 multi-party drinking water wells, and 1 backup drinking water well. Of the 8 samples collected during the spring 2021 event, 3 samples exceeded the PAL for PFOS and 5 samples exceeded the PAL for the sum of PFOS + PFOA. All samples collected were analyzed for the 18 PFAS compounds using USEPA Method 537.1 in accordance with the SAP. A summary of detections and exceedances are provided in **Table 6** and are shown on **Figure 5**. Raw data is provided in **Attachment 2**.

- **PFBS** - PFBS was detected in 8 samples, ranging from 22.0 ng/L in sample WI-A06-RW08-0421 to 65.6 ng/L in sample WI-A06-RW19-0421. None of the detections of PFBS exceeded the RSL.
- **PFOS** – PFOS was detected in 8 samples, ranging from 7.37 ng/L in sample WI-A06-RW04-0421 to 245 ng/L in sample WI-A06-RW24-0421. The PFOS concentrations in 3 samples (WI-A06-RW08-0421, WI-A06-RW19-0421, WI-A06-RW24-0421) exceeded the PAL for PFOS.

- **PFOA** – PFOA was detected in 8 samples, ranging from 7.15 ng/L in sample WI-A06-RW04-0421 to 57.2 ng/L in sample WI-A06-RW24-0421. None of the detections of PFOA exceeded the PAL.
- **PFOS + PFOA** – Both PFOS and PFOA were detected in 8 samples. The sum of PFOS + PFOA ranged from 14.52 ng/L in sample WI-A06-RW04-0421 to 302.2 ng/L in sample WI-A06-RW24-0421. The PFOS + PFOA concentrations in 5 samples (WI-A06-RW05-0421, WI-A06-RW08-0421, WI-A06-RW19-0421, WI-A06-RW20-0421, WI-A06-RW24-0421) exceeded PAL for PFOA+PFOS.

Outlying Landing Field Coupeville Sampling Results

Fall 2020

A total of 20 drinking water samples were collected from off-Base drinking water sources near OLF Coupeville. Sampled locations included 14 single-residence drinking water wells, 2 multi-party drinking water wells, 3 Town of Coupeville water supply wells, and 1 sample taken from a post-treatment location at the Town of Coupeville water treatment plant. Of the 20 samples collected during the fall 2020 event, 7 samples exceeded the PAL for PFOA and 5 samples exceeded the PAL for the sum of PFOS + PFOA. All samples collected were analyzed for 18 PFAS compounds using USEPA Method 537.1 in accordance with the SAP. A summary of detections and exceedances are provided in **Table 7** and a summary of PFOS and PFOA results are shown in **Figure 6**. Raw data is provided in **Attachment 2**.

- **PFBS** – PFBS was detected in 10 samples, ranging from an estimated 1.59 J ng/L in sample WI-CV-1RW72-1120 to 190 ng/L in sample WI-CV-3RW10-1120. None of the detections of PFBS exceeded the RSL.
- **PFOS** – PFOS was detected in 7 samples, ranging from an estimated 1.51 J ng/L in sample WI-CV-1RW23-1120 to 21.6 ng/L in sample WI-CV-2RW04-1120. None of the detections of PFOS exceeded the PAL.
- **PFOA** – PFOA was detected in 10 samples, ranging from an estimated 1.80 J ng/L in sample WI-CV-1RW72-1120 to 396 ng/L in sample WI-CV-3RW11-1120. The PFOA concentrations in 7 samples (WI-CV-1RW01-1120, WI-CV-1RW07-1120, WI-CV-1RW90-1120, WI-CV-3RW11-1120, WI-CV-2RW02-1120, WI-CV-1RW34-1120, WI-CV-3RW10-1120) exceeded PAL for PFOA.
- **PFOS + PFOA** – PFOS and PFOA were detected in 7 samples. The sum of PFOS + PFOA ranged from 32.4 ng/L in sample WI-CV-2RW04-1120 to 398 ng/L in sample WI-CV-3RW11-1120. The PFOS + PFOA concentrations in 5 samples (WI-CV-1RW01-1120, WI-CV-1RW07-1120, WI-CV-1RW90-1120, WI-CV-3RW11-1120, WI-CV-3RW10-1120) exceeded the PAL for PFOA+PFOS.

Spring 2021

A total of 20 drinking water samples were collected from off-Base drinking water sources near OLF Coupeville. Sampled locations included 15 single-residence drinking water wells, 1 multi-party drinking water wells, 3 Town of Coupeville water supply wells, and 1 sample taken from a post-treatment location at the Town of Coupeville water treatment plant. Of the 20 samples collected during the spring 2021 event, 6 samples exceeded the PAL for PFOA and the PAL for the sum of PFOS + PFOA. All samples collected were analyzed for 18 PFAS compounds using USEPA Method 537.1 in accordance with the SAP. A summary of detections and exceedances are provided in **Table 7** and a summary of PFOS and PFOA results are shown in **Figure 7**. Raw data is provided in **Attachment 2**.

- **PFBS** – PFBS was detected in 9 samples, ranging from an estimated 1.74 J ng/L in sample WI-CV-1RW72-0421 to 229 ng/L in sample WI-CV-3RW10-0421. None of the detections of PFBS exceeded the RSL.
- **PFOS** – PFOS was detected in 7 samples, ranging from an estimated 1.44 J ng/L in sample WI-CV-1RW23-0421 to 11.1 ng/L in sample WI-CV-2RW04-0421. None of the detections of PFOS exceeded the PAL.
- **PFOA** – PFOA was detected in 9 samples, ranging from an estimated 1.1 J ng/L in sample WI-CV-1RW72-0421 to 346 ng/L in sample WI-CV-3RW11-0421. The PFOA concentrations in 6 samples (WI-CV-1RW01-0421, WI-CV-1RW07-0421, WI-CV-1RW90-0421, WI-CV-3RW11-0421, WI-CV-2RW02-0421, WI-CV-3RW10-0421) exceeded PAL for PFOA.

- **PFOS + PFOA** – PFOS and PFOA were detected in 7 samples. The sum of PFOS + PFOA ranged from 14.69 ng/L in sample WI-CV-2RW04-0421 to 348 ng/L in sample WI-CV-3RW11-0421. The PFOS + PFOA concentrations in 6 samples (WI-CV-1RW01-0421, WI-CV-1RW07-0421, WI-CV-1RW90-0421, WI-CV-3RW11-0421, WI-CV-2RW02-0421, WI-CV-3RW10-0421) exceeded the PAL for PFOA+PFOS.

Data Quality Summary

No quality control deficiencies were found that resulted in rejected data points; all data are available for use. The Data Validation Summary Reports are provided in **Attachment 3**.

A double-blind proficiency test (PT) sample was analyzed during the spring 2021 sampling event. A third-party subcontractor provided a sample spiked with three PFAS compounds (PFBS, PFOA, and PFOS) of known concentrations in laboratory sample bottles. The PT sample was submitted to the laboratory in the same fashion as a field sample along with a corresponding FRB sample containing PT reagent water pre-preserved with Trizma. The PT sample was assigned a label consistent with other field samples to ensure a blind analysis. Recovery of the three spiked PFAS compounds met the acceptance criteria listed on the certificate of analysis provided by the PT provider. The lab reported PFBS at 38.4 ng/L with a certified value of 37.7 ng/L and acceptance range of 22.6-52.8 ng/L. PFOS was reported at 78.6 ng/L with a certified value of 75.2 ng/L and acceptance range of 45.1-105 ng/L. PFOA was reported by the lab at 43.4 ng/L with a certified value of 45.0 ng/L and acceptance range of 27.0-63.0 ng/L. Overall, the PT sample results met acceptance criteria.

Trend Analysis

This section provides a brief discussion of trends observed in drinking water samples collected at Ault Field, Area 6, and OLF Coupeville during the 5-year monitoring period since the initiation of PFAS drinking water sampling in 2016. Well trend graphs⁶ depicting PFOA, PFOS, and the sum of PFOS and PFOA from 2016 to 2021 are presented in **Attachment 4**. Mann-Kendall trend analysis (Mann, 1945; Kendall, 1975; Gilbert, 1987) was performed on the sum of PFOS and PFOA, PFOS, and PFOA for drinking water well locations with at least 4 detections over the course of the 5-year monitoring period. Summary statistics (mean, median, standard deviation, and coefficient of variation) were calculated using the Kaplan-Meier product-limit estimator (Kaplan and Meier 1958) for non-detects with the censoring limit set at the limit of detection.

The Mann-Kendall test is a statistical test widely used for the analysis of trend in the environmental sciences. The test is a nonparametric procedure used to assess if there is a monotonic upward or downward trend of the variable of interest over time. Results of the Mann-Kendall trend analysis are presented in **Tables 8, 9, and 10** and a detailed description of the statistical basis for Mann-Kendall trend evaluation is provided in **Attachment 5**. Figures showing individual parcels with historical detections, exceedances, and statistical trends are provided in **Attachment 6**.

Ault Field

Based on the drinking water well results from 2016 to 2021, temporal variability in PFOS and/or PFOA detections and exceedances at Ault Field is minimal and there is no apparent temporal trend in spatial distribution of PFOS and/or PFOA (in other words, the extent of PFOS and/or PFOA does not appear to be expanding). Mann-Kendall analysis was performed on 5 drinking water wells near Ault Field which have had at least 4 detections for the sum of PFOS and PFOA (**Table 8**), 4 drinking water wells near Ault Field which have had at least 4 detections for PFOS (**Table 9**), and 5 drinking water wells near Ault Field which have had at least 4 detections for PFOA (**Table 10**). The following are results of the Mann-Kendall analysis:

⁶ Individual trend graphs are not provided for drinking water wells with only one sample collected over the 5-year monitoring period.

- PFOS and PFOA sampling results in drinking water wells of residences adjacent to exceedances at Ault Field have either remained non-detect for PFOS and PFOA, the concentrations do not indicate a significant trend over the 5-year monitoring period, or there are not enough data to perform trend analysis.

Sum of PFOS and PFOA

- Two of the five drinking water wells (WI-AF-3RW41 and WI-AF-1RW32) indicate an increasing trend for the sum of PFOS and PFOA with greater than 95% confidence. The drinking water well associated with WI-AF-1RW32 has a historical exceedance for the sum of PFOS and PFOA.
- One of the five drinking water wells (WI-AF-1RW40) indicates a decreasing trend for the sum of PFOS and PFOA with greater than 95% confidence. The drinking water well associated with WI-AF-1RW40 has a historical exceedance for the sum of PFOS and PFOA.
- Two of the five drinking water wells (WI-AF-1RW28 and WI-AF-1RW12) do not indicate a statistically significant upward or downward trend for the sum of PFOS and PFOA.

PFOS

- Three of the four drinking water wells (WI-AF-1RW40, WI-AF-3RW41 and WI-AF-1RW32) indicate an increasing trend for PFOS with greater than 95% confidence. The drinking water well associated with WI-AF-1RW32 has a historical exceedance for PFOS.
- One of the four drinking water wells (WI-AF-1RW12) does not indicate a statistically significant upward or downward trend for PFOS.

PFOA

- One of the five drinking water wells (WI-AF-1RW32) indicates an increasing trend for PFOA with greater than 95% confidence. The drinking water well associated with WI-AF-1RW32 has a historical exceedance for PFOA.
- One of the five drinking water wells (WI-AF-1RW40) indicates a decreasing trend for PFOA with greater than 95% confidence. The drinking water well associated with WI-AF-1RW40 has a historical exceedance for PFOA.
- Three of the five drinking water wells (WI-AF-1RW28, WI-AF-1RW12, and WI-AF-3RW41) do not indicate a statistically significant upward or downward trend for PFOA.

Area 6

Based on the drinking water well results from 2016 to 2021, spatial variability in PFOS and/or PFOA detections and exceedances at Area 6 is minimal. However, PFOS detections in 2 drinking water wells located on residences adjacent to exceedances indicate a significant increasing trend over the 5-year monitoring period which suggests that spatial plume expansion of the PFOS component may be occurring. In both drinking water wells with increasing trends for PFOS, the maximum PFOS detections are less than 17 ng/L, well below the USEPA lifetime health advisory of 70 ng/L. Mann-Kendall analysis was performed on 9 drinking water wells near Area 6 which have had at least 4 detections for the sum of PFOS and PFOA (**Table 8**), 9 drinking water wells near Area 6 which have had at least 4 detections for PFOS (**Table 9**), and 9 drinking water wells near Area 6 which have had at least 4 detections for PFOA (**Table 10**). The following are results of the Mann-Kendall analysis:

- PFOA sampling results in drinking water wells of residences adjacent to exceedances at Area 6 do not indicate a significant increasing trend over the 5-year monitoring period.
- PFOS sampling results in 2 drinking water wells (WI-A06-RW04 and WI-A06-RW14) located on residences adjacent to exceedances at Area 6 indicate a significant increasing trend over the 5-year monitoring period, while all others do not indicate a significant trend.

Sum of PFOS and PFOA

- All nine of the drinking water wells (WI-A06-RW03, WI-A06-RW04, WI-A06-RW05, WI-A06-RW08, WI-A06-RW14, WI-A06-RW18, WI-A06-RW19, WI-A06-RW20, WI-A06-RW24) do not indicate a statistically significant upward or downward trend. The drinking water wells associated with WI-A06-RW05, WI-A06-RW08, WI-A06-RW18, WI-A06-RW19, WI-A06-RW20, and WI-A06-RW24 have historical exceedances for the sum of PFOS and PFOA.

PFOS

- Two of the nine drinking water wells (WI-A06-RW04 and WI-A06-RW14) indicate an increasing trend for PFOS with greater than 95% confidence.
- Seven of the nine drinking water wells (WI-A06-RW03, WI-A06-RW05, WI-A06-RW08, WI-A06-RW18, WI-A06-RW19, WI-A06-RW20, and WI-A06-RW24) do not indicate a statistically significant upward or downward trend for PFOS. The drinking water wells associated with WI-A06-RW05, WI-A06-RW08, WI-A06-RW19, and WI-A06-RW24 have historical exceedances for PFOS.

PFOA

- Two of the nine drinking water wells (WI-A06-RW19 and WI-A06-RW20) indicate an increasing trend for PFOA with greater than 95% confidence.
- Seven of the nine drinking water wells (WI-A06-RW03, WI-A06-RW04, WI-A06-RW05, WI-A06-RW08, WI-A06-RW14, WI-A06-RW18, and WI-A06-RW24) do not indicate a statistically significant upward or downward trend for PFOA.

Outlying Landing Field Coupeville

Based on the drinking water well results from 2016 to 2021, spatial variability in PFOS and/or PFOA detections and exceedances at OLF Coupeville is minimal and there is no apparent temporal trend in spatial distribution of PFOS and/or PFOA (in other words, the extent of PFOS and/or PFOA does not appear to be expanding). Mann-Kendall analysis was performed on 11 drinking water wells near OLF Coupeville which have had at least 4 detections for the sum of PFOS and PFOA (**Table 8**), 5 drinking water wells near OLF Coupeville which have had at least 4 detections for PFOS (**Table 9**), and 11 drinking water wells near OLF Coupeville which have had at least 4 detections for PFOA (**Table 10**). The following are results of the Mann-Kendall analysis:

- PFOS and PFOA sampling results in drinking water wells of residences adjacent to exceedances at Coupeville have either remained non-detect for PFOS and PFOA, the concentrations do not indicate a significant trend over the 5-year monitoring period, or there are not enough data to perform trend analysis.

Sum of PFOS and PFOA

- One of the eleven drinking water wells (WI-CV-2RW02) indicates an increasing trend for the sum of PFOS and PFOA with greater than 95% confidence. The drinking water well associated with WI-CV-2RW02 has a historical exceedance for the sum of PFOS and PFOA.
- Six of the eleven drinking water wells (WI-CV-1RW01, WI-CV-1RW90, WI-CV-3RW11, WI-CV-1RW34, WI-CV-2RW06, and WI-CV-1RW27) indicate a decreasing trend for the sum of PFOS and PFOA with greater than 95% confidence. The drinking water wells associated with WI-CV-1RW01, WI-CV-1RW90, WI-CV-3RW11, WI-CV-1RW34, and WI-CV-2RW06 have historical exceedances for the sum of PFOS and PFOA.
- Four of the eleven drinking water wells (WI-CV-1RW07, WI-CV-3RW10, WI-CV-2RW04, and WI-CV-1RW23) do not indicate a statistically significant upward or downward trend. The drinking water wells associated with WI-CV-1RW07, WI-CV-3RW10, and WI-CV-1RW23 have historical exceedances for the sum of PFOS and PFOA.

PFOS

- One of the five drinking water wells (WI-CV-1RW90) indicates an increasing trend for PFOS with greater than 95% confidence.
- Four of the five drinking water wells (WI-CV-1RW07, WI-CV-2RW04, WI-CV-3RW10, and WI-CV-3RW11) do not indicate a statistically significant upward or downward trend for PFOS.

PFOA

- One of the eleven drinking water wells (WI-AF-2RW02) indicates an increasing trend for PFOA with greater than 95% confidence. The drinking water well associated with WI-AF-2RW02 has a historical exceedance for PFOA.
- Seven of the eleven drinking water wells (WI-CV-1RW01, WI-CV-1RW27, WI-CV-1RW34, WI-CV-1RW90, WI-CV-2RW04, WI-CV-2RW06, and WI-CV-3RW11) indicate a decreasing trend for PFOA with greater than 95% confidence. The drinking water wells associated with WI-CV-1RW01, WI-CV-1RW34, WI-CV-1RW90, WI-CV-2RW06, and WI-CV-3RW11 have historical exceedances for PFOA.
- Three of the eleven drinking water wells (WI-CV-1RW23, WI-CV-1RW27, and WI-CV-3RW10) do not indicate a statistically significant upward or downward trend for PFOA. The drinking water wells associated with WI-CV-1RW23, WI-CV-1RW27, and WI-CV-3RW10 have historical exceedances for PFOA.

Conclusions

The results of the continued biannual monitoring program for the fall 2020 and spring 2021 sampling events support the following conclusions:

- PFOS and/or PFOA concentrations in 13 off-Base drinking water wells continue to exceed the USEPA lifetime health advisory.
- PFOS and/or PFOA concentrations in 3 off-Base drinking water wells with historical exceedances were below the USEPA lifetime health advisory during the monitoring period.
- PFOS and/or PFOA concentrations in 24 off-Base drinking water wells continue to be below the USEPA lifetime health advisory.
- PFBS concentrations in one drinking water well near Ault Field exceeded the USEPA tapwater RSL (USEPA, 2021). As stated in the Project Action Limits section, no actions were taken based on the PFBS exceedance alone.
- Trend analysis over the monitoring period indicates that there are both increasing and decreasing trends for the sum of PFOS and PFOA, PFOS, and PFOA concentrations in certain drinking water wells near Ault Field and OLF Coupeville, but not in wells on parcels adjacent to the exceedances. Because there are no statistically significant increasing or decreasing trends in drinking water wells on parcels adjacent to exceedances, there is no indication of spatial or temporal trends suggesting plume migration or seasonal fluctuation for the sum of PFOS and PFOA, PFOS, and PFOA in drinking water wells near Ault Field or OLF Coupeville.
- Trend analysis over the monitoring period indicates that there are both increasing and decreasing trends for the sum of PFOS and PFOA and PFOA concentrations in certain drinking water wells near Area 6, but not in wells on parcels adjacent to the exceedances. Because there are no statistically significant increasing or decreasing trends in drinking water wells on parcels adjacent to exceedances, there is no indication of spatial or temporal trends suggesting plume migration or seasonal fluctuation for the sum of PFOS and PFOA and PFOA in drinking water wells near Area 6.
- Trend analysis of PFOS indicates that two drinking water wells adjacent to exceedances at Area 6 exhibit an increasing trend for PFOS detections below the lifetime health advisory, which suggests that spatial plume expansion of the PFOS component may be occurring. The maximum concentrations are well below the USEPA

lifetime health advisory with maximum concentrations of 7.37 ng/L (WI-A06-RW04) and 16.6 ng/L (WI-A06-RW14) and yield nonparametric Theil-Sen slope estimates of 1.9 ng/L per year (WI-A06-RW04) and 3.2 ng/L (WI-A06-RW14) per year. Assuming the increasing trend remains constant, neither location would exceed the lifetime health advisory within the next 17 years.

- The current frequency of drinking water sampling of twice per calendar year is sufficient for monitoring of drinking water wells.

Due to the continued detection of PFOS and/or PFOA in exceedance of USEPA lifetime health advisories in drinking water wells near NAS Whidbey Island, further investigation is ongoing to evaluate the on-Base source for detections in off-Base drinking water to evaluate offsite migration pathways of PFAS from Ault Field, Area 6 and OLF Coupeville. Off-Base investigation is ongoing to further determine the temporal and spatial variability and overall trends of PFAS in off-Base drinking water wells with previous PFAS detections and wells adjacent to PFAS exceedances. In accordance with the SAP, residences served by drinking water wells with PFAS exceedances will continue to receive alternate water sources until a long-term solution can be implemented.

Recommendations

Based upon the conclusions, the following path forward is recommended until a long-term solution is implemented or the Navy has remediated the PFOA/PFOS source and plume:

- Continue conducting biannual monitoring of residences with drinking water wells with PFAS detections and residences adjacent to PFOS and/or PFOA exceedances.
- Continue analyzing the samples for at least the 18 PFAS compounds listed in Method 537.1; the analyte list may be expanded as necessary in the future in accordance with Department of Defense policy.
- Reevaluate the continuation of drinking water sampling for wells that have had historical PFAS detections but more recently have had several consecutive non-detect results.

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Tables

Table 1. Total Wells Sampled 2016-2021 Summary

*Results of Investigation of Per- and Polyfluoroalkyl Substances in
Off-Base Drinking Water—Ault Field, Area 6, and Outlying Landing Field Coupeville,
November 2020 to April 2021*

	Drinking Water Wells Sampled 2016-2021
Ault Field	150
Area 6	20
Coupeville	116
Total	286

Table 2. Ault Field Sample Summary

Results of Investigation of Per- and Polyfluoroalkyl Substances in
 Off-Base Drinking Water—Ault Field, Area 6, and Outlying Landing Field Coupeville,
 November 2020 to April 2021

Station ID	Sample ID	Sample Date/Time	QC Sample ID	Well Water Use
<i>Fall 2020</i>				
WI-AF-1RW01	WI-AF-1RW01-1120	11/12/20 14:20	WI-AF-1FB01-1120	Drinking
WI-AF-1RW12	WI-AF-1RW12-1120	11/10/20 16:10	WI-AF-1FB12-1120	Drinking
	WI-AF-1RW12P-1120	11/10/20 16:15		Drinking
WI-AF-1RW25	WI-AF-1RW25-1220	12/30/20 11:35	WI-AF-1FB25-1120	Drinking
WI-AF-1RW28	WI-AF-1RW28-1120	11/12/20 12:55	WI-AF-1FB28-1120	Drinking
WI-AF-1RW32	WI-AF-1RW32-1120	11/10/20 7:55	WI-AF-1FB32-1120	Drinking
WI-AF-1RW33	WI-AF-1RW33-1120	11/10/20 10:10	WI-AF-1FB33-1120	Drinking
WI-AF-1RW40	WI-AF-1RW40-1120	11/10/20 9:10	WI-AF-1FB40-1120	Drinking
WI-AF-1RW51	WI-AF-1RW51-1120	11/18/20 14:00	WI-AF-1FB51-1120	Drinking
WI-AF-1RW68	WI-AF-1RW68-1120	11/10/20 14:10	WI-AF-1FB68-1120	Drinking
WI-AF-3RW18	WI-AF-3RW18-1220	12/30/20 11:00	WI-AF-3FB18-1120	Drinking
WI-AF-3RW41	WI-AF-3RW41-1120	11/10/20 13:05	WI-AF-3FB41-1120	Drinking
	WI-AF-3RW41P-1120	11/10/20 13:10		Drinking
<i>Spring 2021</i>				
WI-AF-1RW01	WI-AF-1RW01-0421	4/13/21 14:01	WI-AF-1FB01-0421	Drinking
WI-AF-1RW12	WI-AF-1RW12-0421	4/13/21 9:12	WI-AF-1FB12-0421	Drinking
	WI-AF-1RW12P-0421	4/13/21 9:14		Drinking
WI-AF-1RW25	WI-AF-1RW25-0421	4/15/21 11:43	WI-AF-1FB25-0421	Drinking
WI-AF-1RW28	WI-AF-1RW28-0421	4/13/21 10:19	WI-AF-1FB28-0421	Drinking
WI-AF-1RW32	WI-AF-1RW32-0421	4/16/21 12:39	WI-AF-1FB32-0421	Drinking
WI-AF-1RW33	WI-AF-1RW33-0421	4/13/21 10:02	WI-AF-1FB33-0421	Drinking
WI-AF-1RW40	WI-AF-1RW40-0421	4/13/21 15:03	WI-AF-1FB40-0421	Drinking
WI-AF-1RW51	WI-AF-1RW51-0421	4/16/21 14:15	WI-AF-1FB51-0421	Drinking
WI-AF-1RW68	WI-AF-1RW68-0421	4/13/21 8:15	WI-AF-1FB68-0421	Drinking
WI-AF-3RW18	WI-AF-3RW18-0421	4/15/21 8:47	WI-AF-3FB18-0421	Drinking
WI-AF-3RW41	WI-AF-3RW41-0421	4/13/21 16:07	WI-AF-3FB41-0421	Drinking
	WI-AF-3RW41P-0421	4/13/21 16:09		Drinking

Notes:

AF - Ault Field

Table 3. Area 6 Sample Summary

Results of Investigation of Per- and Polyfluoroalkyl Substances in
 Off-Base Drinking Water—Ault Field, Area 6, and Outlying Landing Field Coupeville,
 November 2020 to April 2021

Station ID	Sample ID	Sample Date/Time	QC Sample ID	Well Water Use
<i>Fall 2020</i>				
WI-A06-RW03	WI-A06-RW03-1120	11/12/20 16:05	WI-A06-FB03-1120	Drinking
	WI-A06-RW03P-1120	11/12/20 16:10		Drinking
WI-A06-RW04	WI-A06-RW04-1120	11/12/20 16:20	WI-A06-FB04-1120	Drinking
WI-A06-RW05	WI-A06-RW05-1120	11/12/20 15:35	WI-A06-FB05-1120	Drinking
WI-A06-RW14	WI-A06-RW14-1120	11/12/20 11:30	WI-A06-FB14-1120	Drinking
WI-A06-RW18	WI-A06-RW18-1120	11/18/20 12:55	WI-A06-FB18-1120	Drinking
WI-A06-RW19	WI-A06-RW19-1120	11/10/20 11:10	WI-A06-FB19-1120	Drinking
WI-A06-RW20	WI-A06-RW20-1120	11/18/20 14:35	WI-A06-FB20-1120	Drinking
WI-A06-RW24	WI-A06-RW24-1120	11/10/20 15:00	WI-A06-FB24-1120	Drinking
<i>Spring 2021</i>				
WI-A06-RW03	WI-A06-RW03-0421	4/13/21 13:20	WI-A06-FB03-0421	Drinking
	WI-A06-RW03P-0421	4/13/21 13:22		Drinking
WI-A06-RW04	WI-A06-RW04-0421	4/13/21 13:07	WI-A06-FB04-0421	Drinking
WI-A06-RW05	WI-A06-RW05-0421	4/15/21 9:15	WI-A06-FB05-0421	Drinking
WI-A06-RW08	WI-A06-RW08-0421	4/16/21 13:46	WI-A06-FB08-0421	Drinking
WI-A06-RW14	WI-A06-RW14-0421	4/15/21 12:07	WI-A06-FB14-0421	Drinking
WI-A06-RW19	WI-A06-RW19-0421	4/16/21 13:25	WI-A06-FB19-0421	Drinking
WI-A06-RW20	WI-A06-RW20-0421	4/15/21 9:32	WI-A06-FB20-0421	Drinking
WI-A06-RW24	WI-A06-RW24-0421	4/15/21 9:50	WI-A06-FB24-0421	Drinking

Notes:

A06 - Area 6

Table 4. OLF Coupeville Sample Summary

Results of Investigation of Per- and Polyfluoroalkyl Substances in
 Off-Base Drinking Water—Ault Field, Area 6, and Outlying Landing Field Coupeville,
 November 2020 to April 2021

Station ID	Sample ID	Sample Date/Time	QC Sample ID	Well Water Use
<i>Fall 2020</i>				
WI-CV-1RW01	WI-CV-1RW01-1120	11/9/2020 12:55	WI-CV-1FB01-1120	Drinking
WI-CV-1RW07	WI-CV-1RW07-1120	11/9/2020 13:40	WI-CV-1FB07-1120	Drinking
	WI-CV-1RW07P-1120	11/9/2020 13:45		Drinking
WI-CV-1RW14	WI-CV-1RW14-1120	11/11/2020 14:10	WI-CV-1FB14-1120	Drinking
WI-CV-1RW22	WI-CV-1RW22-1120	11/11/2020 15:05	WI-CV-1FB22-1120	Drinking
WI-CV-1RW23	WI-CV-1RW23-1120	11/11/2020 10:10	WI-CV-1FB23-1120	Drinking
WI-CV-1RW25	WI-CV-1RW25-1120	11/11/2020 9:30	WI-CV-1FB25-1120	Drinking
WI-CV-1RW26	WI-CV-1RW26-1120	11/11/2020 9:50	WI-CV-1FB26-1120	Drinking
	WI-CV-1RW26P-1120	11/11/2020 9:55		Drinking
WI-CV-1RW27	WI-CV-1RW27-1120	11/11/2020 9:10	WI-CV-1FB27-1120	Drinking
WI-CV-1RW34	WI-CV-1RW34-1120	11/9/2020 12:40	WI-CV-1FB34-1120	Drinking
WI-CV-1RW37	WI-CV-1RW37-1120	11/13/2020 10:15	WI-CV-1FB37-1120	Drinking
WI-CV-1RW40	WI-CV-1RW40-1120	11/11/2020 13:10	WI-CV-1FB40-1120	Drinking
WI-CV-1RW72	WI-CV-1RW72-1120	11/18/2020 10:15	WI-CV-1FB72-1120	Drinking
WI-CV-1RW90	WI-CV-1RW90-1120	11/11/2020 16:05	WI-CV-1FB90-1120	Drinking
	WI-CV-1RW90P-1120	11/11/2020 16:10		Drinking
WI-CV-2RW02	WI-CV-2RW02-1120	11/13/2020 14:20	WI-CV-2FB02-1120	Drinking
WI-CV-2RW04	WI-CV-2RW04-1120	11/13/2020 9:05	WI-CV-2FB04-1120	Drinking
WI-CV-3RW07	WI-CV-3RW07-1120	11/13/2020 11:15	WI-CV-3FB07-1120	Drinking
WI-CV-3RW10	WI-CV-3RW10-1120	11/9/2020 10:10	WI-CV-3FB10-1120	Drinking
WI-CV-3RW11	WI-CV-3RW11-1120	11/11/2020 11:00	WI-CV-3FB11-1120	Drinking
	WI-CV-3RW11P-1120	11/11/2020 11:05		Drinking
WI-CV-3RW17	WI-CV-3RW17-1120	11/9/2020 13:55	WI-CV-3FB17-1120	Drinking
WI-CV-3RW18	WI-CV-3RW18-1120	11/18/2020 11:15	WI-CV-3FB18-1120	Drinking
<i>Spring 2021</i>				
WI-CV-1RW01	WI-CV-1RW01-0421	4/12/21 10:31	WI-CV-1FB01-0421	Drinking
WI-CV-1RW07	WI-CV-1RW07-0421	4/12/21 10:53	WI-CV-1FB07-0421	Drinking
	WI-CV-1RW07P-0421	4/12/21 10:54		Drinking
WI-CV-1RW14	WI-CV-1RW14-0421	4/12/21 14:17	WI-CV-1FB14-0421	Drinking
WI-CV-1RW22	WI-CV-1RW22-0421	4/14/21 10:25	WI-CV-1FB22-0421	Drinking
WI-CV-1RW23	WI-CV-1RW23-0421	4/14/21 9:09	WI-CV-1FB23-0421	Drinking
WI-CV-1RW25	WI-CV-1RW25-0421	4/14/21 8:31	WI-CV-1FB25-0421	Drinking
WI-CV-1RW26	WI-CV-1RW26-0421	4/14/21 8:45	WI-CV-1FB26-0421	Drinking
	WI-CV-1RW26P-0421	4/14/21 8:47		Drinking
WI-CV-1RW27	WI-CV-1RW27-0421	4/14/21 8:16	WI-CV-1FB27-0421	Drinking
WI-CV-1RW37	WI-CV-1RW37-0421	4/16/21 10:41	WI-CV-1FB37-0421	Drinking
WI-CV-1RW40	WI-CV-1RW40-0421	4/14/21 13:11	WI-CV-1FB40-0421	Drinking
WI-CV-1RW67	WI-CV-1RW67-0421	4/14/21 11:42	WI-CV-1FB67-0421	Drinking
WI-CV-1RW72	WI-CV-1RW72-0421	4/12/21 16:08	WI-CV-1FB72-0421	Drinking
WI-CV-1RW90	WI-CV-1RW90-0421	4/21/21 15:50	WI-CV-1FB90-0421	Drinking
WI-CV-2RW02	WI-CV-2RW02-0421	4/14/21 15:33	WI-CV-2FB02-0421	Drinking
WI-CV-2RW04	WI-CV-2RW04-0421	4/12/21 14:39	WI-CV-2FB04-0421	Drinking

Table 4. OLF Coupeville Sample Summary

*Results of Investigation of Per- and Polyfluoroalkyl Substances in
Off-Base Drinking Water—Ault Field, Area 6, and Outlying Landing Field Coupeville,
November 2020 to April 2021*

Station ID	Sample ID	Sample Date/Time	QC Sample ID	Well Water Use
WI-CV-3RW07	WI-CV-3RW07-0421	4/14/21 14:20	WI-CV-3FB07-0421	Drinking
WI-CV-3RW10	WI-CV-3RW10-0421	4/14/21 14:00	WI-CV-3FB10-0421	Drinking
WI-CV-3RW11	WI-CV-3RW11-0421	4/16/21 9:09	WI-CV-3FB11-0421	Drinking
	WI-CV-3RW11P-0421	4/16/21 9:11		Drinking
WI-CV-3RW17	WI-CV-3RW17-0421	4/12/21 11:05	WI-CV-3FB17-0421	Drinking
WI-CV-3RW18	WI-CV-3RW18-0421	4/16/21 10:19	WI-CV-3FB18-0421	Drinking

Notes:

CV - Coupeville

Table 5. Detections of PFAS in Drinking Water

Results of Investigation of Per- and Polyfluoroalkyl Substances in
Off-Base Drinking Water—Ault Field, Area 6, and Outlying Landing Field Coupeville,
November 2020 to April 2021

Station ID	USEPA Lifetime Health Advisory (May 2016)	USEPA RSL HQ = 0.1 (May 2021)	WI-AF-1RW32		WI-AF-1RW40		WI-AF-1RW12	
Sample ID			WI-AF-1RW32-1120	WI-AF-1RW32-0421	WI-AF-1RW40-1120	WI-AF-1RW40-0421	WI-AF-1RW12-1120	WI-AF-1RW12-0421
Sample Date			11/10/20	04/16/21	11/10/20	04/13/21	11/16/20	04/13/21
Chemical Name								
Semivolatile Organic Compounds (NG/L)								
Perfluorobutanesulfonic acid (PFBS)	--	600	1580	1170	1.6 J	1.15 J	1.58 J	2.49
Perfluorooctane Sulfonate (PFOS)	70	--	43100 J	46800	3.78	3.91	1.72 J	2.63
Perfluorooctanoic acid (PFOA)	70	--	289	306	5.6	3.20	2.35	6.88
PFOA + PFOS ¹	70	--	43389	47106	9.38	7.11	4.07	9.51

Notes:

Shading indicates detections

Bold indicates detection above lifetime health advisory or RSL

AF - Ault Field

J - Analyte present, value may or may not be accurate or precise

U - The material was analyzed for, but not detected

NG/L - Nanograms per liter

ND - Not detected

HQ - Hazard quotient

¹ PFOS and PFOA are summed only if both PFOS and PFOA are detected in the sample.

Table 5. Detections of PFAS in Drinking Water

Results of Investigation of Per- and Polyfluoroalkyl Substances in
Off-Base Drinking Water—Ault Field, Area 6, and Outlying Landing Field Coupeville,
November 2020 to April 2021

Station ID	USEPA Lifetime Health Advisory (May 2016)	USEPA RSL HQ = 0.1 (May 2021)	WI-AF-1RW28		WI-AF-1RW33		WI-AF-3RW41		WI-AF-1RW25
Sample ID			WI-AF-1RW28-1120	WI-AF-1RW28-0421	WI-AF-1RW33-1120	WI-AF-1RW33-0421	WI-AF-3RW41-1120	WI-AF-3RW41-0421	WI-AF-1RW25-0421
Sample Date			11/12/20	04/13/21	11/10/20	04/13/21	11/10/20	04/13/21	04/15/21
Chemical Name									
Semivolatile Organic Compounds (NG/L)									
Perfluorobutanesulfonic acid (PFBS)	--	600	2.72	2.62	63.7	88.6	50.5	55.3	0.839 J
Perfluorooctane Sulfonate (PFOS)	70	--	0.961 J	0.969 J	ND	ND	14.1	17.7	ND
Perfluorooctanoic acid (PFOA)	70	--	31.4	37.3	ND	ND	4.39	4.8	ND
PFOA + PFOS ¹	70	--	32.36	38	ND	ND	18.5	22.50	ND

Notes:

Shading indicates detections

Bold indicates detection above lifetime health advisory or RSL

AF - Ault Field

J - Analyte present, value may or may not be accurate or precise

U - The material was analyzed for, but not detected

NG/L - Nanograms per liter

ND - Not detected

HQ - Hazard quotient

¹ PFOS and PFOA are summed only if both PFOS and PFOA are detected in the sample.

Table 6. Detections of PFAS in Drinking Water

Results of Investigation of Per- and Polyfluoroalkyl Substances in
Off-Base Drinking Water—Ault Field, Area 6, and Outlying Landing Field Coupeville,
November 2020 to April 2021

Station ID	USEPA Lifetime Health Advisory (May 2016)	USEPA RSL HQ = 0.1 (May 2021)	WI-A06-RW03				WI-A06-RW04	
			WI-A06-RW03-1120 11/12/20	WI-A06-RW03P-1120 11/12/20	WI-A06-RW03-0421 04/13/21	WI-A06-RW03P-0421 04/13/21	WI-A06-RW04-1120 11/12/20	WI-A06-RW04-0421 04/13/21
Sample ID								
Sample Date								
Chemical Name								
Semivolatile Organic Compounds (NG/L)								
Perfluorobutanesulfonic acid (PFBS)	--	600	35.2	34.5	43	40.7	32.5	40.1
Perfluorooctane Sulfonate (PFOS)	70	--	15.4	15.7	16.5	16.3	5.81	7.37
Perfluorooctanoic acid (PFOA)	70	--	37.2	35.1	36.4	36.3	6.23	7.15
PFOA + PFOS ¹	70	--	52.6	50.8	52.9	52.6	12.04	14.52

Notes:

Shading indicates detections

Bold indicates detection above lifetime health advisory

A06 - Area 6

J - Analyte present, value may or may not be accurate or precise

U - The material was analyzed for, but not detected

NG/L - Nanograms per liter

ND - Not detected

HQ - Hazard quotient

¹ PFOS and PFOA are summed only if both PFOS and PFOA are detected in the sample.

Table 6. Detections of PFAS in Drinking Water

Results of Investigation of Per- and Polyfluoroalkyl Substances in
Off-Base Drinking Water—Ault Field, Area 6, and Outlying Landing Field Coupeville,
November 2020 to April 2021

Station ID	USEPA Lifetime Health Advisory (May 2016)	USEPA RSL HQ = 0.1 (May 2021)	WI-A06-RW05		WI-A06-RW08	WI-A06-RW14		WI-A06-RW18
			WI-A06-RW05-1120 11/12/20	WI-A06-RW05-0421 04/15/21	WI-A06-RW08-0421 04/16/21	WI-A06-RW14-1120 11/12/20	WI-A06-RW14-0421 04/15/21	WI-A06-RW18-1120 11/18/20
Sample ID								
Sample Date								
Chemical Name								
Semivolatile Organic Compounds (NG/L)								
Perfluorobutanesulfonic acid (PFBS)	--	600	20.6	23.7	22	55.9	62.5	22.9
Perfluorooctane Sulfonate (PFOS)	70	--	62.3	64.2	82.1	14.4	16.6	18.6
Perfluorooctanoic acid (PFOA)	70	--	53.5	48.7	25.1	24.2	27.0	25.5
PFOA + PFOS ¹	70	--	115.8	112.9	107.2	38.6	43.6	44.1

Notes:

Shading indicates detections

Bold indicates detection above lifetime health advisory

A06 - Area 6

J - Analyte present, value may or may not be accurate or precise

U - The material was analyzed for, but not detected

NG/L - Nanograms per liter

ND - Not detected

HQ - Hazard quotient

¹ PFOS and PFOA are summed only if both PFOS and PFOA are detected in the sample.

Table 6. Detections of PFAS in Drinking Water

Results of Investigation of Per- and Polyfluoroalkyl Substances in
Off-Base Drinking Water—Ault Field, Area 6, and Outlying Landing Field Coupeville,
November 2020 to April 2021

Station ID	USEPA Lifetime Health Advisory (May 2016)	USEPA RSL HQ = 0.1 (May 2021)	WI-A06-RW19		WI-A06-RW20		WI-A06-RW24	
			WI-A06-RW19-1120 11/10/20	WI-A06-RW19-0421 04/16/21	WI-A06-RW20-1120 11/18/20	WI-A06-RW20-0421 04/15/21	WI-A06-RW24-1120 11/10/20	WI-A06-RW24-0421 04/15/21
Sample ID								
Sample Date								
Chemical Name								
Semivolatile Organic Compounds (NG/L)								
Perfluorobutanesulfonic acid (PFBS)	--	600	55.3	65.6	18.6	23.7	22	29
Perfluorooctane Sulfonate (PFOS)	70	--	89.3	99.0	27.4	32.5	206	245
Perfluorooctanoic acid (PFOA)	70	--	46.5	48.6	46.4	50.1	52.1	57.2
PFOA + PFOS ¹	70	--	135.8	147.6	74	83	258.1	302.2

Notes:

Shading indicates detections

Bold indicates detection above lifetime health advisory

A06 - Area 6

J - Analyte present, value may or may not be accurate or precise

U - The material was analyzed for, but not detected

NG/L - Nanograms per liter

ND - Not detected

HQ - Hazard quotient

¹ PFOS and PFOA are summed only if both PFOS and PFOA are detected in the sample.

Table 7. Detections of PFAS in Drinking Water

Results of Investigation of Per- and Polyfluoroalkyl Substances in
Off-Base Drinking Water—Ault Field, Area 6, and Outlying Landing Field Coupeville,
November 2020 to April 2021

Station ID	USEPA Lifetime Health Advisory (May 2016)	USEPA RSL HQ = 0.1 (May 2021)	WI-CV-1RW01		WI-CV-1RW07				WI-CV-1RW23	
			WI-CV-1RW01-1120 11/09/20	WI-CV-1RW01-0421 04/12/21	WI-CV-1RW07-1120 11/09/20	WI-CV-1RW07P-1120 11/09/20	WI-CV-1RW07-0421 04/12/21	WI-CV-1RW07P-0421 04/12/21	WI-CV-1RW23-1120 11/11/20	WI-CV-1RW23-0421 04/14/21
Chemical Name										
Semivolatile Organic Compounds (NG/L)										
Perfluorobutanesulfonic acid (PFBS)	--	600	24.1	27.7	32.7	30.6	32.3	32.4	16.3	20.6
Perfluorooctane Sulfonate (PFOS)	70	--	2.75	2.89	2.2	1.95 J	2.32	2.27	1.51 J	1.44 J
Perfluorooctanoic acid (PFOA)	70	--	271	248	231	219	240	243	57.9	66.3
PFOA + PFOS ¹	70	--	274	251	233	221	242	245	59.4	67.7

Notes:

Shading indicates detections

Bold indicates detection above lifetime health advisory

CV - Coupeville

J - Analyte present, value may or may not be accurate or precise

U - The material was analyzed for, but not detected

NG/L - Nanograms per liter

ND - Not detected

HQ - Hazard quotient

-- - Results pending

¹ PFOS and PFOA are summed only if both PFOS and PFOA are detected in the sample.

Table 7. Detections of PFAS in Drinking Water

Results of Investigation of Per- and Polyfluoroalkyl Substances in
Off-Base Drinking Water—Ault Field, Area 6, and Outlying Landing Field Coupeville,
November 2020 to April 2021

Station ID	USEPA Lifetime Health Advisory (May 2016)	USEPA RSL HQ = 0.1 (May 2021)	WI-CV-1RW34	WI-CV-1RW72		WI-CV-1RW90			WI-CV-2RW02	
Sample ID			WI-CV-1RW34-1120	WI-CV-1RW72-1120	WI-CV-1RW72-0421	WI-CV-1RW90-1120	WI-CV-1RW90P-1120	WI-CV-1RW90-0421	WI-CV-2RW02-1120	WI-CV-2RW02-0421
Sample Date			11/09/20	11/18/20	04/12/21	11/11/20	11/11/20	04/21/21	11/13/20	04/14/21
Chemical Name										
Semivolatile Organic Compounds (NG/L)										
Perfluorobutanesulfonic acid (PFBS)	--	600	112	1.59 J	1.74 J	41.5	41.8	41.3	19.8	25.6
Perfluorooctane Sulfonate (PFOS)	70	--	ND	ND	ND	10.3	10.2	9.28	ND	ND
Perfluorooctanoic acid (PFOA)	70	--	332	1.18 J	1.1 J	169	165	161	263	298
PFOA + PFOS ¹	70	--	ND	ND	ND	179	175	170	ND	ND

Notes:

Shading indicates detections

Bold indicates detection above lifetime health advisory

CV - Coupeville

J - Analyte present, value may or may not be accurate or precise

U - The material was analyzed for, but not detected

NG/L - Nanograms per liter

ND - Not detected

HQ - Hazard quotient

-- - Results pending

¹ PFOS and PFOA are summed only if both PFOS and PFOA are detected in the sample.

Table 7. Detections of PFAS in Drinking Water

Results of Investigation of Per- and Polyfluoroalkyl Substances in
Off-Base Drinking Water—Ault Field, Area 6, and Outlying Landing Field Coupeville,
November 2020 to April 2021

Station ID	USEPA Lifetime Health Advisory (May 2016)	USEPA RSL HQ = 0.1 (May 2021)	WI-CV-2RW04		WI-CV-3RW10		WI-CV-3RW11			
			WI-CV-2RW04-1120 11/13/20	WI-CV-2RW04-0421 04/12/21	WI-CV-3RW10-1120 11/09/20	WI-CV-3RW10-0421 04/14/21	WI-CV-3RW11-1120 11/11/20	WI-CV-3RW11P-1120 11/11/20	WI-CV-3RW11-0421 04/16/21	WI-CV-3RW11P-0421 04/16/21
Chemical Name										
Semivolatile Organic Compounds (NG/L)										
Perfluorobutanesulfonic acid (PFBS)	--	600	17.2	9.04	190	229	32.9	30.7	33.5	33
Perfluorooctane Sulfonate (PFOS)	70	--	21.6	11.1	2.12	2.4	1.92 J	1.5 J	1.66 J	1.85 J
Perfluorooctanoic acid (PFOA)	70	--	10.8	3.59	106	133	396	384	346	375
PFOA + PFOS ¹	70	--	32.4	14.7	108	135	398	386	348	377

Notes:

Shading indicates detections

Bold indicates detection above lifetime health advisory

CV - Coupeville

J - Analyte present, value may or may not be accurate or precise

U - The material was analyzed for, but not detected

NG/L - Nanograms per liter

ND - Not detected

HQ - Hazard quotient

-- - Results pending

¹ PFOS and PFOA are summed only if both PFOS and PFOA are detected in the sample.

Table 8. Results of Mann-Kendall Analysis - PFOS + PFOA

Results of Investigation of Per- and Polyfluoroalkyl Substances in Off-Base Drinking Water—Ault Field, Area 6, and Outlying Landing Field Coupeville, November 2020 to April 2021

Drinking Water Well	Samples Collected	PFOS and/or PFOA Detections	% Detected	Minimum PFOS + PFOA Detection	Maximum PFOS + PFOA Detection	Mean	Median	Standard Deviation (SD)	Coefficient of Variation (CV)	Most Recent PFOS + PFOA Detection	Most Recent Sample Month	Mann-Kendall Test Statistic (S)	Calculated Probability (p-value)	Slope	Result	Trend	Stability
WI-A06-RW03	5	5	100	35.49	60.2	49.678	52.9	9.226	0.186	52.9	21-Apr	3	0.325	---	67.5% (+)	No Trend	Stable
WI-A06-RW04	5	5	100	6.92	35.31	15.622	12.04	11.37	0.728	14.52	21-Apr	4	0.242	---	75.8% (+)	No Trend	Stable
WI-A06-RW05	6	6	100	97.1	150.7	118.45	114.35	17.785	0.15	112.9	21-Apr	-3	0.36	---	64% (-)	No Trend	Stable
WI-A06-RW08	4	4	100	103.6	126.9	110.45	105.65	11.082	0.1	107.2	21-Apr	2	0.375	---	62.5% (+)	No Trend	Stable
WI-A06-RW14	5	5	100	29.48	62.67	42.51	38.6	12.362	0.291	43.6	21-Apr	4	0.242	---	75.8% (+)	No Trend	Stable
WI-A06-RW18	5	5	100	35.2	73.8	48.54	44.1	14.703	0.303	44.1	20-Nov	-3	0.325	---	67.5% (-)	No Trend	Stable
WI-A06-RW19	6	6	100	119.4	147.6	135	139.55	12.534	0.093	147.6	21-Apr	7	0.136	---	86.4% (+)	No Trend	Stable
WI-A06-RW20	5	5	100	73.1	82.6	76.58	74.2	4.141	0.054	82.6	21-Apr	4	0.242	---	75.8% (+)	No Trend	Stable
WI-A06-RW24	4	4	100	233.9	302.2	262.25	256.45	28.708	0.109	302.2	21-Apr	4	0.167	---	83.3% (+)	No Trend	Stable
WI-AF-1RW12	6	6	100	4.07	10.1	7.157	6.855	2.398	0.335	9.51	21-Apr	1	0.5	---	50% (+)	No Trend	Stable
WI-AF-1RW28	8	8	100	28.8	38.2	31.438	30.25	3.216	0.102	38.2	21-Apr	4	0.36	---	64% (+)	No Trend	Stable
WI-AF-1RW32	8	8	100	543	47106	18895.375	7908.5	19835.851	1.05	47106	21-Apr	22	0.002	13263.201	99.8% (sig +)	Increasing	---
WI-AF-1RW40	8	8	100	7.15	73.1	27.362	21.15	22.041	0.806	7.15	21-Apr	-26	0	-12.005	100% (sig -)	Decreasing	---
WI-AF-3RW41	8	8	100	9.03	23	15.954	14.95	4.988	0.313	22.5	21-Apr	22	0.002	3.389	99.8% (sig +)	Increasing	---
WI-CV-1RW01	9	9	100	250	443	359.556	352	80.444	0.224	250	21-Apr	-25	0.0045	-51.499	99.6% (sig -)	Decreasing	---
WI-CV-1RW07	9	9	100	96.1	335	199.233	222	78.985	0.396	246	21-Apr	4	0.381	---	61.9% (+)	No Trend	Stable
WI-CV-1RW23	9	9	100	55	70.9	63.511	63.5	4.952	0.078	67.7	21-Apr	0	0.54	---	46% (+)	No Trend	Stable
WI-CV-1RW27	5	5	100	25.7	38	33.62	36.8	5.57	0.166	25.7	19-Apr	-8	0.042	-6.267	95.8% (sig -)	Decreasing	---
WI-CV-1RW34	8	8	100	301	660	457.625	407	138.593	0.303	332	20-Nov	-16	0.031	-80.728	96.9% (sig -)	Decreasing	---
WI-CV-1RW90	8	8	100	170	239	193.875	184	24.521	0.126	170	21-Apr	-16	0.031	-13.636	96.9% (sig -)	Decreasing	---
WI-CV-2RW02	8	8	100	138	302	222	221.5	63.108	0.284	298	21-Apr	16	0.031	36.513	96.9% (sig +)	Increasing	---
WI-CV-2RW04	9	9	100	4.96	45.9	25.862	28.5	12.463	0.482	14.6	21-Apr	-12	0.13	---	87% (-)	No Trend	Stable
WI-CV-2RW06	7	7	100	153	233	190.286	182	32.679	0.172	153	20-May	-17	0.005	-24.11	99.5% (sig -)	Decreasing	---
WI-CV-3RW10	9	9	100	62	135	100.822	97.8	25.183	0.25	135	21-Apr	2	0.46	---	54% (+)	No Trend	Stable
WI-CV-3RW11	9	9	100	297	633	486.667	515	117.481	0.241	376	21-Apr	-30	0	-65.973	100% (sig -)	Decreasing	---

Notes:

Shading indicates detections and mean/median concentrations above the health advisory.

A06 - Area 6

AF - Ault Field

CV - Coupeville

Table 9. Results of Mann-Kendall Analysis - PFOS

Results of Investigation of Per- and Polyfluoroalkyl Substances in
Off-Base Drinking Water—Ault Field, Area 6, and Outlying Landing Field Coupeville,
November 2020 to April 2021

Drinking Water Well	Samples Collected	PFOS Detections	% Detected	Minimum PFOS Detection	Maximum PFOS Detection	Mean	Median	Standard Deviation (SD)	Coefficient of Variation (CV)	Most Recent PFOS Detection	Most Recent Sample Month	Mann-Kendall Test Statistic (S)	Calculated Probability (p-value)	Slope	Result	Trend	Stability
WI-A06-RW03	5	5	100	7.59	17.2	14.138	15.7	3.8879	0.275	16.5	Apr-2021	4	0.242	---	75.8% (+)	No Trend	Stable
WI-A06-RW04	5	5	100	2.21	7.37	4.7	5.34	2.1619	0.46	7.37	Apr-2021	8	0.042	1.8537	95.8% (sig +)	Increasing	---
WI-A06-RW05	6	6	100	56.2	95.3	69.7	64.15	14.1063	0.2024	64.2	Apr-2021	-3	0.36	---	64% (-)	No Trend	Stable
WI-A06-RW08	4	4	100	78.2	95.7	84.525	82.1	7.6735	0.0908	82.1	Apr-2021	1	0.5	---	50% (+)	No Trend	Stable
WI-A06-RW14	5	5	100	7.68	16.6	12.17	13.4	3.8023	0.3124	16.6	Apr-2021	10	0.008	3.1925	99.2% (sig +)	Increasing	---
WI-A06-RW18	5	5	100	12.6	44.7	22.14	18	12.8272	0.5794	18.6	Nov-2020	-2	0.408	---	59.2% (-)	No Trend	Stable
WI-A06-RW19	6	6	100	73.8	99	87.5667	90.3	10.7677	0.123	99	Apr-2021	9	0.068	---	93.2% (+)	No Trend	Stable
WI-A06-RW20	5	5	100	27.4	32.5	29.82	30.5	2.1649	0.0726	32.5	Apr-2021	2	0.408	---	59.2% (+)	No Trend	Stable
WI-A06-RW24	4	4	100	189	245	216.25	215.5	24.1575	0.1117	245	Apr-2021	2	0.375	---	62.5% (+)	No Trend	Stable
WI-AF-1RW12	8	5	63	1.28	3.55	2.28	3.09	0.7814	0.3427	2.63	Apr-2021	5	0.317	---	68.3% (+)	No Trend	Stable
WI-AF-1RW32	8	8	100	538	46800	18773.375	7860	19706.2297	1.0497	46800	Apr-2021	22	0.002	13174.7075	99.8% (sig +)	Increasing	---
WI-AF-1RW40	8	6	75	1.10	4.12	3.28	3.86	1.0394	0.3167	3.91	Apr-2021	15	0.0425	1.025	95.8% (sig +)	Increasing	---
WI-AF-3RW41	8	8	100	4.01	17.7	10.97	10.4	5.0293	0.4585	17.7	Apr-2021	22	0.002	3.7383	99.8% (sig +)	Increasing	---
WI-CV-1RW07	8	4	50	1.04	3.24	2.05	4.05	0.8022	0.3918	3.24	Apr-2021	14	0.054	---	94.6% (+)	No Trend	Stable
WI-CV-1RW90	8	8	100	3.28	10.5	6.76	6.575	3.2647	0.4829	9.28	Apr-2021	20	0.007	2.2032	99.3% (sig +)	Increasing	---
WI-CV-2RW04	9	8	89	11.10	29.6	16.93	17.6	6.8217	0.403	11.10	Apr-2021	-10	0.179	---	82.1% (-)	No Trend	Stable
WI-CV-3RW10	9	5	56	1.18	2.41	1.91	2.41	0.432	0.2262	2.41	Apr-2021	14	0.09	---	91% (+)	No Trend	Stable
WI-CV-3RW11	9	6	67	1.20	43	6.17	1.92	13.0241	2.1109	1.85	Apr-2021	3	0.4205	---	58% (+)	No Trend	Not Stable

Notes:

Shading indicates detections and mean/median concentrations above the health advisory.

A06 - Area 6

AF - Ault Field

CV - Coupeville

Table 10. Results of Mann-Kendall Analysis - PFOA

Results of Investigation of Per- and Polyfluoroalkyl Substances in
Off-Base Drinking Water—Ault Field, Area 6, and Outlying Landing Field Coupeville,
November 2020 to April 2021

Drinking Water Well	Samples Collected	PFOA Detections	% Detected	Minimum PFOA Detection	Maximum PFOA Detection	Mean	Median	Standard Deviation (SD)	Coefficient of Variation (CV)	Most Recent PFOA Detection	Most Recent Sample Month	Mann-Kendall Test Statistic (S)	Calculated Probability (p-value)	Slope	Result	Trend	Stability
WI-A06-RW03	5	5	100	27.9	37.2	34.24	36.4	3.8669	0.1129	36.4	Apr-2021	4	0.242	---	75.8% (+)	No Trend	Stable
WI-A06-RW04	5	5	100	3.86	7.15	5.074	4.15	1.5141	0.2984	7.15	Apr-2021	6	0.117	---	88.3% (+)	No Trend	Stable
WI-A06-RW05	6	6	100	48.7	57.7	53.9167	54.45	3.2493	0.0603	48.7	Apr-2021	-9	0.068	---	93.2% (-)	No Trend	Stable
WI-A06-RW08	4	4	100	25.1	31.2	27.575	27	2.8895	0.1048	25.1	Apr-2021	-2	0.375	---	62.5% (-)	No Trend	Stable
WI-A06-RW14	5	5	100	21.8	27	24.52	24.8	1.858	0.0758	27	Apr-2021	5	0.1795	---	82% (+)	No Trend	Stable
WI-A06-RW18	5	5	100	24.5	29.1	26.78	26.1	2.0229	0.0755	25.5	Nov-2020	-4	0.242	---	75.8% (-)	No Trend	Stable
WI-A06-RW19	6	6	100	41.4	48.6	45.5333	46	2.4031	0.0528	48.6	Apr-2021	11	0.028	1.2033	97.2% (sig +)	Increasing	---
WI-A06-RW20	5	5	100	43.7	50.1	46.76	46.4	2.5076	0.0536	50.1	Apr-2021	8	0.042	2.0199	95.8% (sig +)	Increasing	---
WI-A06-RW24	4	4	100	44.9	57.2	51.8	52.55	5.1088	0.0986	57.2	Apr-2021	2	0.375	---	62.5% (+)	No Trend	Stable
WI-AF-1RW12	8	6	75	2.35	6.88	4.7775	5.36	1.6566	0.3468	6.88	Apr-2021	1	0.5	---	50% (+)	No Trend	Stable
WI-AF-1RW28	8	8	100	28.4	37.3	31.1125	30.25	3.0154	0.0969	37.3	Apr-2021	0	0.548	---	45.2% (+)	No Trend	Stable
WI-AF-1RW32	8	8	100	5.99	306	122.35	48.9	129.4133	1.0577	306	Apr-2021	24	0.001	86.4371	99.9% (sig +)	Increasing	---
WI-AF-1RW40	8	8	100	3.24	73.1	24.9138	17.65	23.5833	0.9466	3.24	Apr-2021	-26	0	-12.7324	100% (sig -)	Decreasing	---
WI-AF-3RW41	8	8	100	4.39	6.13	5.03	4.875	0.601	0.1195	4.8	Apr-2021	-6	0.274	---	72.6% (-)	No Trend	Stable
WI-CV-1RW01	9	9	100	248	443	359	352	81.1095	0.2259	248	Apr-2021	-25	0.0045	-52.0534	99.6% (sig -)	Decreasing	---
WI-CV-1RW07	9	9	100	96.1	334	198.4556	221	78.4106	0.3951	243	Apr-2021	4	0.381	---	61.9% (+)	No Trend	Stable
WI-CV-1RW23	9	9	100	55	70.9	63.0333	63.5	5.1286	0.0814	66.3	Apr-2021	0	0.54	---	46% (+)	No Trend	Stable
WI-CV-1RW27	5	5	100	25.7	38	33.62	36.8	5.5697	0.1657	25.7	Apr-2019	-8	0.042	-6.267	95.8% (sig -)	Decreasing	---
WI-CV-1RW34	8	8	100	301	660	457.625	407	138.5929	0.3029	332	Nov-2020	-16	0.031	-78.9454	96.9% (sig -)	Decreasing	---
WI-CV-1RW90	8	8	100	161	236	187.5	174.5	26.7795	0.1428	161	Apr-2021	-17	0.0235	-15.1718	97.7% (sig -)	Decreasing	---
WI-CV-2RW02	8	8	100	138	302	222	221.5	63.1076	0.2843	298	Apr-2021	16	0.031	34.2615	96.9% (sig +)	Increasing	---
WI-CV-2RW04	9	9	100	3.59	16.3	9.5089	9.55	4.6296	0.4869	3.59	Apr-2021	-18	0.038	-2.2384	96.2% (sig -)	Decreasing	---
WI-CV-2RW06	7	7	100	153	233	190.2857	182	32.6788	0.1717	153	May-2020	-17	0.005	-24.1097	99.5% (sig -)	Decreasing	---
WI-CV-3RW10	9	9	100	62	133	99.9111	95.7	24.7859	0.2481	133	Apr-2021	2	0.46	---	54% (+)	No Trend	Stable
WI-CV-3RW11	9	9	100	296	611	481.3333	515	111.6703	0.232	375	Apr-2021	-28	0.001	-62.4644	99.9% (sig -)	Decreasing	---

Notes:

Shading indicates detections and mean/median concentrations above the health advisory.

A06 - Area 6

AF - Ault Field

CV - Coupeville

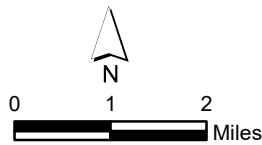
Figures



Legend

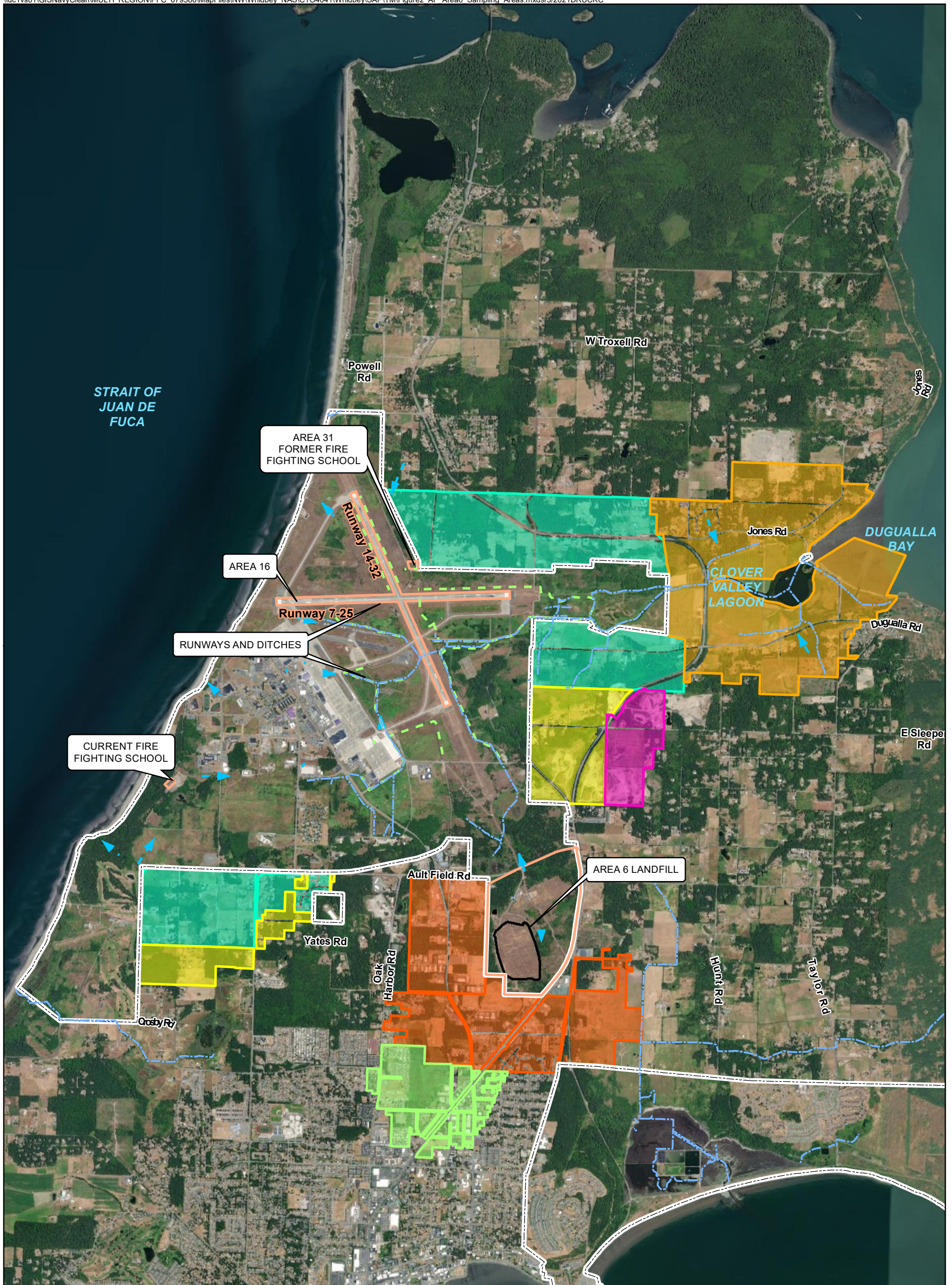
- City
- Secondary Road
- Local Connecting Road
- Important Local Road
- Base Boundary

NAS - Naval Air Station
OLF - Outlying Landing Field



1 inch = 2 miles
Imagery Source: Esri

Figure 1
Installation Location Map
NAS Whidbey Island
Drinking Water Technical Memorandum



- Legend**
- Site Boundary (suspected source)
 - Drainage Ditch (Part of Area 16)
 - Surface Water
 - Estimated Groundwater Flow Direction
 - Ault Field Phase 1 Sampling Area
 - Ault Field Phase 2 Step-Out Sampling Area
 - Ault Field Phase 3 Step-Out Sampling Area
 - Ault Field Phase 4 Step-Out Sampling Area
 - Area 6 Phase 1 Sampling Area
 - Area 6 Phase 2 Step-Out Sampling Area

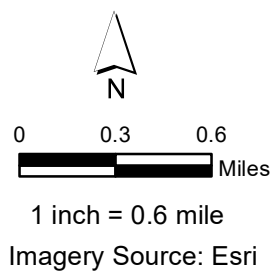
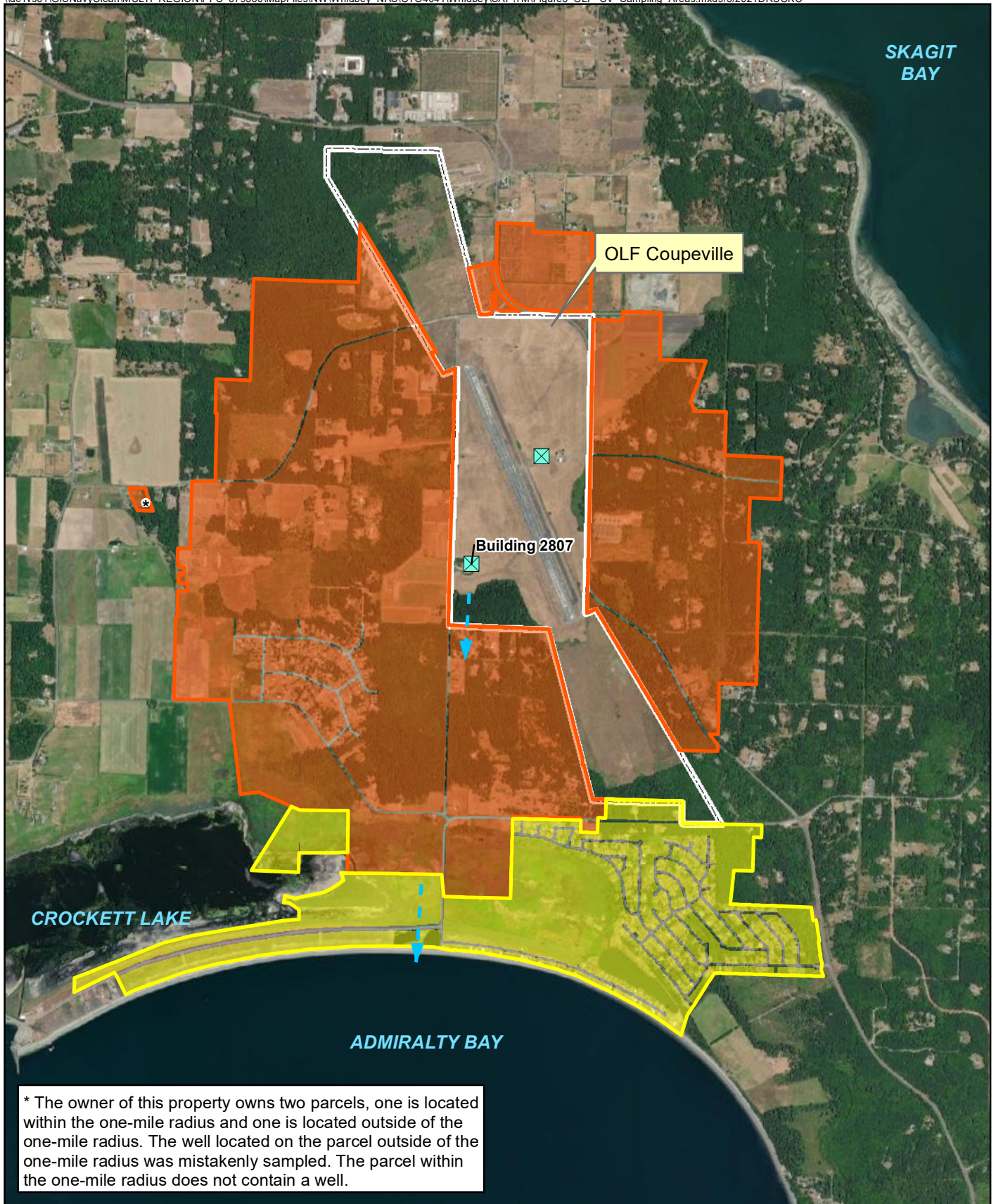


Figure 2
Ault Field and Area 6 Sampling Areas
NAS Whidbey Island
Drinking Water Technical Memorandum,
October 2017 to April 2019



* The owner of this property owns two parcels, one is located within the one-mile radius and one is located outside of the one-mile radius. The well located on the parcel outside of the one-mile radius was mistakenly sampled. The parcel within the one-mile radius does not contain a well.

Legend

- X OLF Coupeville Supply Well
- ▶ Estimated Groundwater Flow Direction
- Phase 1 Sampling Area
- Phase 2 Step-Out Sampling Area
- Base Boundary

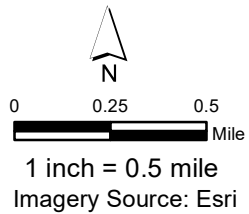
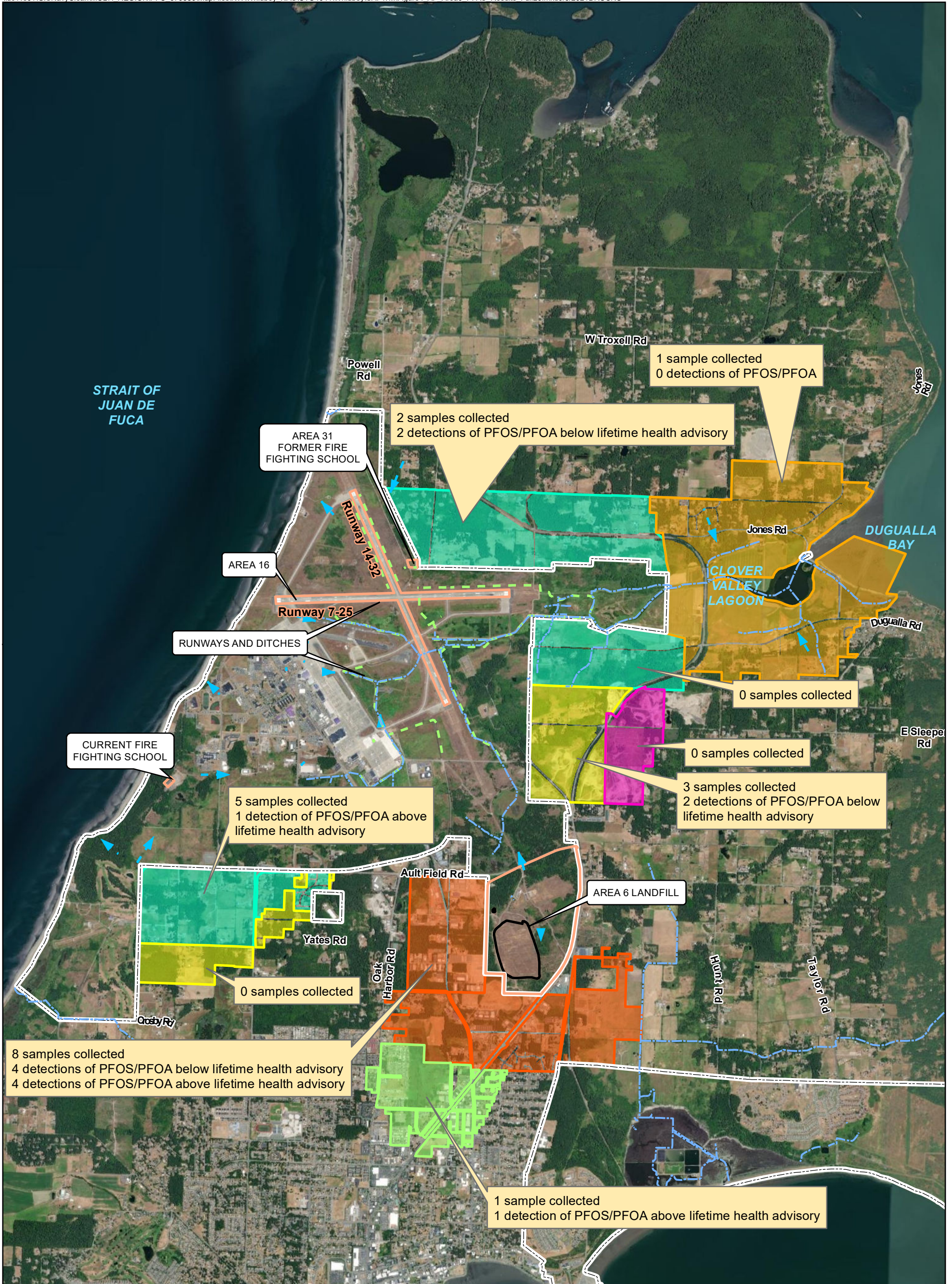


Figure 3
OLF Coupeville Sampling Areas
NAS Whidbey Island
Drinking Water Technical Memorandum



Legend

- ▭ Site Boundary (suspected source)
- ▭ Drainage Ditch (Part of Area 16)
- ▬ Surface Water
- ➔ Estimated Groundwater Flow Direction
- ▭ Ault Field Phase 1 Sampling Area
- ▭ Ault Field Phase 2 Step-Out Sampling Area
- ▭ Ault Field Phase 3 Step-Out Sampling Area
- ▭ Ault Field Phase 4 Step-Out Sampling Area
- ▭ Area 6 Phase 1 Sampling Area
- ▭ Area 6 Phase 2 Step-Out Sampling Area
- Base Boundary

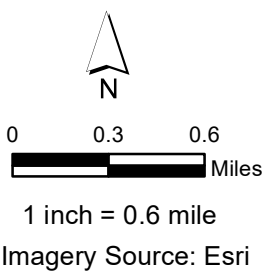
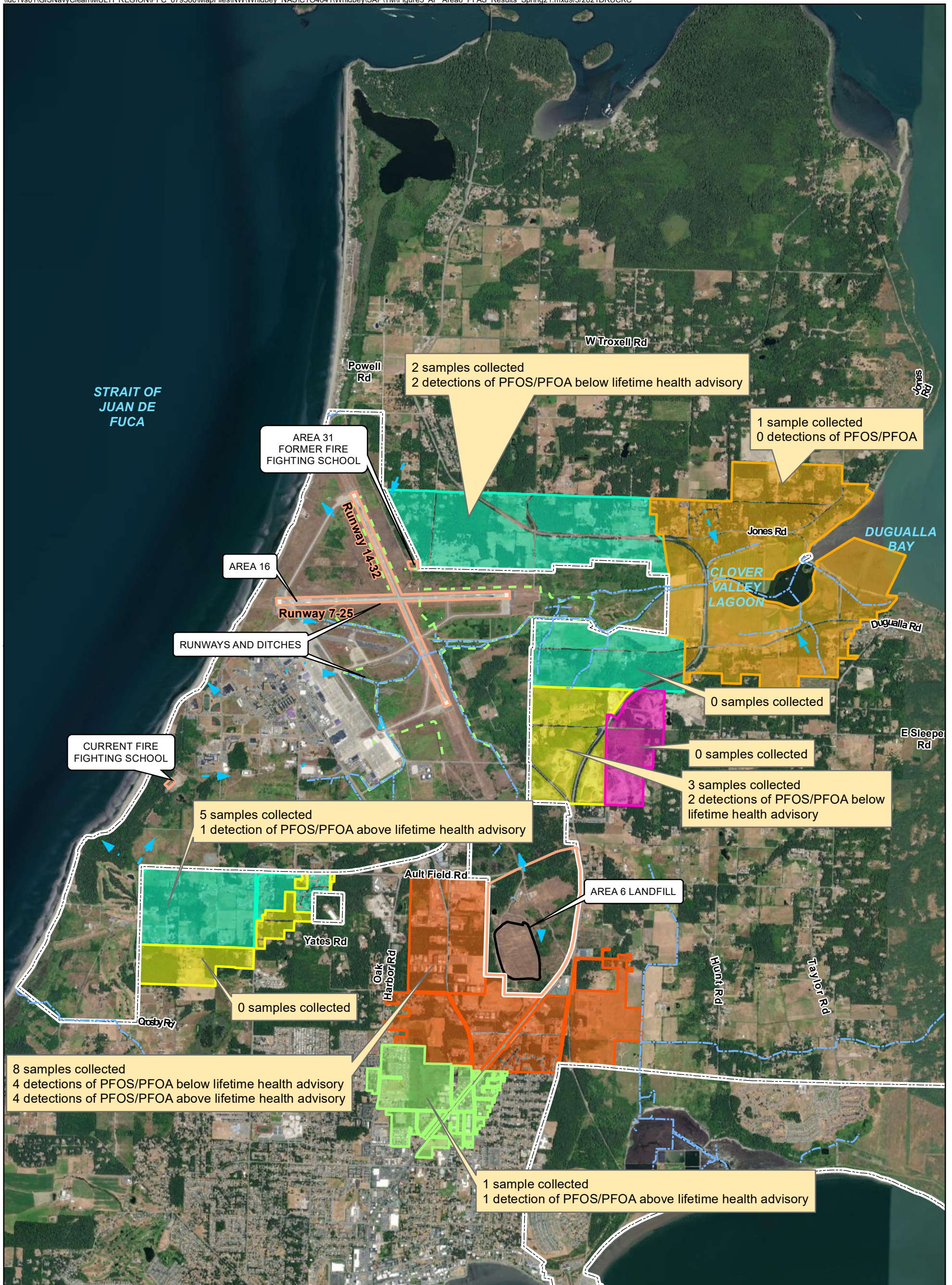


Figure 4
Ault Field and Area 6 Fall 2020 PFAS Results
NAS Whidbey Island
Drinking Water Technical Memorandum



STRAIT OF JUAN DE FUCA

W Troxell Rd

AREA 31 FORMER FIRE FIGHTING SCHOOL

2 samples collected
2 detections of PFOS/PFOA below lifetime health advisory

1 sample collected
0 detections of PFOS/PFOA

AREA 16

Runway 14-32

Runway 7-25

RUNWAYS AND DITCHES

CLOVER VALLEY LAGOON

DUGUALLA BAY

Jones Rd

Dugualla Rd

0 samples collected

CURRENT FIRE FIGHTING SCHOOL

E Sleepers Rd

0 samples collected
3 samples collected
2 detections of PFOS/PFOA below lifetime health advisory

5 samples collected
1 detection of PFOS/PFOA above lifetime health advisory

AREA 6 LANDFILL

Ault Field Rd

Yates Rd

0 samples collected

Oak Harbor Rd

Hunt Rd

Taylor Rd

Osby Rd

8 samples collected
4 detections of PFOS/PFOA below lifetime health advisory
4 detections of PFOS/PFOA above lifetime health advisory

1 sample collected
1 detection of PFOS/PFOA above lifetime health advisory

- Legend**
- Site Boundary (suspected source)
 - Drainage Ditch (Part of Area 16)
 - Surface Water
 - Estimated Groundwater Flow Direction
 - Ault Field Phase 1 Sampling Area
 - Ault Field Phase 2 Step-Out Sampling Area
 - Ault Field Phase 3 Step-Out Sampling Area
 - Ault Field Phase 4 Step-Out Sampling Area
 - Area 6 Phase 1 Sampling Area
 - Area 6 Phase 2 Step-Out Sampling Area

Base Boundary

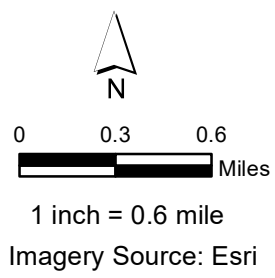
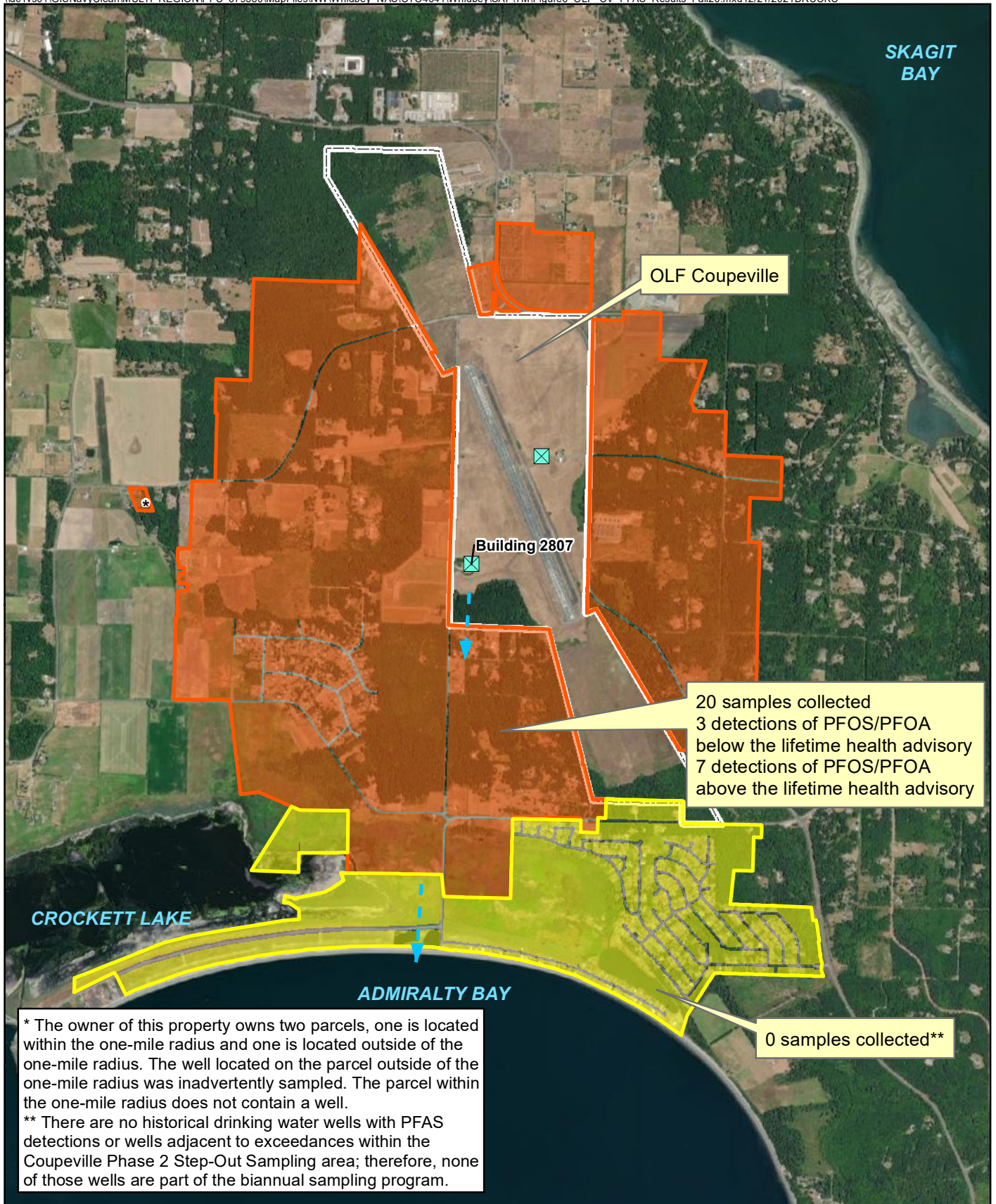







Figure 5
Ault Field and Area 6 Spring 2021 PFAS Results
NAS Whidbey Island
Drinking Water Technical Memorandum



Legend

-  OLF Coupeville Supply Well
-  Estimated Groundwater Flow Direction
-  Phase 1 Sampling Area
-  Phase 2 Step-Out Sampling Area
-  Base Boundary

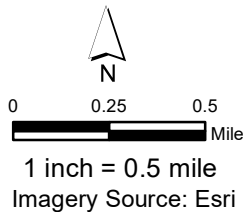
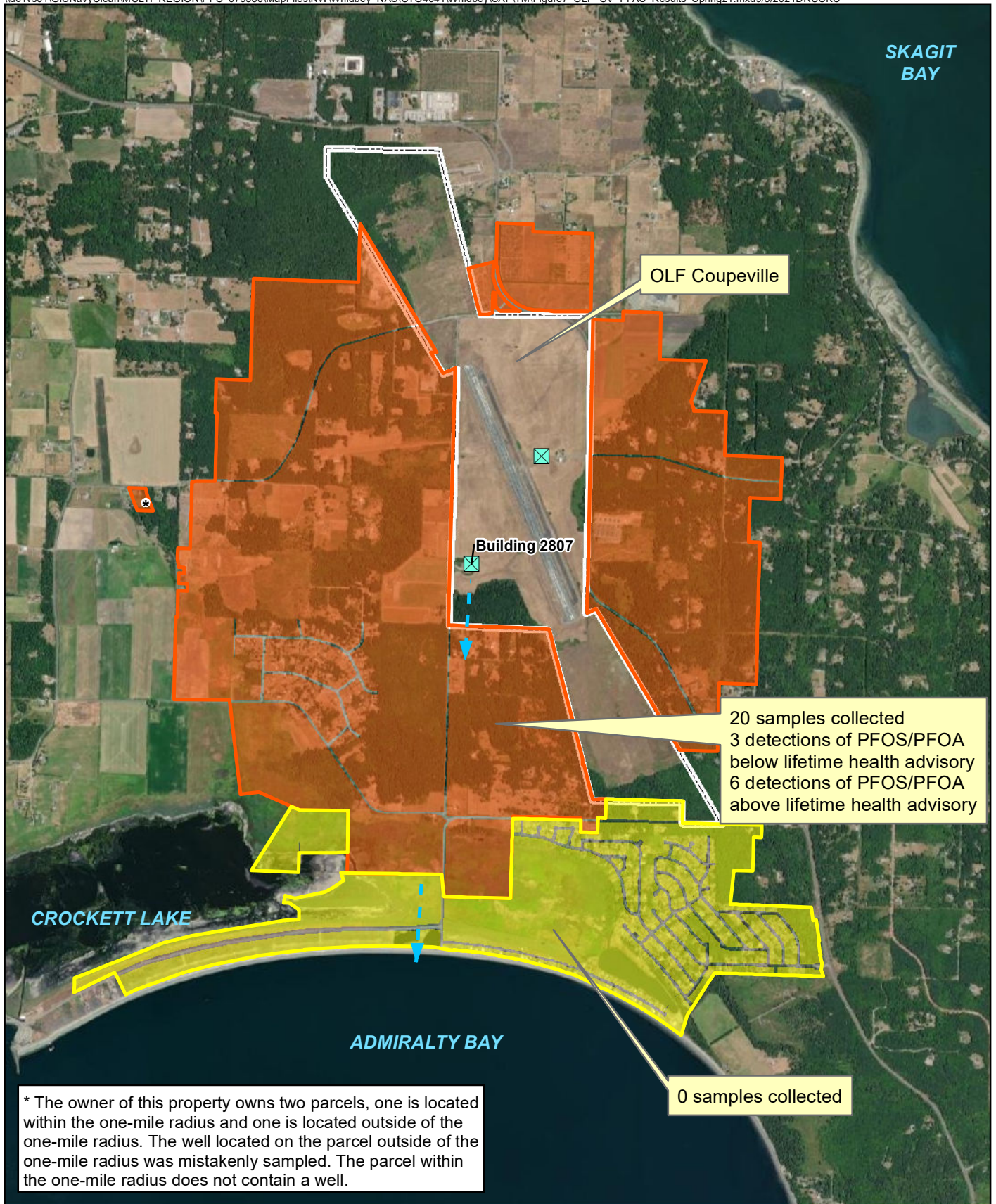


Figure 6
OLF Coupeville Fall 2020 PFAS Results
NAS Whidbey Island
Drinking Water Technical Memorandum



* The owner of this property owns two parcels, one is located within the one-mile radius and one is located outside of the one-mile radius. The well located on the parcel outside of the one-mile radius was mistakenly sampled. The parcel within the one-mile radius does not contain a well.

- Legend**
- X OLF Coupeville Supply Well
 - ▶ Estimated Groundwater Flow Direction
 - █ Phase 1 Sampling Area
 - █ Phase 2 Step-Out Sampling Area
 - Base Boundary

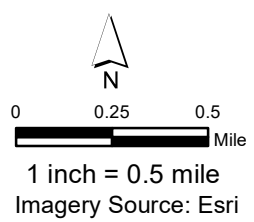


Figure 7
OLF Coupeville Spring 2021 PFAS Results
NAS Whidbey Island
Drinking Water Technical Memorandum

Attachment 1
Chains-of-Custody



CHAIN OF CUSTODY

For Laboratory Use Only
 Work Order #: _____ Temp: _____ °C
 Storage ID: _____ Storage Secured: Yes No

Project ID: 9000NVT8 PO#: 148010215 Sampler: G. Gardner, T. Chalmers
 (name)

TAT Standard: 21 days
 (check one): Rush (surcharge may apply)
 14 days 7 days Specify: _____

Relinquished by (printed name and signature) Tom Chalmers Date 11/16/20 Time 1600 Received by (printed name and signature) _____ Date _____ Time _____
 Relinquished by (printed name and signature) _____ Date _____ Time _____ Received by (printed name and signature) _____ Date _____ Time _____

SHIP TO: Vista Analytical Laboratory
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 673-1520 * Fax (916) 673-0106
 ATTN: Martha Maier

Method of Shipment: FedEx
 Tracking No.: _____

Add Analysis(es) Requested
 Container(s) _____
 PFAS by Isotope Dilution
 PFAS by Isotope Dilution
 EPA Method 537 (DW only)
 EPA Method 537 (DW only)

Sample ID	Date	Time	Location/ Sample Description	Quantity		Type	Matrix	PFAS by Isotope Dilution				Comments	
								PFAS	PFOS	UICMS PFAS List	537 A List of 14		537 A List of 16
WI-A06-RW14-1120	11/12/2020	11:30	Drinking Water	2	PP	DW						X	
WI-A06-FB14-1120	11/12/2020	11:30	Drinking Water	2	PP	DW						X	
WI-AF-1RW28-1120	11/12/2020	12:55	Drinking Water	2	PP	DW						X	
WI-AF-1RW28-1120-MS	11/12/2020	12:55	Drinking Water	2	PP	DW						X	
WI-AF-1RW28-1120-MSD	11/12/2020	12:55	Drinking Water	2	PP	DW						X	
WI-AF-1FB28-1120	11/12/2020	12:55	Drinking Water	2	PP	DW						X	
WI-AF-1RW01-1120	11/12/2020	14:20	Drinking Water	2	PP	DW						X	
WI-AF-1FB01-1120	11/12/2020	14:20	Drinking Water	2	PP	DW						X	
WI-A06-RW05-1120	11/12/2020	15:35	Drinking Water	2	PP	DW						X	
WI-A06-RW05-1120-MS	11/12/2020	15:35	Drinking Water	2	PP	DW						X	

Special Instructions/Comments: _____

SEND DOCUMENTATION AND RESULTS TO:
 Name: Ginger Collins
 Company: CH2M Hill (Jacobs)
 Address: _____
 City: _____
 Phone: 541-768-3615
 Email: ginger.collins@jacobs.com

Container Types: P= HDPE, PJ= HDPE Jar
 PY= Polypropylene, O = Other: _____
 Bottle Preservation Type: TZ = Trizma: _____
 Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
 SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: _____



CHAIN OF CUSTODY

For Laboratory Use Only
 Work Order #: _____ Temp: _____ °C
 Storage ID: _____ Storage Secured: Yes No

Project ID: 9000NVT8 PC#: 148010215 Sampler: G. Gardner, T. Chalmers
 (name)

TAT Standard: 21 days
 (check one): Rush (surcharge may apply)
 14 days 7 days Specify: _____

Relinquished by (printed name and signature) <i>Tom Chalmers T. Chalmers</i>	Date <i>11/16/20</i>	Time <i>1600</i>	Received by (printed name and signature)	Date	Time
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

SHIP TO: Vista Analytical Laboratory
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 673-1520 * Fax (916) 673-0106
 ATTN: Martha Maier

Method of Shipment: FedEx
 Tracking No.: _____

Sample ID	Date	Time	Location/ Sample Description	Add Analysis(es) Requested										Comments		
				Quantity	Type	Matrix	PFOM/ PFOS	UCM93 PFAS List's	57:1 List: 14 or 18 (Circle One)	EPA Dist. List of 24	OTHER: Please attach analyze list	PFAS by Isotope Dilution	EPA Method 537 (DW only)			
WI-A06-RW05-1120-MSD	11/12/2020	15:35	Drinking Water	2	PP	DW										X
WI-A06-FB05-1120	11/12/2020	15:35	Drinking Water	2	PP	DW										X
WI-A06-RW03-1120	11/12/2020	16:05	Drinking Water	2	PP	DW										X
WI-A06-RW03P-1120	11/12/2020	16:10	Drinking Water	2	PP	DW										X
WI-A06-FB03-1120	11/12/2020	16:05	Drinking Water	2	PP	DW										X
WI-A06-RW04-1120	11/12/2020	16:20	Drinking Water	2	PP	DW										X
WI-A06-FB04-1120	11/12/2020	16:20	Drinking Water	2	PP	DW										X

Special Instructions/Comments: _____

SEND DOCUMENTATION AND RESULTS TO:

Name: Ginger Collins
 Company: CH2M Hill (Jacobs)
 Address: _____
 City: _____
 Phone: 541-768-3615
 Email: ginger.collins@jacobs.com

Container Types: P= HDPE, PJ= HDPE Jar
 PY= Polypropylene, O = Other: _____

Bottle Preservation Type: TZ = Trizma: _____

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
 SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: _____

ID: LR-537/COC Rev. No. 1 Rev. Date: 8/16/2019 Page: 1 of 1



CHAIN OF CUSTODY

For Laboratory Use Only
 Work Order #: _____ Temp: _____ °C
 Storage ID: _____ Storage Secured: Yes No

Project ID: 900ONVT8 PO#: 148010215 Sampler: Tom Chalmers
 (name)

TAT Standard: 21 days
 (check one): Rush (surcharge may apply)
 14 days 7 days Specify: _____

Tom Chalmers Trilled 1/4/21 1300
 Relinquished by (printed name and signature) Date Time Received by (printed name and signature) Date Time

Relinquished by (printed name and signature) Date Time Received by (printed name and signature) Date Time

SHIP TO: Vista Analytical Laboratory
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 673-1520 * Fax (916) 673-0106
 ATTN: Martha Maier

Method of Shipment: FedEx
 Tracking No.: _____
 Add Analysis(es) Requested
 Container(s) _____
 PFAS by Isotope Dilution _____
 EPA Method 537 (DW only) _____

Sample ID	Date	Time	Location/ Sample Description	Quantity	Type	Matrix	PFDA/ PFOS	UICMRS PFAS List 8	537.1 List 1a or 1b (Circle One)	EPA Draft List of 24	OTHER: Please attach analyte list	PFDA/ PFOS	UICMRS PFAS List 8	537.1 List 1a or 1b	537.1 List 1b	Comments
WI-AF-1RW25-1220	12/30/20	1135	1RW25	2	P	DW										X Preserved with Trizma
WI-AF-1FB25-1220		1135	1RW25	2	P	DW										X
WI-AF-1RW25-1220-MS		1135	1RW25	2	P	DW										X
WI-AF-1RW25-1220-MSD		1135	1RW25	2	P	DW										X
WI-AF-3RW18-1220		1100	3RW18	2	P	DW										X
WI-AF-3RW18-1220 (TC)																
WI-AF-3FB18-1220	12/30/20	1100	3RW18	2	P	DW										X Preserved with Trizma

Special Instructions/Comments: _____
 Name: Ginger Collins
 Company: CH2M Hill (Jacobs)
 Address: _____
 City: _____
 Phone: 541-768-3615
 Email: ginger.collins@jacobs.com

Container Types: P= HDPE, PJ= HDPE Jar
 PY= Polypropylene, O = Other: _____
 Bottle Preservation Type: TZ = Trizma: _____
 Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
 SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: _____

12/29/2020

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ORIGIN ID: BVUA (801) 809-9702
TOM CHALMERS

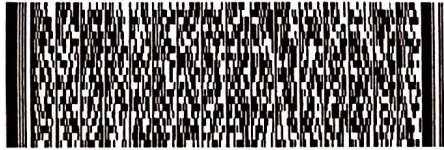
1110 112TH AVENUE NE
500
BELLEVUE, WA 98004
UNITED STATES US

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ACTWGT: 40.00 LB
CAD: 105505917/IN/NET4280
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TO **MARTHA MAIER**
VISTA ANALYTICAL LABORATORY
1104 WINDFIELD WAY

EL DORADO HILLS CA 95762

(916) 873-1520 REF: 9000NVT8 B PN ODC 03 FIFS
INV. DEPT



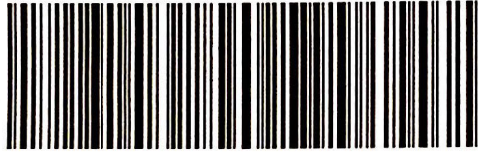
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WD MHRA

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CA-US SMF



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CHAIN OF CUSTODY

For Laboratory Use Only
 Work Order #: _____ Temp: _____ °C
 Storage ID: _____ Storage Secured: Yes No

Project ID: 9000NVT8 PO#: 148010215 Sampler: G. Gardner, T. Chalmers
 (name)

TAT (check one): 21 days 14 days 7 days Specify: _____
 Standard: _____
 Rush (surcharge may apply)

Relinquished by (printed name and signature) Cerrit Gardner [Signature] Date 11/12/2020 Time 11:00
 Received by (printed name and signature) _____ Date _____ Time _____

Relinquished by (printed name and signature) _____ Date _____ Time _____
 Received by (printed name and signature) _____ Date _____ Time _____

SHIP TO: Vista Analytical Laboratory
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 673-1520 * Fax (916) 673-0106
 ATTN: Martha Maier

Method of Shipment: FedEx
 Tracking No.: _____

Quantity	Type	Matrix	PFAS by Isotope Dilution	EPA Method 537 (DW only)	Comments
2	PP	DW			
2	PP	DW			
2	PP	DW			
2	PP	DW			
2	PP	DW			
2	PP	DW			
2	PP	DW			
2	PP	DW			
2	PP	DW			
2	PP	DW			
2	PP	DW			
2	PP	DW			

Special Instructions/Comments:

SEND DOCUMENTATION AND RESULTS TO:
 Name: Ginger Collins
 Company: CH2M Hill (Jacobs)
 Address: _____
 City: _____
 Phone: 541-768-3615
 Email: ginger.collins@jacobs.com

Container Types: P= HDPE, PJ= HDPE Jar
 PY= Polypropylene, O = Other: _____
 Bottle Preservation Type: TZ = Trizma: _____
 Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
 SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: _____



CHAIN OF CUSTODY

For Laboratory Use Only
 Work Order #: _____ Temp: _____ °C
 Storage ID: _____ Storage Secured: Yes No

Project ID: 9000NVT8 PO#: 148010215 Sampler: G. Gardner, T. Chalmers
 (name)

TAT Standard: 21 days
 (check one): Rush (surcharge may apply)
 14 days 7 days Specify: _____

Relinquished by (printed name and signature) Gerrit Gardner [Signature] Date 11/12/2020 Time 11:00
 Received by (printed name and signature) _____ Date _____ Time _____

Relinquished by (printed name and signature) _____ Date _____ Time _____
 Received by (printed name and signature) _____ Date _____ Time _____

SHIP TO: Vista Analytical Laboratory
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 673-1520 * Fax (916) 673-0106
 Method of Shipment: FedEx
 Tracking No.: _____
 ATTN: Martha Maier

Sample ID	Date	Time	Location/ Sample Description	Add Analysis(es) Requested										Comments					
				Quantity	Type	Matrix	PFOM/PFOS	UCMR3 PFAS Lists	537.1 List: 14 or 18 (Circle One)	EPA Draft List of 24	OTHER: Please attach analyte list	PFAS by Isotope Dilution	PFOM/PFOS		UCMR3 PFAS Lists	537.1 List of 14	537.1 List of 18	EPA Method 537 (DW only)	
WI-CV-1FB07-1120	11/9/2020	13:40	Drinking Water	2	PP	DW												X	
WI-CV-3RW17-1120	11/9/2020	13:55	Drinking Water	2	PP	DW												X	
WI-CV-3FB17-1120	11/9/2020	13:55	Drinking Water	2	PP	DW												X	
WI-AF-1RW12-1120	11/10/2020	16:10	Drinking Water	2	PP	DW												X	
WI-AF-1RW12P-1120	11/10/2020	16:15	Drinking Water	2	PP	DW												X	
WI-AF-1FB12-1120	11/10/2020	16:10	Drinking Water	2	PP	DW												X	

Special Instructions/Comments:

SEND DOCUMENTATION AND RESULTS TO:
 Name: Ginger Collins
 Company: CH2M Hill (Jacobs)
 Address: _____
 City: _____
 Phone: 541-768-3615
 Email: ginger.collins@jacobs.com

Container Types: P= HDPE, PJ= HDPE Jar
 PY= Polypropylene, O = Other: _____
 Bottle Preservation Type: TZ = Trizma: _____
 Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: _____



CHAIN OF CUSTODY

For Laboratory Use Only
 Work Order #: _____ Temp: _____ °C
 Storage ID: _____ Storage Secured: Yes No

Project ID: 9000NVT8 PO#: 148010215 Sampler: G. Gardner, T. Chalmers
 (name)

TAT Standard: 21 days
 (check one): Rush (surcharge may apply)
 14 days 7 days Specify: _____

Gerrit Gardner 11/12/2020 11:00 Received by (printed name and signature) _____
 Relinquished by (printed name and signature) _____ Date _____ Time _____
 Relinquished by (printed name and signature) _____ Date _____ Time _____
 Relinquished by (printed name and signature) _____ Date _____ Time _____

SHIP TO: Vista Analytical Laboratory
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 673-1520 * Fax (916) 673-0106
 ATTN: Martha Maier

Method of Shipment: FedEx
 Tracking No.: _____

Add Analysis(es) Requested				Container(s)		PFAS by Isotope Dilution		EPA Method 537 (DW only)		Comments
Quantity	Type	Matrix	PFDA/ PFOS	UCMR3 PFAS List:6	537.1 List: 14 or 16 (Circle One)	OTHER: Please attach analyte list	PFON/ PFOS	UCMR3 PFAS List:6	537.1 List of 14	

Sample ID	Date	Time	Location/ Sample Description	Quantity	Type	Matrix	PFDA/ PFOS	UCMR3 PFAS List:6	537.1 List: 14 or 16 (Circle One)	OTHER: Please attach analyte list	PFON/ PFOS	UCMR3 PFAS List:6	537.1 List of 14	537.1 List of 18	Comments
WI-AF-3FB41-1120	11/10/2020	13:05	Drinking Water	2	PP	DW									X
WI-AF-1RW68-1120	11/10/2020	14:10	Drinking Water	2	PP	DW									X
WI-AF-1FB68-1120	11/10/2020	14:10	Drinking Water	2	PP	DW									X
WI-A06-RW24-1120	11/10/2020	15:00	Drinking Water	2	PP	DW									X
WI-A06-FB24-1120	11/10/2020	15:00	Drinking Water	2	PP	DW									X

Special Instructions/Comments: _____

SEND DOCUMENTATION AND RESULTS TO: _____

Name: Ginger Collins
 Company: CH2M Hill (Jacobs)
 Address: _____
 City: _____
 Phone: 541-768-3615
 Email: ginger.collins@jacobs.com

Container Types: P= HDPE, PJ= HDPE Jar
 PY= Polypropylene, O = Other: _____

Bottle Preservation Type: _____
 TZ = Trizma: _____

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
 SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: _____

ID: LR-537COC Rev. No. 1 Rev. Date: 8/16/2019 Page: 1 of 1



CHAIN OF CUSTODY

For Laboratory Use Only

Work Order #: _____ Temp: _____ °C
 Storage ID: _____ Storage Secured: Yes No

Project ID: 9000NVT8 PO#: 148010215 Sampler: G. Gardner, T. Chalmers
 (name)

TAT Standard: 21 days
 (check one): Rush (surcharge may apply)
 14 days 7 days Specify: _____

Gerrit Gardner 11/12/2020 11:00 Received by (printed name and signature) Date Time
 Relinquished by (printed name and signature) Date Time Received by (printed name and signature) Date Time

Sample ID	Date	Time	Location/ Sample Description	Add Analysis(es) Requested										Comments					
				Quantity	Type	Matrix	PFOM/ PFOS	UCMR3 PFAS Lists	537.1 List: 14 or 16 (Circle One)	EPA Draft List of 24	OTHER: Please attach analyte list	PFAS by Isotope Dilution	PFOM/ PFOS		UCMR3 PFAS Lists	537.1 List of 14	537.1 List of 16	EPA Method 537 (DW only)	
WI-CV-1RW27-1120	11/11/2020	09:10	Drinking Water	2	PP	DW												X	
WI-CV-1RW27-1120-MS	11/11/2020	09:10	Drinking Water	2	PP	DW												X	
WI-CV-1RW27-1120-MSD	11/11/2020	09:10	Drinking Water	2	PP	DW												X	
WI-CV-1FB27-1120	11/11/2020	09:10	Drinking Water	2	PP	DW												X	
WI-CV-1RW25-1120	11/11/2020	09:30	Drinking Water	2	PP	DW												X	
WI-CV-1FB25-1120	11/11/2020	09:30	Drinking Water	2	PP	DW												X	
WI-CV-1RW26-1120	11/11/2020	09:50	Drinking Water	2	PP	DW												X	
WI-CV-1RW26P-1120	11/11/2020	09:55	Drinking Water	2	PP	DW												X	
WI-CV-1FB26-1120	11/11/2020	09:50	Drinking Water	2	PP	DW												X	
WI-CV-1RW23-1120	11/11/2020	10:10	Drinking Water	2	PP	DW												X	

SHIP TO: Vista Analytical Laboratory
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 673-1520 * Fax (916) 673-0106
 ATTN: Martha Maier

Method of Shipment: FedEx
 Tracking No.: _____

Special Instructions/Comments:

SEND DOCUMENTATION AND RESULTS TO:
 Name: Ginger Collins
 Company: CH2M Hill (Jacobs)
 Address: _____
 City: _____
 Phone: 541-768-3615
 Email: ginger.collins@jacobs.com

Container Types: P= HDPE, PJ= HDPE Jar
 PY= Polypropylene, O= Other: _____
 Bottle Preservation Type: TZ = Trizma: _____
 Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
 SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: _____



CHAIN OF CUSTODY

For Laboratory Use Only
 Work Order #: _____ Temp: _____ °C
 Storage ID: _____ Storage Secured: Yes No

Project ID: 9000NVT8 PO#: 148010215 Sampler: G. Gardner, T. Chalmers
 (name)

TAT Standard: 21 days
 (check one): Rush (surcharge may apply)
 14 days 7 days Specify: _____

Gerrit Gardner 11/12/2020 11:00
 Relinquished by (printed name and signature) Date Time Received by (printed name and signature) Date Time

Relinquished by (printed name and signature) Date Time Received by (printed name and signature) Date Time

SHIP TO: Vista Analytical Laboratory
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 673-1520 * Fax (916) 673-0106

Method of Shipment: FedEx
 Tracking No.: _____

ATTN: Martha Maier

Add Analysis(es) Requested
 Container(s)
 PFAS by Isotope Dilution
 EPA Method 537 (DW only)
 OTHER: Please attach analyte list

Sample ID	Date	Time	Location/ Sample Description	Quantity	Type	Matrix	PFAS List 6	UCLM3 PFAS List 6	537.1 List 14 or 18 (Circle One)	EPA Draft List of 24	PFAS by Isotope Dilution	UCLM3 PFAS List 6	537.1 List of 14	537.1 List of 18	EPA Method 537 (DW only)	Comments
WI-CV-1FB23-1120	11/11/2020	10:10	Drinking Water	2	PP	DW									X	
WI-CV-3RW11-1120	11/11/2020	11:00	Drinking Water	2	PP	DW									X	
WI-CV-3RW11P-1120	11/11/2020	11:05	Drinking Water	2	PP	DW									X	
WI-CV-3FB11-1120	11/11/2020	11:00	Drinking Water	2	PP	DW									X	

Special Instructions/Comments: _____

SEND DOCUMENTATION AND RESULTS TO:

Name: Ginger Collins
 Company: CH2M Hill (Jacobs)
 Address: _____
 City: _____
 Phone: 541-768-3615
 Email: ginger.collins@jacobs.com

Container Types: P= HDPE, PJ= HDPE Jar
 PY= Polypropylene, O = Other: _____

Bottle Preservation Type:
 TZ = Trizma: _____

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
 SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: _____



CHAIN OF CUSTODY

For Laboratory Use Only
 Work Order #: _____ Temp: _____ °C
 Storage ID: _____ Storage Secured: Yes No

Project ID: 9000NVT8 PO#: 148010215 Sampler: G. Gardner, T. Chalmers
 (name)

TAT Standard: 21 days
 (check one): Rush (surcharge may apply) 14 days 7 days Specify: _____

Gerrit Gardner MM 11/17/2020 11:00
 Relinquished by (printed name and signature) Date Time Received by (printed name and signature) Date Time
 Relinquished by (printed name and signature) Date Time Received by (printed name and signature) Date Time

Sample ID	Date	Time	Location/ Sample Description	Add Analysis(es) Requested										Comments							
				Quantity	Type	Matrix	PCDA PPOS	UCMR3 PFAS List 6	537.1 List: 14 or 18 (Circle One)	EPA Dnpt List of 24	OTHER: Please attach analyte list	PFAS by Isotope Dilution	PCDA PPOS		UCMR3 PFAS List 6	537.1 List of 14	537.1 List of 18	EPA Method 537 (DW only)			
WI-CV-1RW14-1120	11/11/2020	14:10	Drinking Water	2	PP	DW														X	
WI-CV-1FB14-1120	11/11/2020	14:10	Drinking Water	2	PP	DW														X	
WI-CV-1RW22-1120	11/11/2020	15:05	Drinking Water	2	PP	DW														X	
WI-CV-1FB22-1120	11/11/2020	15:05	Drinking Water	2	PP	DW														X	
WI-CV-1RW90-1120	11/11/2020	16:05	Drinking Water	2	PP	DW														X	
WI-CV-1RW90P-1120	11/11/2020	16:10	Drinking Water	2	PP	DW														X	
WI-CV-1FB90-1120	11/11/2020	16:05	Drinking Water	2	PP	DW														X	
WI-CV-1RW40-1120	11/11/2020	13:10	Drinking Water	2	PP	DW														X	
WI-CV-1FB40-1120	11/11/2020	13:10	Drinking Water	2	PP	DW														X	

SHIP TO: Vista Analytical Laboratory
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 673-1520 * Fax (916) 673-0106
 ATTN: Martha Maier

Method of Shipment: FedEx
 Tracking No.: _____

Special Instructions/Comments: _____

SEND DOCUMENTATION AND RESULTS TO:
 Name: Ginger Collins
 Company: CH2M Hill (Jacobs)
 Address: _____
 City: _____
 Phone: 541-768-3615
 Email: ginger.collins@jacobs.com

Container Types: P= HDPE, PJ= HDPE Jar
 PY= Polypropylene, O = Other: _____
 Bottle Preservation Type:
 TZ = Trizma: _____
 Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
 SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: _____



CHAIN OF CUSTODY

cooler 1 1 of 2

For Laboratory Use Only

Work Order #: _____ Temp: _____ °C
Storage ID: _____ Storage Secured: Yes No

Project ID: 9000NVT8 PO#: 148019055 Sampler: J. Schrlau & J. Peery Lemon
(name)

TAT Standard: 21 days
(check one): Rush (surcharge may apply)
 14 days 7 days Specify: _____

<u>JWS</u> <u>Jill Schrlau</u>	<u>4/15/21</u>	<u>1500</u>			
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106
ATTN: Martha Maler

Method of Shipment: Fed EX
Tracking No.: _____

Quantity	Type	Matrix	PFAS by Isotope Dilution	EPA Method 537 (DW only)
Container(s)				
OTHER: Please attach analyte list				

Sample ID	Date	Time	Location/ Sample Description	Quantity	Type	Matrix	PFAS/PFOS	UCMR3 PFAS Lists	537.1 List: 14 or 18 (Circle One)	EPA Draft List of 24	OTHER: Please attach analyte list	PFAS/PFOS	UCMR3 PFAS Lists	537.1 List of 14	537.1 List of 18	Comments
✓ WI-CV-1RW01-0421	4/12/21	1031	Drinking Water	2	PY	DW										X
✓ WI-CV-1FB01-0421		1033														
✓ WI-CV-1RW07-0421		1053														
✓ WI-CV-1RW07P-0421		1054														
✓ WI-CV-1FB07-0421		1056														
✓ WI-CV-3RW17-0421		1105														
✓ WI-CV-3FB17-0421		1107														
✓ WI-CV-1RW14-0421		1417														
✓ WI-CV-1FB14-0421		1419														
✓ WI-CV-2RW04-0421		1439														

Special Instructions/Comment

SEND DOCUMENTATION AND RESULTS TO:

Name: Ginger Collins
Company: Cheryl Hill (Jacobs)
Address: _____
City: _____ State: _____ Zip: _____
Phone: 511-768-3615
Email: ginger.collins@jacobs.com

Container Types: P = HDPE, PJ = HDPE Jar
PY = Polypropylene, O = Other _____

Bottle Preservation Type:
TZ = Trizma: _____

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other _____

Scanned with CamScanner



CHAIN OF CUSTODY

cooler 1 2 of 2

For Laboratory Use Only

Work Order #: _____ Temp: _____ °C
 Storage ID: _____ Storage Secured: Yes No

Project ID: 9000NVT8

PO#: 148019055

Sampler: J. Schrlau & J. Paery Uman
 (name)

TAT Standard: 21 days
 (check one): Rush (surcharge may apply)
 14 days 7 days Specify: _____

Jill Schrlau Jr 4/15/21 1500
 Relinquished by (printed name and signature) Date Time Received by (printed name and signature) Date Time

Relinquished by (printed name and signature) Date Time Received by (printed name and signature) Date Time

SHIP TO: Vista Analytical Laboratory
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 673-1520 * Fax (916) 673-0106

ATTN: Martha Maler

Method of Shipment:
Fed Ex
 Tracking No.: _____

Add Analysis(es) Requested

Container(s)

PFAS by Isotope Dilution

EPA Method 537 (DW only)

Quantity Type Matrix
 PFOA/PFOS UCMR3 PFAS List:6
 537.1 List: 14 or 18 (Circle One)
 EPA Draft List of 24
 OTHER:
 Please attach analyte list

PFAS by Isotope Dilution

PFOA/PFOS UCMR3 PFAS List:6
 537.1 List of 14
 537.1 List of 18

Comments

Sample ID	Date	Time	Location/ Sample Description	Quantity	Type	Matrix	PFOA/PFOS	UCMR3 PFAS List:6	537.1 List: 14 or 18 (Circle One)	EPA Draft List of 24	OTHER: Please attach analyte list	PFOA/PFOS	UCMR3 PFAS List:6	537.1 List of 14	537.1 List of 18	Comments
✓ WI-CV-2FB04-0421	4/12/21	1442	Drinking water	2	PY	DW									X	
✓ WI-CV-1RW72-0421	↓	1608														
✓ WI-CV-1PB72-0421	↓	1610														
WI-AF-1RW08-0421	4/13/21	0815														
WI-AF-1PB08-0421	↓	0817														
WI-AF-1RW12-0421	↓	0912														
WI-AF-1RW12P-0421	↓	0914														
WI-AF-1PB12-0421	↓	0916														

Special Instructions/Comment

SEND DOCUMENTATION AND RESULTS TO:

Name: Ginger Collins
 Company: Ch2M Hill (Jacobs)
 Address: _____
 City: _____ State: _____ Zip: _____
 Phone: 541-768-3165
 Email: ginger.collins@jacobs.com

Container Types: P = HDPE, PJ = HDPE Jar
 PY = Polypropylene, O = Other _____

Bottle Preservation Type:
 TZ = Trizma: _____

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
 SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other _____



CHAIN OF CUSTODY

cooler 2 143

For Laboratory Use Only

Work Order #: _____ Temp: _____ °C
Storage ID: _____ Storage Secured: Yes No

Project ID: 9000NNT8 PO#: 148019055 Sampler: J. Schrlau & J. Peery Lemon
(name)

TAT (check one): 21 days 14 days 7 days
Standard: 21 days 7 days
Rush (surcharge may apply) Specify: _____

Relinquished by (printed name and signature) Jill Schrlau Date 4/16/21 Time 1530
Received by (printed name and signature) _____ Date _____ Time _____

Relinquished by (printed name and signature) _____ Date _____ Time _____
Received by (printed name and signature) _____ Date _____ Time _____

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

ATTN: Martina Maler

Method of Shipment: FedEx
Tracking No.: _____

Add Analysis(es) Requested

Container(s)

PFAS by Isotope Dilution

EPA Method 537 (DW only)

Quantity Type Matrix PFOA/PFOS UCMR3 PFAS List 5 537.1 List: 14 or 18 (Circle One) EPA Draft List of 24

OTHER: Please attach analyte list

PFOA/PFOS UCMR3 PFAS List 5 537.1 List of 14 537.1 List of 18

Comments

Sample ID	Date	Time	Location/ Sample Description	Quantity	Type	Matrix	PFOA/PFOS	UCMR3 PFAS List 5	537.1 List: 14 or 18 (Circle One)	EPA Draft List of 24	OTHER: Please attach analyte list	PFOA/PFOS	UCMR3 PFAS List 5	537.1 List of 14	537.1 List of 18	Comments	
WI-AF-1RW68-0421	4/13/21	0815	Drinking water	2	PY	DW											
WI-AF-1FB08-0421		0817															
WI-AF-1RW12-0421		0912															
WI-AF-1RW12P-0421		0914															
WI-AF-1FB12-0421		0916															
✓ WI-AF-1RW33-0421		1002															
✓ WI-AF-1FB33-0421		1004															
✓ WI-AF-1RW28-0421		1019															
WI-AF-1RW28-0421-MS		1019															
WI-AF-1RW28-0421-MSD		1019															

Special Instructions/Comment

SEND DOCUMENTATION AND RESULTS TO:

Name: Ginger Collins
Company: CH2M Hill (Jacobs)
Address: _____
City: _____ State: _____ Zip: _____
Phone: 511-768-3615
Email: ginger.collins@jacobs.com

Container Types: P = HDPE, PJ = HDPE Jar
PY = Polypropylene, O = Other _____

Bottle Preservation Type:
TZ = Trizma: _____

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other _____



CHAIN OF CUSTODY

For Laboratory Use Only
 Work Order #: _____ Temp: _____ °C
 Storage ID: _____ Storage Secured: Yes No

Project ID: 9000NYT8 PO#: 148019055 Sampler: J. Schrlau & J. Peony
 (name) Lemo

TAT Standard: 21 days
 (check one): Rush (surcharge may apply) 14 days 7 days Specify: _____

Jill Schrlau Ju 4/15/21 1500
 Relinquished by (printed name and signature) Date Time Received by (printed name and signature) Date Time

Relinquished by (printed name and signature) Date Time Received by (printed name and signature) Date Time

SHIP TO: Vista Analytical Laboratory
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 673-1520 * Fax (916) 673-0106
 ATTN: Martha Maler

Method of Shipment: FedEx
 Tracking No.: _____

Quantity	Type	Matrix	PFON/ PFOS	UCMR3 PFAS Lists	537.1 List: 14 or 18 (Circle One)	EPA Draft List of 24	OTHER: Please attach analyte list	PFON/ PFOS	UCMR3 PFAS Lists	537.1 List of 14	537.1 List of 18	EPA Method 537 (DW only)	Comments
2	PY	DW											

Sample ID	Date	Time	Location/ Sample Description	Quantity	Type	Matrix	PFON/ PFOS	UCMR3 PFAS Lists	537.1 List: 14 or 18 (Circle One)	EPA Draft List of 24	OTHER: Please attach analyte list	PFON/ PFOS	UCMR3 PFAS Lists	537.1 List of 14	537.1 List of 18	EPA Method 537 (DW only)	Comments	
✓ WI-AF-1FB28-0421	4/13/21	1021	Drinking water	2	PY	DW												
✓ WI-AQU-RW04-0421		1307																
✓ WI-AQU-FB04-0421		1309																
✓ WI-AQU-RW03-0421		1320																
✓ WI-AQU-RW03P-0421		1322																
✓ WI-AQU-FB03-0421		1324																
✓ WI-AF-1RW01-0421		1401																
✓ WI-AF-1FB01-0421		1403																
✓ WI-AF-1RW40-0421		1503																
✓ WI-AF-1FB40-0421		1505																

Special Instructions/Comment

SEND DOCUMENTATION AND RESULTS TO:
 Name: Ginger Collins
 Company: CH2M Hill (Jacobs)
 Address: _____
 City: _____ State: _____ Zip: _____
 Phone: 911-708-3015
 Email: ginger.collins@jacobs.com

Container Types: P = HDPE, PJ = HDPE Jar Bottle Preservation Type: _____
 PY = Polypropylene, O = Other TZ = Trizma: _____
 Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
 SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other

Scanned with CamScanner



CHAIN OF CUSTODY

Cooler 2 3 of 3

For Laboratory Use Only
 Work Order #: _____ Temp: _____ °C
 Storage ID: _____ Storage Secured: Yes No

Project ID: 9000NVT8 PO#: 148019055 Sampler: J. Schrlau & J. Peery
 (name) Lenora

TAT Standard: 21 days
 (check one): Rush (surcharge may apply) 14 days 7 days Specify: _____

<u>Jill Schrlau</u> Relinquished by (printed name and signature)	<u>4/15/21</u> Date	<u>1500</u> Time	<u>J. Schrlau & J. Peery</u> Received by (printed name and signature)	<u>4/15/21</u> Date	<u>1500</u> Time
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

SHIP TO: Vista Analytical Laboratory
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 673-1520 * Fax (916) 673-0106

Method of Shipment: _____

Add Analysis(es) Requested

ATTN: _____

Tracking No.: _____

Container(s)

PFAS by Isotope Dilution

EPA Method 537 (DW only)

Quantity Type Matrix
 PFON/PFOS UCMR3 PFAS List:5
 537.1 List: 14 or 18 (Circle One)
 EPA Draft List of 24

OTHER: Please attach analyte list

PFON/PFOS UCMR3 PFAS List:5
 537.1 List of 14
 537.1 List of 18

Comments

Sample ID	Date	Time	Location/ Sample Description	Quantity	Type	Matrix	PFON/PFOS	UCMR3 PFAS List:5	537.1 List: 14 or 18 (Circle One)	EPA Draft List of 24	OTHER: Please attach analyte list	PFON/PFOS	UCMR3 PFAS List:5	537.1 List of 14	537.1 List of 18	Comments
✓ WI-AF-3RW41-0421	4/13/21	1607	Drinking water	2	PY	DW										
✓ WI-AF-3RW41P-0421		1609														
✓ WI-AF-3RW41-0421 FB JES 4/13/21		1611														
WI-AF-1RW27-0421	4/14/21	0816														
WI-AF-1FB27-0421		0818														

Special Instructions/Comment

SEND DOCUMENTATION AND RESULTS TO:

Name: Ginger Collins
 Company: CH2M Hill (Jacobs)
 Address: _____
 City: _____ State: _____ Zip: _____
 Phone: 541-764-3615
 Email: ginger.collins@jacobs.com

Container Types: P = HDPE, PJ = HDPE Jar
 PY = Polypropylene, O = Other _____

Bottle Preservation Type:
 TZ = Trizma: _____

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
 SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other _____



CHAIN OF CUSTODY

cooler 3 2 of 2

For Laboratory Use Only
 Work Order #: _____ Temp: _____ °C
 Storage ID: _____ Storage Secured: Yes No

Project ID: 9000NVT8 PO#: 148019055 Sampler: J. Schrlau & Jordan Peery Lemon
 (name) Peery Lemon

TAT (check one): 21 days 14 days 7 days
 Standard: Rush (surcharge may apply) Specify: _____

Relinquished by (printed name and signature) Jill Schrlau Date 4/15/21 Time 1500
 Received by (printed name and signature) _____ Date _____ Time _____

Relinquished by (printed name and signature) _____ Date _____ Time _____
 Received by (printed name and signature) _____ Date _____ Time _____

SHIP TO: Vista Analytical Laboratory
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 673-1520 * Fax (916) 673-0106
 ATTN: Martha Malar

Method of Shipment: FedEx
 Tracking No.: _____

Quantity	Type	Matrix	PFOA/PFOS	UCMR3 PFAS List 6	537.1 List 14 or 18 (Circle One)	EPA Draft List of 24	OTHER: Please attach analyte list	PFOA/PFOS	UCMR3 PFAS List 8	537.1 List of 14	537.1 List of 18	EPA Method 537 (DW only)	Comments
2	PY	DW											X

Sample ID	Date	Time	Location/ Sample Description
WI-CV-1FB22-0421	4/14/21	1027	Drinking Water
WI-CV-1RW67-0421		1142	
WI-CV-1RW67-0421-MS		1142	
WI-CV-1RW67-0421-MSD		1142	
WI-CV-1FB67-0421		1144	
WI-CV-1RW40-0421		1311	
WI-CV-1FB40-0421		1313	
WI-CV-3RW10-0421		1400	
WI-CV-3FB10-0421		1402	
WI-CV-3RW07-0421			

Special Instructions/Comment

SEND DOCUMENTATION AND RESULTS TO:

Name: Ginger Collins
 Company: CH2M Hill (Jacobs)
 Address: _____
 City: _____ State: _____ Zip: _____
 Phone: 511-708-3015
 Email: ginger.collins@jacobs.com

Container Types: P = HDPE, PJ = HDPE Jar
 PY = Polypropylene, O = Other _____

Bottle Preservation Type:
 TZ = Trizma: _____

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment
 SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other _____



CHAIN OF CUSTODY

cooler 4 1 of 2

For Laboratory Use Only
 Work Order #: _____ Temp: _____ °C
 Storage ID: _____ Storage Secured: Yes No

Project ID: 9000NVT8 PO#: 148019055 Sampler: J. Schriau & J. Peery
 (name) lemon

TAT Standard: 21 days
 (check one): Rush (surcharge may apply)
 14 days 7 days Specify: _____

<u>Jordan Peery - lemon</u>	<u>4/15/21</u>	<u>1500</u>		
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date Time
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date Time

SHIP TO: Vista Analytical Laboratory
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 673-1520 * Fax (916) 673-0106

Method of Shipment: FedEx
 Tracking No.: _____

ATTN: Martha Maler

Add Analysis(es) Requested

Container(s)

PFAS by Isotope Dilution

EPA Method 537 (DW only)

Quantity Type Matrix PFOA/PPOS UCMR3 PFAS Lists 537.1 List of 14 or 18 (Circle One) EPA Draft List of 24 OTHER: Please attach analyte list

PFOA/PPOS UCMR3 PFAS Lists 537.1 List of 14 537.1 List of 18

Sample ID	Date	Time	Location/ Sample Description	Quantity	Type	Matrix	PFOA/PPOS	UCMR3 PFAS Lists	537.1 List of 14 or 18 (Circle One)	EPA Draft List of 24	OTHER: Please attach analyte list	PFOA/PPOS	UCMR3 PFAS Lists	537.1 List of 14	537.1 List of 18	Comments
WI-CN-3RW07-0421	4/14/21	1420	Drinking water	2	PY	DW										
WI-CN-3FB07-0421		1422														
WI-2RW02-0421		1533														
WI-2FB02-0421		0847 1535														
WI-AF-3RW18-0421	4/15/21	0849														
WI-AF-3FB18-0421		0849														
WI-A00-RW05-0421		0915														
WI-A00-PB05-0421		0917														
WI-A00-RW05-0421-MS		0915														
WI-A00-RW05-0421-MSD		0915														

Special Instructions/Comment

SEND DOCUMENTATION AND RESULTS TO:

Name: Ginger Collins
 Company: CH2M Hill (Jacobs)
 Address: _____
 City: _____ State: _____ Zip: _____
 Phone: 911-708-3015
 Email: ginger.collins@jacobs.com

Container Types: P = HDPE, PJ = HDPE Jar
 PY = Polypropylene, O = Other _____

Bottle Preservation Type:
 TZ = Trizma: _____

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
 SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other _____



CHAIN OF CUSTODY

cooler 4 2 of 2

For Laboratory Use Only
 Work Order #: _____ Temp: _____ °C
 Storage ID: _____ Storage Secured: Yes No

Project ID: 9000NVT8 PO#: 148019055 Sampler: J. Schlaw & J. Peery
 (name) Lemon

TAT Standard: 21 days
 (check one): Rush (surcharge may apply) 14 days 7 days Specify: _____

<u>Jordan Peery-Lemon</u>	<u>4/15/21</u>	<u>1500</u>			
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

SHIP TO: Vista Analytical Laboratory
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 673-1520 * Fax (916) 673-0106
 ATTN: Martha Maler
 Method of Shipment: FedEx
 Tracking No.: _____

Add Analysis(es) Requested	
Container(s)	PFAS by Isotope Dilution
Quantity	EPA Method 537 (DW only)
Type	PFAS by Isotope Dilution
Matrix	PFAS by Isotope Dilution
PFOA/PFOS	PFAS by Isotope Dilution
UCMR3 PFAS List: 6	PFAS by Isotope Dilution
537.1 List: 14 or 18 (Circle One)	PFAS by Isotope Dilution
EPA Draft List of 24	PFAS by Isotope Dilution
OTHER: Please attach analyte list	PFAS by Isotope Dilution
PFOA/PFOS	PFAS by Isotope Dilution
UCMR3 PFAS List: 6	PFAS by Isotope Dilution
537.1 List of 14	PFAS by Isotope Dilution
537.1 List of 18	PFAS by Isotope Dilution

Sample ID	Date	Time	Location/ Sample Description	Quantity	Type	Matrix	PFOA/PFOS	UCMR3 PFAS List: 6	537.1 List: 14 or 18 (Circle One)	EPA Draft List of 24	OTHER: Please attach analyte list	PFOA/PFOS	UCMR3 PFAS List: 6	537.1 List of 14	537.1 List of 18	Comments
<u>WI-ADU-R24-0421</u>	<u>4/15/21</u>	<u>0950</u>	<u>Drinking water</u>	<u>2</u>	<u>PY</u>	<u>DW</u>										<u>X</u>
<u>WI-ADU-FB24-0421</u>		<u>0952</u>														
<u>WI-ADU-RW20-0421</u>		<u>0932</u>														
<u>WI-ADU-FB20-0421</u>		<u>0934</u>														
<u>WI-AF-RW25-0421</u>		<u>1143</u>														
<u>WI-AF-1FB25-0421</u>		<u>1145</u>														
<u>WI-AF-RW14-0421</u>		<u>1207</u>														
<u>WI-AF-FB14-0421</u>		<u>1209</u>														<u>X</u>

Special Instructions/Comment

SEND DOCUMENTATION AND RESULTS TO:
 Name: Ginger Collins
 Company: CH2M Hill (Jacobs)
 Address: _____
 City: _____ State: _____ Zip: _____
 Phone: 541-768-3615
 Email: ginger.collins@jacobs.com

Container Types: P = HDPE, PJ = HDPE Jar
 PY = Polypropylene, O = Other _____
 Bottle Preservation Type: TZ = Trizma: _____
 Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
 SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other _____

Scanned with CamScanner



CHAIN OF CUSTODY

Cooler 1 1 of 1

For Laboratory Use Only
 Work Order #: 2104195 Temp: 5.6 °C
 Storage ID: R-13, WQ-2, A-4, E-5 Storage Secured: Yes No

Project ID: 9000NNT8 PO#: 148019055 Sampler: J. Schrlau & J. Peery
 (name) Lemon

TAT Standard: 21 days
 (check one): Rush (surcharge may apply) 14 days 7 days Specify: _____

Relinquished by (printed name and signature) Eric Cutler Date 4-19-21 Time 13:00 Received by (printed name and signature) Justin Briseño Date 04/20/21 Time 09:32

Relinquished by (printed name and signature) _____ Date _____ Time _____ Received by (printed name and signature) _____ Date _____ Time _____

SHIP TO: Vista Analytical Laboratory
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 673-1520 * Fax (916) 673-0106

ATTN: Martha Maler

Method of Shipment: FedEx
 Tracking No.: _____

Add Analysis(es) Requested

Container(s)

Quantity	Type	Matrix	PFOA/PFOS	UCMR3 PFAS List 6	537.1 List: 14 or 18 (Circle One)	EPA Draft List of 24	OTHER: Please attach analyte list	PFOA/PFOS	UCMR3 PFAS List 6	537.1 List of 14	537.1 List of 18	EPA Method 537 (DW only)	PFAS by Isotope Dilution
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Sample ID	Date	Time	Location/ Sample Description	Quantity	Type	Matrix	PFOA/PFOS	UCMR3 PFAS List 6	537.1 List: 14 or 18 (Circle One)	EPA Draft List of 24	OTHER: Please attach analyte list	PFOA/PFOS	UCMR3 PFAS List 6	537.1 List of 14	537.1 List of 18	Comments
<u>WI-CV-3RW11-0421</u>	<u>4/16/21</u>	<u>0909</u>	<u>Drinking water</u>	<u>2</u>	<u>PV</u>	<u>DW</u>										<u>X</u>
<u>WI-CV-3RW11P-0421</u>	<u>1</u>	<u>0911</u>														
<u>WI-CV-3FB11-0421</u>	<u>1</u>	<u>0913</u>														
<u>WI-CV-3RW18-0421</u>	<u>1</u>	<u>1019</u>														
<u>WI-CV-3FB18-0421</u>	<u>1</u>	<u>1021</u>														
<u>WI-CV-1RW37-0421</u>	<u>1</u>	<u>1041</u>														
<u>WI-CV-1FB37-0421</u>	<u>1</u>	<u>1043</u>														
<u>WI-CV-4E-POL-0421</u>	<u>1</u>	<u>1325</u>														
<u>WI-POL-PB19-0421</u>	<u>1</u>	<u>1327</u>														

Special Instructions/Comment

SEND DOCUMENTATION AND RESULTS TO:

Name: Ginger Collins
 Company: CH2M (Jacobs)
 Address: _____
 City: _____ State: _____ Zip: _____
 Phone: 541-768-3615
 Email: ginger.collins@jacobs.com

Container Types: P = HDPE, PJ = HDPE Jar
 PY = Polypropylene, O = Other _____
 Bottle Preservation Type: _____
 TZ = Trizma: _____
 Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
 SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other _____



CHAIN OF CUSTODY

Cooler 1 2 of 2

For Laboratory Use Only
 Work Order #: 2104195 Temp: 5.0 °C
 Storage ID: R-13, WR-2, A-4 Storage Secured: Yes No
E-5

Project ID: 9000NVT8 PO#: 148019055 Sampler: J. Schriener & J. Peery
 (name) Lemon

TAT Standard: 21 days
 (check one): Rush (surcharge may apply) 14 days 7 days Specify: _____

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
			<u>Justin Briseno</u>	<u>04/20/21</u>	<u>09:32</u>
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

Sample ID	Date	Time	Location/ Sample Description	Quantity	Type	Matrix	Add Analysis(es) Requested				OTHER: Please attach analyte list	PFAS by Isotope Dilution	EPA Method 537 (DW only)	Comments			
							Containers(s)	PFOS/PFOA	UCMR3 PFAS List 8	537.1 List: 14 or 18 (Circle One)					537.1 List of 24	PFOS/PFOA	UCMR3 PFAS List 8
SHIP TO: Vista Analytical Laboratory 1104 Windfield Way El Dorado Hills, CA 95762 (916) 673-1520 * Fax (916) 673-0106 ATTN: <u>Martha Maler</u>	Method of Shipment: <u>FedEx</u>			Tracking No.: _____													
WI-AF-1RW32-0421	4/16/21	1239	Drinking water	2	PY	DW											
WI-AF-1FB32-0421		1241															
WI-AF-1RW51-0421		1415															
WI-AF-1FB51-0421		1417															
WI-AD6-RW08-0421		1330 1346															
WI-AD6-FB08-0421		1348															
WI-AF-1RW32PP-0421		1243															
WI-AF-1FB32PP-0421		1245															

Special Instructions/Comment _____

SEND DOCUMENTATION AND RESULTS TO:

Name: Ginger Collins
 Company: CHEM (Jacobs)
 Address: _____
 City: _____ State: _____ Zip: _____
 Phone: 541-708-3615
 Email: ginger.collins@jacobs.com

Container Types: P = HDPE, PJ = HDPE Jar
 PY = Polypropylene, O = Other _____

Bottle Preservation Type:
 TZ = Trizma: X

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
 SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other _____



Submit by Email

FOR LABORATORY USE ONLY

Laboratory Project ID: 2104240 Temp 3.3 °C
 Storage ID: R-11, W-2 Storage Secured: Yes No

CHAIN OF CUSTODY RECORD

Project I.D.: 900AVTB P.O. #: 148019055 Sampler: E. Cutler J. Peery Lemon
(Name)

TAT: (Check One)
 Standard 21 days
 Rush (surcharge may apply)
 14 days 7 days Specify: _____

Invoice to: Name _____ Company CH2M Address 1100 112 Ave NE St500 City Belleve, WA State WA Zip 98004 Ph# _____ Fax # _____

Relinquished by: (Printed Name and Signature) Eric Cutler Date: 4-22-21 Time: 1100 Received by: (Signature and Printed Name) Justin Bisento Date: 04-23-21 Time: 09:43
 Relinquished by: (Printed Name and Signature) _____ Date: _____ Time: _____ Received by: (Signature and Printed Name) _____ Date: _____ Time: _____

See "Sample Log-in Checklist" for additional sample information

SHIP TO: Vista Analytical Laboratory
 1104 Windfield Way
 El Dorado Hills, CA 95762
 (916) 673-1520 • Fax (916) 673-0106
 Method of Shipment: Fed Ex
 Tracking No.: _____
 ATTN: Martha Majer

Add Analysis(es) Requested
EPA1613 EPA8290 EPA8280 EPA1668 EPA1614 CARB429

Quantity	Type	Matrix	Container(s)												
			2378-TCDD	2378-TCDF/TCDE	PCDD/PCDF	2378-TCDD	2378-TCDF/TCDE	PCDD/PCDF	2378-TCDD	2378-TCDF/TCDE	PCDD/PCDF	TOTALS	COPLANAR PCBs	209 CONGENERS	PBDE

Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	2378-TCDD	2378-TCDF/TCDE	PCDD/PCDF	2378-TCDD	2378-TCDF/TCDE	PCDD/PCDF	2378-TCDD	2378-TCDF/TCDE	PCDD/PCDF	TOTALS	COPLANAR PCBs	209 CONGENERS	PBDE	PAH	WTO-29	PFAS	
<u>WI-CV-1RW90-0421</u>	<u>4-21-21</u>	<u>1550</u>	<u>Drinking Water</u>	<u>2</u>	<u>PV/DW</u>																	<input checked="" type="checkbox"/>	
<u>WI-CV-1FB90-0421</u>	<u>4-21-21</u>	<u>1555</u>	<u>I</u>	<u>1</u>	<u>I</u>																	<input checked="" type="checkbox"/>	

Special Instructions/Comments: _____

SEND DOCUMENTATION AND RESULTS TO:

Name: Ginger Collins
 Company: CH2M (Jacobs)
 Address: _____
 City: _____ State: _____ Zip: _____
 Phone: 541-768-3615 Fax: _____
 Email: ginger.collins@jacobs.com

Container Types: A = 1 Liter Amber, G = Glass Jar
 P = PUF, T = MM5 Train, O = Other _____

*Bottle Preservative Type: T = Thiosulfate,
 O = Other FZ = TriZma

Matrix Types: DW = Drinking Water, EF = Effluent, PP = Pulp/Paper,
 SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum

Attachment 2
Raw Data Tables

Whidbey Island
CTO 4384
Unvalidated Results

Sample ID	WI-AF-1FB25-1220	WI-AF-1RW25-1220	WI-AF-3FB18-1220	WI-AF-3RW18-1220
Sample Date	12/30/20	12/30/20	12/30/20	12/30/20
Chemical Name				
Semivolatile Organic Compounds (NG/L)				
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.48 U	1.58 U	1.46 U	1.5 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.48 U	1.58 U	1.46 U	1.5 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	1.48 U	1.58 U	1.46 U	1.5 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	1.48 U	1.58 U	1.46 U	1.5 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	1.48 U	1.58 U	1.46 U	1.5 U
Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	1.48 U	1.58 U	1.46 U	1.5 U
Perfluorobutanesulfonic acid (PFBS)	1.48 U	1.58 U	1.46 U	1.5 U
Perfluorodecanoic Acid (PFDA)	1.48 U	1.58 U	1.46 U	1.5 U
Perfluorododecanoic Acid (PFDoA)	1.48 U	1.58 U	1.46 U	1.5 U
Perfluoroheptanoic acid (PFHpA)	1.48 U	1.58 U	1.46 U	1.5 U
Perfluorohexanesulfonic acid (PFHxS)	1.48 U	1.58 U	1.46 U	1.5 U
Perfluorohexanoic Acid (PFHxA)	1.48 U	1.58 U	1.46 U	1.5 U
Perfluorononanoic acid (PFNA)	1.48 U	1.58 U	1.46 U	1.5 U
Perfluorooctane Sulfonate (PFOS)	1.48 U	1.58 U	1.46 U	1.5 U
Perfluorooctanoic acid (PFOA)	1.48 U	1.58 U	1.46 U	1.5 U
Perfluorotetradecanoic Acid (PFTeDA)	1.48 U	1.58 U	1.46 U	1.5 U
Perfluorotridecanoic Acid (PFTrDA)	1.48 U	1.58 U	1.46 U	1.5 U
Perfluoroundecanoic Acid (PFUnA)	1.48 U	1.58 U	1.46 U	1.5 U

Notes:

NG/L - Nanograms per liter

U - The material was analyzed for, but not detected

CTO4384 Whidbey Island Residential DW

Sample ID	WI-A06-FB03-1120	WI-A06-FB04-1120	WI-A06-FB05-1120	WI-A06-FB14-1120	WI-A06-FB19-1120	WI-A06-FB24-1120	WI-A06-RW03-1120	WI-A06-RW03P-1120
Sample Date	11/12/20	11/12/20	11/12/20	11/12/20	11/10/20	11/10/20	11/12/20	11/12/20
Chemical Name								
Semivolatile Organic Compounds (NG/L)								
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.49 U	1.5 U	1.45 U	1.51 U	1.49 U	1.49 U	1.45 U	1.54 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.49 U	1.5 U	1.45 U	1.51 U	1.49 U	1.49 U	1.45 U	1.54 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	1.49 U	1.5 U	1.45 U	1.51 U	1.49 U	1.49 U	1.45 U	1.54 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	1.49 U	1.5 U	1.45 U	1.51 U	1.49 U	1.49 U	1.45 U	1.54 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	1.49 U	1.5 U	1.45 U	1.51 U	1.49 U	1.49 U	1.45 U	1.54 U
Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	1.49 U	1.5 U	1.45 U	1.51 U	1.49 U	1.49 U	1.45 U	1.54 U
Perfluorobutanesulfonic acid (PFBS)	1.49 U	1.5 U	1.45 U	1.51 U	1.49 U	1.49 U	35.2	34.5
Perfluorodecanoic Acid (PFDA)	1.49 U	1.5 U	1.45 U	1.51 U	1.49 U	1.49 U	1.45 U	1.54 U
Perfluorododecanoic Acid (PFDoA)	1.49 U	1.5 U	1.45 U	1.51 U	1.49 U	1.49 U	1.45 U	1.54 U
Perfluoroheptanoic acid (PFHpA)	1.49 U	1.5 U	1.45 U	1.51 U	1.49 U	1.49 U	19.5	19.3
Perfluorohexanesulfonic acid (PFHxS)	1.49 U	1.5 U	1.45 U	1.51 U	1.49 U	1.49 U	117	103
Perfluorohexanoic Acid (PFHxA)	1.49 U	1.5 U	1.45 U	1.51 U	1.49 U	1.49 U	56.4	54.4
Perfluorononanoic acid (PFNA)	1.49 U	1.5 U	1.45 U	1.51 U	1.49 U	1.49 U	1.45 U	1.54 U
Perfluorooctane Sulfonate (PFOS)	1.49 U	1.5 U	1.45 U	1.51 U	1.49 U	1.49 U	15.4	15.7
Perfluorooctanoic acid (PFOA)	1.49 U	1.5 U	1.45 U	1.51 U	1.49 U	1.49 U	37.2	35.1
Perfluorotetradecanoic Acid (PFTeDA)	1.49 U	1.5 U	1.45 U	1.51 U	1.49 U	1.49 U	1.45 U	1.54 U
Perfluorotridecanoic Acid (PFTTrDA)	1.49 U	1.5 U	1.45 U	1.51 U	1.49 U	1.49 U	1.45 U	1.54 U
Perfluoroundecanoic Acid (PFUnA)	1.49 U	1.5 U	1.45 U	1.51 U	1.49 U	1.49 U	1.45 U	1.54 U

Notes:

DD - Analyte reported from a dilution

DDE - Analyte exceeds the calibration range and is reported from a dilution

J - Analyte present. Value may or may not be accurate or precise

NG/L - Nanograms per liter

NS - Not sampled

U - The material was analyzed for, but not detected

CTO4384 Whidbey Island Residential DW

Sample ID	WI-A06-RW04-1120	WI-A06-RW05-1120	WI-A06-RW14-1120	WI-A06-RW19-1120	WI-A06-RW24-1120	WI-AF-1FB01-1120	WI-AF-1FB12-1120	WI-AF-1FB28-1120
Sample Date	11/12/20	11/12/20	11/12/20	11/10/20	11/10/20	11/12/20	11/10/20	11/12/20
Chemical Name								
Semivolatile Organic Compounds (NG/L)								
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.51 U	1.45 U	1.49 U	1.49 U	1.51 U	1.51 U	1.48 U	1.49 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.51 U	1.45 U	1.49 U	1.49 U	1.51 U	1.51 U	1.48 U	1.49 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	1.51 U	1.45 U	1.49 U	1.49 U	1.51 U	1.51 U	1.48 U	1.49 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	1.51 U	1.45 U	1.49 U	1.49 U	1.51 U	1.51 U	1.48 U	1.49 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	1.51 U	1.45 U	1.49 U	1.49 U	1.51 U	1.51 U	1.48 U	1.49 U
Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	1.51 U	1.45 U	1.49 U	1.49 U	1.51 U	1.51 U	1.48 U	1.49 U
Perfluorobutanesulfonic acid (PFBS)	32.5	20.6	55.9	55.3	22	1.51 U	1.48 U	1.49 U
Perfluorodecanoic Acid (PFDA)	1.51 U	1.45 U	1.49 U	1.49 U	1.51 U	1.51 U	1.48 U	1.49 U
Perfluorododecanoic Acid (PFDoA)	1.51 U	1.45 U	1.49 U	1.49 U	1.51 U	1.51 U	1.48 U	1.49 U
Perfluoroheptanoic acid (PFHpA)	3.17	15.4	16.7	32.1	8.22	1.51 U	1.48 U	1.49 U
Perfluorohexanesulfonic acid (PFHxS)	75.1	170	220	211	367	1.51 U	1.48 U	1.49 U
Perfluorohexanoic Acid (PFHxA)	5.6	45.2	65.2	69.7	59.5	1.51 U	1.48 U	1.49 U
Perfluorononanoic acid (PFNA)	1.51 U	1.03 J	1.49 U	2.76	1.51 U	1.51 U	1.48 U	1.49 U
Perfluorooctane Sulfonate (PFOS)	5.81	62.3	14.4	89.3	206	1.51 U	1.48 U	1.49 U
Perfluorooctanoic acid (PFOA)	6.23	53.5	24.2	46.5	52.1	1.51 U	1.48 U	1.49 U
Perfluorotetradecanoic Acid (PFTeDA)	1.51 U	1.45 U	1.49 U	1.49 U	1.51 U	1.51 U	1.48 U	1.49 U
Perfluorotridecanoic Acid (PFTTrDA)	1.51 U	1.45 U	1.49 U	1.49 U	1.51 U	1.51 U	1.48 U	1.49 U
Perfluoroundecanoic Acid (PFUnA)	1.51 U	1.45 U	1.49 U	1.49 U	1.51 U	1.51 U	1.48 U	1.49 U

Notes:

DD - Analyte reported from a dilution

DDE - Analyte exceeds the calibration range and is reported from a dilution

J - Analyte present. Value may or may not be accurate or precise

NG/L - Nanograms per liter

NS - Not sampled

U - The material was analyzed for, but not detected

CTO4384 Whidbey Island Residential DW

Sample ID	WI-AF-1FB32-1120	WI-AF-1FB33-1120	WI-AF-1FB40-1120	WI-AF-1FB68-1120	WI-AF-1RW01-1120	WI-AF-1RW12-1120	WI-AF-1RW12P-1120	WI-AF-1RW28-1120
Sample Date	11/10/20	11/10/20	11/10/20	11/10/20	11/12/20	11/10/20	11/10/20	11/12/20
Chemical Name								
Semivolatile Organic Compounds (NG/L)								
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.45 U	1.45 U	1.49 U	1.48 U	1.51 U	1.48 U	1.53 U	1.48 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.45 U	1.45 U	1.49 U	1.48 U	1.51 U	1.48 U	1.53 U	1.48 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	1.45 U	1.45 U	1.49 U	1.48 U	1.51 U	1.48 U	1.53 U	1.48 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	1.45 U	1.45 U	1.49 U	1.48 U	1.51 U	1.48 U	1.53 U	1.48 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	1.45 U	1.45 U	1.49 U	1.48 U	1.51 U	1.48 U	1.53 U	1.48 U
Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	1.45 U	1.45 U	1.49 U	1.48 U	1.51 U	1.48 U	1.53 U	1.48 U
Perfluorobutanesulfonic acid (PFBS)	1.45 U	1.45 U	1.49 U	1.48 U	1.51 U	1.58 J	1.49 J	2.72
Perfluorodecanoic Acid (PFDA)	1.45 U	1.45 U	1.49 U	1.48 U	1.51 U	1.48 U	1.53 U	1.48 U
Perfluorododecanoic Acid (PFDoA)	1.45 U	1.45 U	1.49 U	1.48 U	1.51 U	1.48 U	1.53 U	1.48 U
Perfluoroheptanoic acid (PFHpA)	1.45 U	1.45 U	1.49 U	1.48 U	1.51 U	1.48 U	1.53 U	3.77
Perfluorohexanesulfonic acid (PFHxS)	1.45 U	1.45 U	1.49 U	1.48 U	1.51 U	1.48 U	1.53 U	9.23
Perfluorohexanoic Acid (PFHxA)	1.45 U	1.45 U	1.49 U	1.48 U	1.51 U	0.959 J	0.832 J	5.85
Perfluorononanoic acid (PFNA)	1.45 U	1.45 U	1.49 U	1.48 U	1.51 U	1.48 U	1.53 U	1.48 U
Perfluorooctane Sulfonate (PFOS)	1.45 U	1.45 U	1.49 U	1.48 U	1.51 U	1.63 J	1.72 J	0.961 J
Perfluorooctanoic acid (PFOA)	1.45 U	1.45 U	1.49 U	1.48 U	1.51 U	2.24	2.35	31.4
Perfluorotetradecanoic Acid (PFTeDA)	1.45 U	1.45 U	1.49 U	1.48 U	1.51 U	1.48 U	1.53 U	1.48 U
Perfluorotridecanoic Acid (PFTrDA)	1.45 U	1.45 U	1.49 U	1.48 U	1.51 U	1.48 U	1.53 U	1.48 U
Perfluoroundecanoic Acid (PFUnA)	1.45 U	1.45 U	1.49 U	1.48 U	1.51 U	1.48 U	1.53 U	1.48 U

Notes:

DD - Analyte reported from a dilution

DDE - Analyte exceeds the calibration range and is reported from a dilution

J - Analyte present. Value may or may not be accurate or precise

NG/L - Nanograms per liter

NS - Not sampled

U - The material was analyzed for, but not detected

CTO4384 Whidbey Island Residential DW

Sample ID	WI-AF-1RW32-1120	WI-AF-1RW33-1120	WI-AF-1RW40-1120	WI-AF-1RW68-1120	WI-AF-3FB41-1120	WI-AF-3RW41-1120	WI-AF-3RW41P-1120	WI-CV-1FB01-1120
Sample Date	11/10/20	11/10/20	11/10/20	11/10/20	11/10/20	11/10/20	11/10/20	11/9/20
Chemical Name								
Semivolatile Organic Compounds (NG/L)								
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.58 U	1.46 U	1.51 U	1.5 U	1.45 U	1.51 U	1.52 U	1.48 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.58 U	1.46 U	1.51 U	1.5 U	1.45 U	1.51 U	1.52 U	1.48 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	1.58 U	1.46 U	1.51 U	1.5 U	1.45 U	1.51 U	1.52 U	1.48 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	1.58 U	1.46 U	1.51 U	1.5 U	1.45 U	1.51 U	1.52 U	1.48 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	1.58 U	1.46 U	1.51 U	1.5 U	1.45 U	1.51 U	1.52 U	1.48 U
Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	1.58 U	1.46 U	1.51 U	1.5 U	1.45 U	1.51 U	1.52 U	1.48 U
Perfluorobutanesulfonic acid (PFBS)	1,580 DD	63.7	1.6 J	1.5 U	1.45 U	50.5	49.4	1.48 U
Perfluorodecanoic Acid (PFDA)	1.01 J	1.46 U	1.51 U	1.5 U	1.45 U	1.51 U	1.52 U	1.48 U
Perfluorododecanoic Acid (PFDoA)	1.58 U	1.46 U	1.51 U	1.5 U	1.45 U	1.51 U	1.52 U	1.48 U
Perfluoroheptanoic acid (PFHpA)	94.2	1.72 J	0.758 J	1.5 U	1.45 U	2.86	2.89	1.48 U
Perfluorohexanesulfonic acid (PFHxS)	13,000 DD	6.2	6	1.5 U	1.45 U	45.2	43.3	1.48 U
Perfluorohexanoic Acid (PFHxA)	1,010 DD	81.4	2.23	1.5 U	1.45 U	16	14.9	1.48 U
Perfluorononanoic acid (PFNA)	2.08 J	1.46 U	1.51 U	1.5 U	1.45 U	1.51 U	1.52 U	1.48 U
Perfluorooctane Sulfonate (PFOS)	43,100 DDE	1.46 U	3.78	1.5 U	1.45 U	14.1	12.3	1.48 U
Perfluorooctanoic acid (PFOA)	289	1.46 U	5.57	1.5 U	1.45 U	4.39	3.91	1.48 U
Perfluorotetradecanoic Acid (PFTeDA)	1.58 U	1.46 U	1.51 U	1.5 U	1.45 U	1.51 U	1.52 U	1.48 U
Perfluorotridecanoic Acid (PFTrDA)	1.58 U	1.46 U	1.51 U	1.5 U	1.45 U	1.51 U	1.52 U	1.48 U
Perfluoroundecanoic Acid (PFUnA)	1.58 U	1.46 U	1.51 U	1.5 U	1.45 U	1.51 U	1.52 U	1.48 U

Notes:

DD - Analyte reported from a dilution

DDE - Analyte exceeds the calibration range and is reported from a dilution

J - Analyte present. Value may or may not be accurate or precise

NG/L - Nanograms per liter

NS - Not sampled

U - The material was analyzed for, but not detected

Sample ID	WI-CV-1FB07-1120	WI-CV-1FB14-1120	WI-CV-1FB22-1120	WI-CV-1FB23-1120	WI-CV-1FB25-1120	WI-CV-1FB26-1120	WI-CV-1FB27-1120	WI-CV-1FB34-1120
Sample Date	11/9/20	11/11/20	11/11/20	11/11/20	11/11/20	11/11/20	11/11/20	11/9/20
Chemical Name								
Semivolatile Organic Compounds (NG/L)								
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.49 U	1.49 U	1.49 U	1.49 U	1.46 U	1.46 U	1.49 U	1.48 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.49 U	1.49 U	1.49 U	1.49 U	1.46 U	1.46 U	1.49 U	1.48 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	1.49 U	1.49 U	1.49 U	1.49 U	1.46 U	1.46 U	1.49 U	1.48 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	1.49 U	1.49 U	1.49 U	1.49 U	1.46 U	1.46 U	1.49 U	1.48 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	1.49 U	1.49 U	1.49 U	1.49 U	1.46 U	1.46 U	1.49 U	1.48 U
Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	1.49 U	1.49 U	1.49 U	1.49 U	1.46 U	1.46 U	1.49 U	1.48 U
Perfluorobutanesulfonic acid (PFBS)	1.49 U	1.49 U	1.49 U	1.49 U	1.46 U	1.46 U	1.49 U	1.48 U
Perfluorodecanoic Acid (PFDA)	1.49 U	1.49 U	1.49 U	1.49 U	1.46 U	1.46 U	1.49 U	1.48 U
Perfluorododecanoic Acid (PFDoA)	1.49 U	1.49 U	1.49 U	1.49 U	1.46 U	1.46 U	1.49 U	1.48 U
Perfluoroheptanoic acid (PFHpA)	1.49 U	1.49 U	1.49 U	1.49 U	1.46 U	1.46 U	1.49 U	1.48 U
Perfluorohexanesulfonic acid (PFHxS)	1.49 U	1.49 U	1.49 U	1.49 U	1.46 U	1.46 U	1.49 U	1.48 U
Perfluorohexanoic Acid (PFHxA)	1.49 U	1.49 U	1.49 U	1.49 U	1.46 U	1.46 U	1.49 U	1.48 U
Perfluorononanoic acid (PFNA)	1.49 U	1.49 U	1.49 U	1.49 U	1.46 U	1.46 U	1.49 U	1.48 U
Perfluorooctane Sulfonate (PFOS)	1.49 U	1.49 U	1.49 U	1.49 U	1.46 U	1.46 U	1.49 U	1.48 U
Perfluorooctanoic acid (PFOA)	1.49 U	1.49 U	1.49 U	1.49 U	1.46 U	1.46 U	1.49 U	1.48 U
Perfluorotetradecanoic Acid (PFTeDA)	1.49 U	1.49 U	1.49 U	1.49 U	1.46 U	1.46 U	1.49 U	1.48 U
Perfluorotridecanoic Acid (PFTTrDA)	1.49 U	1.49 U	1.49 U	1.49 U	1.46 U	1.46 U	1.49 U	1.48 U
Perfluoroundecanoic Acid (PFUnA)	1.49 U	1.49 U	1.49 U	1.49 U	1.46 U	1.46 U	1.49 U	1.48 U

Notes:

DD - Analyte reported from a dilution

DDE - Analyte exceeds the calibration range and is reported from a dilution

J - Analyte present. Value may or may not be accurate or precise

NG/L - Nanograms per liter

NS - Not sampled

U - The material was analyzed for, but not detected

Sample ID	WI-CV-1FB40-1120	WI-CV-1FB90-1120	WI-CV-1RW01-1120	WI-CV-1RW07-1120	WI-CV-1RW07P-1120	WI-CV-1RW14-1120	WI-CV-1RW22-1120	WI-CV-1RW23-1120
Sample Date	11/11/20	11/11/20	11/9/20	11/9/20	11/9/20	11/11/20	11/11/20	11/11/20
Chemical Name								
Semivolatile Organic Compounds (NG/L)								
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.45 U	1.52 U	1.54 U	1.51 U	1.51 U	1.51 U	1.49 U	1.5 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.45 U	1.52 U	1.54 U	1.51 U	1.51 U	1.51 U	1.49 U	1.5 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	1.45 U	1.52 U	1.54 U	1.51 U	1.51 U	1.51 U	1.49 U	1.5 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	1.45 U	1.52 U	1.54 U	1.51 U	1.51 U	1.51 U	1.49 U	1.5 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	1.45 U	1.52 U	1.54 U	1.51 U	1.51 U	1.51 U	1.49 U	1.5 U
Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	1.45 U	1.52 U	1.54 U	1.51 U	1.51 U	1.51 U	1.49 U	1.5 U
Perfluorobutanesulfonic acid (PFBS)	1.45 U	1.52 U	24.1	32.7	30.6	1.51 U	1.49 U	16.3
Perfluorodecanoic Acid (PFDA)	1.45 U	1.52 U	1.54 U	1.51 U	1.51 U	1.51 U	1.49 U	1.5 U
Perfluorododecanoic Acid (PFDoA)	1.45 U	1.52 U	1.54 U	1.51 U	1.51 U	1.51 U	1.49 U	1.5 U
Perfluoroheptanoic acid (PFHpA)	1.45 U	1.52 U	20.2	15.6	14.9	1.51 U	1.49 U	9.94
Perfluorohexanesulfonic acid (PFHxS)	1.45 U	1.52 U	287	75.1	71.1	1.51 U	1.49 U	53.7
Perfluorohexanoic Acid (PFHxA)	1.45 U	1.52 U	79.5	83.7	77.9	1.51 U	1.49 U	44
Perfluorononanoic acid (PFNA)	1.45 U	1.52 U	1.54 U	1.51 U	1.51 U	1.51 U	1.49 U	1.5 U
Perfluorooctane Sulfonate (PFOS)	1.45 U	1.52 U	2.75	2.2	1.95 J	1.51 U	1.49 U	1.51 J
Perfluorooctanoic acid (PFOA)	1.45 U	1.52 U	271	231	219	1.51 U	1.49 U	57.9
Perfluorotetradecanoic Acid (PFTeDA)	1.45 U	1.52 U	1.54 U	1.51 U	1.51 U	1.51 U	1.49 U	1.5 U
Perfluorotridecanoic Acid (PFTTrDA)	1.45 U	1.52 U	1.54 U	1.51 U	1.51 U	1.51 U	1.49 U	1.5 U
Perfluoroundecanoic Acid (PFUnA)	1.45 U	1.52 U	1.54 U	1.51 U	1.51 U	1.51 U	1.49 U	1.5 U

Notes:

DD - Analyte reported from a dilution

DDE - Analyte exceeds the calibration range and is reported from a dilution

J - Analyte present. Value may or may not be accurate or precise

NG/L - Nanograms per liter

NS - Not sampled

U - The material was analyzed for, but not detected

CTO4384 Whidbey Island Residential DW

Sample ID	WI-CV-1RW25-1120	WI-CV-1RW26-1120	WI-CV-1RW26P-1120	WI-CV-1RW27-1120	WI-CV-1RW34-1120	WI-CV-1RW40-1120	WI-CV-1RW90-1120	WI-CV-1RW90P-1120
Sample Date	11/11/20	11/11/20	11/11/20	11/11/20	11/9/20	11/11/20	11/11/20	11/11/20
Chemical Name								
Semivolatile Organic Compounds (NG/L)								
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.51 U	1.51 U	1.54 U	1.56 U	1.54 U	1.5 U	1.49 U	1.49 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.51 U	1.51 U	1.54 U	1.56 U	1.54 U	1.5 U	1.49 U	1.49 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	1.51 U	1.51 U	1.54 U	1.56 U	1.54 U	1.5 U	1.49 U	1.49 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	1.51 U	1.51 U	1.54 U	1.56 U	1.54 U	1.5 U	1.49 U	1.49 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	1.51 U	1.51 U	1.54 U	1.56 U	1.54 U	1.5 U	1.49 U	1.49 U
Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	1.51 U	1.51 U	1.54 U	1.56 U	1.54 U	1.5 U	1.49 U	1.49 U
Perfluorobutanesulfonic acid (PFBS)	1.51 U	1.51 U	1.54 U	1.56 U	112	1.5 U	41.5	41.8
Perfluorodecanoic Acid (PFDA)	1.51 U	1.51 U	1.54 U	1.56 U	1.54 U	1.5 U	1.49 U	1.49 U
Perfluorododecanoic Acid (PFDoA)	1.51 U	1.51 U	1.54 U	1.56 U	1.54 U	1.5 U	1.49 U	1.49 U
Perfluoroheptanoic acid (PFHpA)	1.51 U	1.51 U	1.54 U	1.56 U	37.7	1.5 U	17.6	17.6
Perfluorohexanesulfonic acid (PFHxS)	1.51 U	1.51 U	1.54 U	1.56 U	98.2	1.5 U	191	189
Perfluorohexanoic Acid (PFHxA)	1.51 U	1.51 U	1.54 U	1.56 U	337	1.5 U	60.4	61.7
Perfluorononanoic acid (PFNA)	1.51 U	1.51 U	1.54 U	1.56 U	1.54 U	1.5 U	1.49 U	1.49 U
Perfluorooctane Sulfonate (PFOS)	1.51 U	1.51 U	1.54 U	1.56 U	1.54 U	1.5 U	10.3	10.2
Perfluorooctanoic acid (PFOA)	1.51 U	1.51 U	1.54 U	1.56 U	332	1.5 U	169	165
Perfluorotetradecanoic Acid (PFTeDA)	1.51 U	1.51 U	1.54 U	1.56 U	1.54 U	1.5 U	1.49 U	1.49 U
Perfluorotridecanoic Acid (PFTTrDA)	1.51 U	1.51 U	1.54 U	1.56 U	1.54 U	1.5 U	1.49 U	1.49 U
Perfluoroundecanoic Acid (PFUnA)	1.51 U	1.51 U	1.54 U	1.56 U	1.54 U	1.5 U	1.49 U	1.49 U

Notes:

DD - Analyte reported from a dilution

DDE - Analyte exceeds the calibration range and is reported from a dilution

J - Analyte present. Value may or may not be accurate or precise

NG/L - Nanograms per liter

NS - Not sampled

U - The material was analyzed for, but not detected

CTO4384 Whidbey Island Residential DW

Sample ID	WI-CV-3FB10-1120	WI-CV-3FB11-1120	WI-CV-3FB17-1120	WI-CV-3RW10-1120	WI-CV-3RW11-1120	WI-CV-3RW11P-1120	WI-CV-3RW17-1120
Sample Date	11/9/20	11/11/20	11/9/20	11/9/20	11/11/20	11/11/20	11/9/20
Chemical Name							
Semivolatile Organic Compounds (NG/L)							
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.51 U	1.44 U	1.52 U	1.51 U	1.52 U	1.51 U	1.55 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.51 U	1.44 U	1.52 U	1.51 U	1.52 U	1.51 U	1.55 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	1.51 U	1.44 U	1.52 U	1.51 U	1.52 U	1.51 U	1.55 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	1.51 U	1.44 U	1.52 U	1.51 U	1.52 U	1.51 U	1.55 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	1.51 U	1.44 U	1.52 U	1.51 U	1.52 U	1.51 U	1.55 U
Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	1.51 U	1.44 U	1.52 U	1.51 U	1.52 U	1.51 U	1.55 U
Perfluorobutanesulfonic acid (PFBS)	1.51 U	1.44 U	1.52 U	190	32.9	30.7	1.55 U
Perfluorodecanoic Acid (PFDA)	1.51 U	1.44 U	1.52 U	1.51 U	1.52 U	1.51 U	1.55 U
Perfluorododecanoic Acid (PFDoA)	1.51 U	1.44 U	1.52 U	1.51 U	1.52 U	1.51 U	1.55 U
Perfluoroheptanoic acid (PFHpA)	1.51 U	1.44 U	1.52 U	19.9	14.6	14.4	1.55 U
Perfluorohexanesulfonic acid (PFHxS)	1.51 U	1.44 U	1.52 U	80.9	80.4	76.8	1.55 U
Perfluorohexanoic Acid (PFHxA)	1.51 U	1.44 U	1.52 U	250	91.9	90.1	1.55 U
Perfluorononanoic acid (PFNA)	1.51 U	1.44 U	1.52 U	1.51 U	1.52 U	1.51 U	1.55 U
Perfluorooctane Sulfonate (PFOS)	1.51 U	1.44 U	1.52 U	2.12	1.92 J	1.5 J	1.55 U
Perfluorooctanoic acid (PFOA)	1.51 U	1.44 U	1.52 U	106	396	384	1.55 U
Perfluorotetradecanoic Acid (PFTeDA)	1.51 U	1.44 U	1.52 U	1.51 U	1.52 U	1.51 U	1.55 U
Perfluorotridecanoic Acid (PFTTrDA)	1.51 U	1.44 U	1.52 U	1.51 U	1.52 U	1.51 U	1.55 U
Perfluoroundecanoic Acid (PFUnA)	1.51 U	1.44 U	1.52 U	1.51 U	1.52 U	1.51 U	1.55 U

Notes:

DD - Analyte reported from a dilution

DDE - Analyte exceeds the calibration range and is reported from a dilution

J - Analyte present. Value may or may not be accurate or precise

NG/L - Nanograms per liter

NS - Not sampled

U - The material was analyzed for, but not detected

Whidbey Island Residential CTO 4384

Sample ID	WI-A06-FB18-1120	WI-A06-FB20-1120	WI-A06-RW18-1120	WI-A06-RW20-1120	WI-AF-1FB51-1120	WI-AF-1RW51-1120	WI-CV-1FB37-1120	WI-CV-1FB72-1120	WI-CV-1RW37-1120
Sample Date	11/18/20	11/18/20	11/18/20	11/18/20	11/18/20	11/18/20	11/13/20	11/18/20	11/13/20
Chemical Name									
Semivolatile Organic Compounds (NG/L)									
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUds)	1.49 U	1.49 U	1.53 U	1.54 U	1.48 U	1.48 U	1.51 U	1.47 U	1.5
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.49 U	1.49 U	1.53 U	1.54 U	1.48 U	1.48 U	1.51 U	1.47 U	1.5
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	1.49 U	1.49 U	1.53 U	1.54 U	1.48 U	1.48 U	1.51 U	1.47 U	1.5
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	1.49 U	1.49 U	1.53 U	1.54 U	1.48 U	1.48 U	1.51 U	1.47 U	1.5
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	1.49 U	1.49 U	1.53 U	1.54 U	1.48 U	1.48 U	1.51 U	1.47 U	1.5
Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	1.49 U	1.49 U	1.53 U	1.54 U	1.48 U	1.48 U	1.51 U	1.47 U	1.5
Perfluorobutanesulfonic acid (PFBS)	1.49 U	1.49 U	22.9	18.6	1.48 U	1.48 U	1.51 U	1.47 U	1.5
Perfluorodecanoic Acid (PFDA)	1.49 U	1.49 U	1.53 U	1.54 U	1.48 U	1.48 U	1.51 U	1.47 U	1.5
Perfluorododecanoic Acid (PFDoA)	1.49 U	1.49 U	1.53 U	1.54 U	1.48 U	1.48 U	1.51 U	1.47 U	1.5
Perfluoroheptanoic acid (PFHpA)	1.49 U	1.49 U	8.51	3.76	1.48 U	1.48 U	1.51 U	1.47 U	1.5
Perfluorohexanesulfonic acid (PFHxS)	1.49 U	1.49 U	91.3	122	1.48 U	1.48 U	1.51 U	1.47 U	1.5
Perfluorohexanoic Acid (PFHxA)	1.49 U	1.49 U	26.8	21.6	1.48 U	1.48 U	1.51 U	1.47 U	1.5
Perfluorononanoic acid (PFNA)	1.49 U	1.49 U	1.53 U	1.54 U	1.48 U	1.48 U	1.51 U	1.47 U	1.5
Perfluorooctane Sulfonate (PFOS)	1.49 U	1.49 U	18.6	27.4	1.48 U	1.48 U	1.51 U	1.47 U	1.5
Perfluorooctanoic acid (PFOA)	1.49 U	1.49 U	25.5	46.4	1.48 U	1.48 U	1.51 U	1.47 U	1.5
Perfluorotetradecanoic Acid (PFTeDA)	1.49 U	1.49 U	1.53 U	1.54 U	1.48 U	1.48 U	1.51 U	1.47 U	1.5
Perfluorotridecanoic Acid (PFTrDA)	1.49 U	1.49 U	1.53 U	1.54 U	1.48 U	1.48 U	1.51 U	1.47 U	1.5
Perfluoroundecanoic Acid (PFUnA)	1.49 U	1.49 U	1.53 U	1.54 U	1.48 U	1.48 U	1.51 U	1.47 U	1.5

Notes:

- J - Analyte present. Value may or may not be accurate or precise
- NG/L - Nanograms per liter
- U - The material was analyzed for, but not detected

Whidbey Island Residential CTO 4384

Sample ID	WI-CV-1RW72-1120	WI-CV-2FB02-1120	WI-CV-2FB04-1120	WI-CV-2RW02-1120	WI-CV-2RW04-1120	WI-CV-3FB07-1120	WI-CV-3FB18-1120	WI-CV-3RW07-1120	
Sample Date	11/18/20	11/13/20	11/13/20	11/13/20	11/13/20	11/13/20	11/18/20	11/13/20	
Chemical Name									
Semivolatile Organic Compounds (NG/L)									
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUds)	U	1.57 U	1.51 U	1.51 U	1.52 U	1.52 U	1.44 U	1.48 U	1.52 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	U	1.57 U	1.51 U	1.51 U	1.52 U	1.52 U	1.44 U	1.48 U	1.52 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	U	1.57 U	1.51 U	1.51 U	1.52 U	1.52 U	1.44 U	1.48 U	1.52 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	U	1.57 U	1.51 U	1.51 U	1.52 U	1.52 U	1.44 U	1.48 U	1.52 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	U	1.57 U	1.51 U	1.51 U	1.52 U	1.52 U	1.44 U	1.48 U	1.52 U
Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	U	1.57 U	1.51 U	1.51 U	1.52 U	1.52 U	1.44 U	1.48 U	1.52 U
Perfluorobutanesulfonic acid (PFBS)	U	1.59 J	1.51 U	1.51 U	19.8	17.2	1.44 U	1.48 U	1.52 U
Perfluorodecanoic Acid (PFDA)	U	1.57 U	1.51 U	1.51 U	1.52 U	1.52 U	1.44 U	1.48 U	1.52 U
Perfluorododecanoic Acid (PFDoA)	U	1.57 U	1.51 U	1.51 U	1.52 U	1.52 U	1.44 U	1.48 U	1.52 U
Perfluoroheptanoic acid (PFHpA)	U	1.57 U	1.51 U	1.51 U	17.1	2.95	1.44 U	1.48 U	1.52 U
Perfluorohexanesulfonic acid (PFHxS)	U	1.15 J	1.51 U	1.51 U	53.4	21.7	1.44 U	1.48 U	1.52 U
Perfluorohexanoic Acid (PFHxA)	U	1.86 J	1.51 U	1.51 U	78.9	6.33	1.44 U	1.48 U	1.52 U
Perfluorononanoic acid (PFNA)	U	1.57 U	1.51 U	1.51 U	1.52 U	1.52 U	1.44 U	1.48 U	1.52 U
Perfluorooctane Sulfonate (PFOS)	U	1.57 U	1.51 U	1.51 U	1.52 U	21.6	1.44 U	1.48 U	1.52 U
Perfluorooctanoic acid (PFOA)	U	1.18 J	1.51 U	1.51 U	263	10.8	1.44 U	1.48 U	1.52 U
Perfluorotetradecanoic Acid (PFTeDA)	U	1.57 U	1.51 U	1.51 U	1.52 U	1.52 U	1.44 U	1.48 U	1.52 U
Perfluorotridecanoic Acid (PFTrDA)	U	1.57 U	1.51 U	1.51 U	1.52 U	1.52 U	1.44 U	1.48 U	1.52 U
Perfluoroundecanoic Acid (PFUnA)	U	1.57 U	1.51 U	1.51 U	1.52 U	1.52 U	1.44 U	1.48 U	1.52 U

Notes:

- J - Analyte present. Value may or may not be accurate or precise
- NG/L - Nanograms per liter
- U - The material was analyzed for, but not detected

Sample ID	WI-CV-3RW18-1120
Sample Date	11/18/20
Chemical Name	
Semivolatile Organic Compounds (NG/L)	
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUds)	1.54 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.54 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	1.54 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	1.54 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	1.54 U
Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	1.54 U
Perfluorobutanesulfonic acid (PFBS)	1.54 U
Perfluorodecanoic Acid (PFDA)	1.54 U
Perfluorododecanoic Acid (PFDoA)	1.54 U
Perfluoroheptanoic acid (PFHpA)	1.54 U
Perfluorohexanesulfonic acid (PFHxS)	1.54 U
Perfluorohexanoic Acid (PFHxA)	1.54 U
Perfluorononanoic acid (PFNA)	1.54 U
Perfluorooctane Sulfonate (PFOS)	1.54 U
Perfluorooctanoic acid (PFOA)	1.54 U
Perfluorotetradecanoic Acid (PFTeDA)	1.54 U
Perfluorotridecanoic Acid (PFTrDA)	1.54 U
Perfluoroundecanoic Acid (PFUnA)	1.54 U

Notes:

J - Analyte present. Value may or may not be accurate or precise

NG/L - Nanograms per liter

U - The material was analyzed for, but not detected

Whidbey Island
CTO 4384
Unvalidated Results

Sample ID	WI-A06-FB03-0421	WI-A06-FB04-0421	WI-A06-RW03-0421	WI-A06-RW03P-0421	WI-A06-RW04-0421	WI-AF-1FB01-0421	WI-AF-1FB12-0421	WI-AF-1FB28-0421
Sample Date	4/13/21	4/13/21	4/13/21	4/13/21	4/13/21	4/13/21	4/13/21	4/13/21
Chemical Name								
Semivolatile Organic Compounds (NG/L)								
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	1.51 U	1.48 U	1.42 U	1.43 U	1.46 U	1.47 U	1.45 U	1.49 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.51 U	1.48 U	1.42 U	1.43 U	1.46 U	1.47 U	1.45 U	1.49 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	1.51 U	1.48 U	1.42 U	1.43 U	1.46 U	1.47 U	1.45 U	1.49 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	1.51 U	1.48 U	1.42 U	1.43 U	1.46 U	1.47 U	1.45 U	1.49 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	1.51 U	1.48 U	1.42 U	1.43 U	1.46 U	1.47 U	1.45 U	1.49 U
Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	1.51 U	1.48 U	1.42 U	1.43 U	1.46 U	1.47 U	1.45 U	1.49 U
Perfluorobutanesulfonic acid (PFBS)	1.51 U	1.48 U	43	40.7	40.1	1.47 U	1.45 U	1.49 U
Perfluorodecanoic Acid (PFDA)	1.51 U	1.48 U	1.42 U	1.43 U	1.46 U	1.47 U	1.45 U	1.49 U
Perfluorododecanoic Acid (PFDoA)	1.51 U	1.48 U	1.42 U	1.43 U	1.46 U	1.47 U	1.45 U	1.49 U
Perfluoroheptanoic acid (PFHpA)	1.51 U	1.48 U	18.6	18.4	3.08	1.47 U	1.45 U	1.49 U
Perfluorohexanesulfonic acid (PFHxS)	1.51 U	1.48 U	131	120	101	1.47 U	1.45 U	1.49 U
Perfluorohexanoic Acid (PFHxA)	1.51 U	1.48 U	52.6	51.7	5.99	1.47 U	1.45 U	1.49 U
Perfluorononanoic acid (PFNA)	1.51 U	1.48 U	1.42 U	1.43 U	1.46 U	1.47 U	1.45 U	1.49 U
Perfluorooctane Sulfonate (PFOS)	1.51 U	1.48 U	16.5	16.3	7.37	1.47 U	1.45 U	1.49 U
Perfluorooctanoic acid (PFOA)	1.51 U	1.48 U	36.4	36.3	7.15	1.47 U	1.45 U	1.49 U
Perfluorotetradecanoic Acid (PFTeDA)	1.51 U	1.48 U	1.42 U	1.43 U	1.46 U	1.47 U	1.45 U	1.49 U
Perfluorotridecanoic Acid (PFTrDA)	1.51 U	1.48 U	1.42 U	1.43 U	1.46 U	1.47 U	1.45 U	1.49 U
Perfluoroundecanoic Acid (PFUnA)	1.51 U	1.48 U	1.42 U	1.43 U	1.46 U	1.47 U	1.45 U	1.49 U

Notes:

J - Analyte present. Value may or may not be accurate or precise

NG/L - Nanograms per liter

U - The material was analyzed for, but not detected

Whidbey Island
CTO 4384
Unvalidated Results

Sample ID	WI-AF-1FB33-0421	WI-AF-1FB40-0421	WI-AF-1FB68-0421	WI-AF-1RW01-0421	WI-AF-1RW12-0421	WI-AF-1RW12P-0421	WI-AF-1RW28-0421	WI-AF-1RW33-0421
Sample Date	4/13/21	4/13/21	4/13/21	4/13/21	4/13/21	4/13/21	4/13/21	4/13/21
Chemical Name								
Semivolatile Organic Compounds (NG/L)								
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	1.58 U	1.47 U	1.49 U	1.46 U	1.43 U	1.42 U	1.41 U	1.52 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.58 U	1.47 U	1.49 U	1.46 U	1.43 U	1.42 U	1.41 U	1.52 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	1.58 U	1.47 U	1.49 U	1.46 U	1.43 U	1.42 U	1.41 U	1.52 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	1.58 U	1.47 U	1.49 U	1.46 U	1.43 U	1.42 U	1.41 U	1.52 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	1.58 U	1.47 U	1.49 U	1.46 U	1.43 U	1.42 U	1.41 U	1.52 U
Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	1.58 U	1.47 U	1.49 U	1.46 U	1.43 U	1.42 U	1.41 U	1.52 U
Perfluorobutanesulfonic acid (PFBS)	1.58 U	1.47 U	1.49 U	1.46 U	2.49	2.44	2.62	88.6
Perfluorodecanoic Acid (PFDA)	1.58 U	1.47 U	1.49 U	1.46 U	1.43 U	1.42 U	1.41 U	1.52 U
Perfluorododecanoic Acid (PFDoA)	1.58 U	1.47 U	1.49 U	1.46 U	1.43 U	1.42 U	1.41 U	1.52 U
Perfluoroheptanoic acid (PFHpA)	1.58 U	1.47 U	1.49 U	1.46 U	1.17 J	1.11 J	3.96	2.57
Perfluorohexanesulfonic acid (PFHxS)	1.58 U	1.47 U	1.49 U	1.46 U	1.71 J	1.45 J	10.8	11.1
Perfluorohexanoic Acid (PFHxA)	1.58 U	1.47 U	1.49 U	1.46 U	1.35 J	1.33 J	6.1	84.5
Perfluorononanoic acid (PFNA)	1.58 U	1.47 U	1.49 U	1.46 U	1.43 U	1.42 U	1.41 U	1.52 U
Perfluorooctane Sulfonate (PFOS)	1.58 U	1.47 U	1.49 U	1.46 U	2.63	2.13	0.969 J	1.52 U
Perfluorooctanoic acid (PFOA)	1.58 U	1.47 U	1.49 U	1.46 U	6.73	6.88	37.3	1.52 U
Perfluorotetradecanoic Acid (PFTeDA)	1.58 U	1.47 U	1.49 U	1.46 U	1.43 U	1.42 U	1.41 U	1.52 U
Perfluorotridecanoic Acid (PFTrDA)	1.58 U	1.47 U	1.49 U	1.46 U	1.43 U	1.42 U	1.41 U	1.52 U
Perfluoroundecanoic Acid (PFUnA)	1.58 U	1.47 U	1.49 U	1.46 U	1.43 U	1.42 U	1.41 U	1.52 U

Notes:

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NG/L - Nanograms per liter

U - The material was analyzed for, but not detected

Whidbey Island
CTO 4384
Unvalidated Results

Sample ID	WI-AF-1RW40-0421	WI-AF-1RW68-0421	WI-AF-3FB41-0421	WI-AF-3RW41-0421	WI-AF-3RW41P-0421	WI-CV-1FB01-0421	WI-CV-1FB07-0421	WI-CV-1FB14-0421
Sample Date	4/13/21	4/13/21	4/13/21	4/13/21	4/13/21	4/12/21	4/12/21	4/12/21
Chemical Name								
Semivolatile Organic Compounds (NG/L)								
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	1.45 U	1.5 U	1.48 U	1.46 U	1.41 U	1.48 U	1.45 U	1.47 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.45 U	1.5 U	1.48 U	1.46 U	1.41 U	1.48 U	1.45 U	1.47 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	1.45 U	1.5 U	1.48 U	1.46 U	1.41 U	1.48 U	1.45 U	1.47 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	1.45 U	1.5 U	1.48 U	1.46 U	1.41 U	1.48 U	1.45 U	1.47 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	1.45 U	1.5 U	1.48 U	1.46 U	1.41 U	1.48 U	1.45 U	1.47 U
Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	1.45 U	1.5 U	1.48 U	1.46 U	1.41 U	1.48 U	1.45 U	1.47 U
Perfluorobutanesulfonic acid (PFBS)	1.15 J	1.5 U	1.48 U	53.6	55.3	1.48 U	1.45 U	1.47 U
Perfluorodecanoic Acid (PFDA)	1.45 U	1.5 U	1.48 U	1.46 U	1.41 U	1.48 U	1.45 U	1.47 U
Perfluorododecanoic Acid (PFDoA)	1.45 U	1.5 U	1.48 U	1.46 U	1.41 U	1.48 U	1.45 U	1.47 U
Perfluoroheptanoic acid (PFHpA)	1.45 U	1.5 U	1.48 U	2.84	2.84	1.48 U	1.45 U	1.47 U
Perfluorohexanesulfonic acid (PFHxS)	6.51	1.5 U	1.48 U	60.1	60.2	1.48 U	1.45 U	1.47 U
Perfluorohexanoic Acid (PFHxA)	0.913 J	1.5 U	1.48 U	12.5	12.6	1.48 U	1.45 U	1.47 U
Perfluorononanoic acid (PFNA)	1.45 U	1.5 U	1.48 U	1.46 U	1.41 U	1.48 U	1.45 U	1.47 U
Perfluorooctane Sulfonate (PFOS)	3.91	1.5 U	1.48 U	17.7	17.5	1.48 U	1.45 U	1.47 U
Perfluorooctanoic acid (PFOA)	3.24	1.5 U	1.48 U	4.68	4.8	1.48 U	1.45 U	1.47 U
Perfluorotetradecanoic Acid (PFTeDA)	1.45 U	1.5 U	1.48 U	1.46 U	1.41 U	1.48 U	1.45 U	1.47 U
Perfluorotridecanoic Acid (PFTrDA)	1.45 U	1.5 U	1.48 U	1.46 U	1.41 U	1.48 U	1.45 U	1.47 U
Perfluoroundecanoic Acid (PFUnA)	1.45 U	1.5 U	1.48 U	1.46 U	1.41 U	1.48 U	1.45 U	1.47 U

Notes:

J - Analyte present. Value may or may not be accurate or precise

NG/L - Nanograms per liter

U - The material was analyzed for, but not detected

Whidbey Island
CTO 4384
Unvalidated Results

Sample ID	WI-CV-1FB27-0421	WI-CV-1FB72-0421	WI-CV-1RW01-0421	WI-CV-1RW07-0421	WI-CV-1RW07P-0421	WI-CV-1RW14-0421	WI-CV-1RW27-0421	WI-CV-1RW72-0421
Sample Date	4/14/21	4/12/21	4/12/21	4/12/21	4/12/21	4/12/21	4/14/21	4/12/21
Chemical Name								
Semivolatile Organic Compounds (NG/L)								
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	1.48 U	1.47 U	1.41 U	1.43 U	1.51 U	1.42 U	1.43 U	1.46 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.48 U	1.47 U	1.41 U	1.43 U	1.51 U	1.42 U	1.43 U	1.46 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	1.48 U	1.47 U	1.41 U	1.43 U	1.51 U	1.42 U	1.43 U	1.46 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	1.48 U	1.47 U	1.41 U	1.43 U	1.51 U	1.42 U	1.43 U	1.46 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	1.48 U	1.47 U	1.41 U	1.43 U	1.51 U	1.42 U	1.43 U	1.46 U
Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	1.48 U	1.47 U	1.41 U	1.43 U	1.51 U	1.42 U	1.43 U	1.46 U
Perfluorobutanesulfonic acid (PFBS)	1.48 U	1.47 U	27.7	32.3	32.4	1.42 U	1.43 U	1.74 J
Perfluorodecanoic Acid (PFDA)	1.48 U	1.47 U	1.41 U	1.43 U	1.51 U	1.42 U	1.43 U	1.46 U
Perfluorododecanoic Acid (PFDoA)	1.48 U	1.47 U	1.41 U	1.43 U	1.51 U	1.42 U	1.43 U	1.46 U
Perfluoroheptanoic acid (PFHpA)	1.48 U	1.47 U	20.5	13.7	14	1.42 U	1.43 U	1.46 U
Perfluorohexanesulfonic acid (PFHxS)	1.48 U	1.47 U	276	80.1	83.3	1.42 U	1.43 U	1.09 J
Perfluorohexanoic Acid (PFHxA)	1.48 U	1.47 U	73	64.2	67.1	1.42 U	1.87 J	1.53 J
Perfluorononanoic acid (PFNA)	1.48 U	1.47 U	1.41 U	1.43 U	1.51 U	1.42 U	1.43 U	1.46 U
Perfluorooctane Sulfonate (PFOS)	1.48 U	1.47 U	2.89	2.32	2.27	1.42 U	1.43 U	1.46 U
Perfluorooctanoic acid (PFOA)	1.48 U	1.47 U	248	240	243	1.42 U	1.43 U	1.1 J
Perfluorotetradecanoic Acid (PFTeDA)	1.48 U	1.47 U	1.41 U	1.43 U	1.51 U	1.42 U	1.43 U	1.46 U
Perfluorotridecanoic Acid (PFTrDA)	1.48 U	1.47 U	1.41 U	1.43 U	1.51 U	1.42 U	1.43 U	1.46 U
Perfluoroundecanoic Acid (PFUnA)	1.48 U	1.47 U	1.41 U	1.43 U	1.51 U	1.42 U	1.43 U	1.46 U

Notes:

J - Analyte present. Value may or may not be accurate or precise

NG/L - Nanograms per liter

U - The material was analyzed for, but not detected

Whidbey Island
CTO 4384
Unvalidated Results

Sample ID	WI-CV-2FB04-0421	WI-CV-2RW04-0421	WI-CV-3FB17-0421	WI-CV-3RW17-0421
Sample Date	4/12/21	4/12/21	4/12/21	4/12/21
Chemical Name				
Semivolatiles Organic Compounds (NG/L)				
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.48 U	1.43 U	1.46 U	1.49 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.48 U	1.43 U	1.46 U	1.49 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	1.48 U	1.43 U	1.46 U	1.49 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	1.48 U	1.43 U	1.46 U	1.49 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	1.48 U	1.43 U	1.46 U	1.49 U
Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	1.48 U	1.43 U	1.46 U	1.49 U
Perfluorobutanesulfonic acid (PFBS)	1.48 U	9.04	1.46 U	1.49 U
Perfluorodecanoic Acid (PFDA)	1.48 U	1.43 U	1.46 U	1.49 U
Perfluorododecanoic Acid (PFDoA)	1.48 U	1.43 U	1.46 U	1.49 U
Perfluoroheptanoic acid (PFHpA)	1.48 U	1.43 U	1.46 U	1.49 U
Perfluorohexanesulfonic acid (PFHxS)	1.48 U	15.2	1.46 U	1.49 U
Perfluorohexanoic Acid (PFHxA)	1.48 U	1.11 J	1.46 U	1.49 U
Perfluorononanoic acid (PFNA)	1.48 U	1.43 U	1.46 U	1.49 U
Perfluorooctane Sulfonate (PFOS)	1.48 U	11.1	1.46 U	1.49 U
Perfluorooctanoic acid (PFOA)	1.48 U	3.59	1.46 U	1.49 U
Perfluorotetradecanoic Acid (PFTeDA)	1.48 U	1.43 U	1.46 U	1.49 U
Perfluorotridecanoic Acid (PFTrDA)	1.48 U	1.43 U	1.46 U	1.49 U
Perfluoroundecanoic Acid (PFUnA)	1.48 U	1.43 U	1.46 U	1.49 U

Notes:

J - Analyte present. Value may or may not be accurate or precise

NG/L - Nanograms per liter

U - The material was analyzed for, but not detected

Whidbey Island
CTO 4384
Unvalidated

Sample ID	WI-A06-FB05-0421	WI-A06-FB14-0421	WI-A06-FB20-0421	WI-A06-FB24-0421	WI-A06-RW05-0421	WI-A06-RW14-0421	WI-A06-RW20-0421	WI-A06-RW24-0421
Sample Date	4/15/21	4/15/21	4/15/21	4/15/21	4/15/21	4/15/21	4/15/21	4/15/21
Chemical Name								
Semivolatile Organic Compounds (NG/L)								
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	1.49 U	1.45 U	1.48 U	1.48 U	1.46 U	1.46 U	1.48 U	1.45 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.49 U	1.45 U	1.48 U	1.48 U	1.46 U	1.46 U	1.48 U	1.45 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	1.49 U	1.45 U	1.48 U	1.48 U	1.46 U	1.46 U	1.48 U	1.45 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	1.49 U	1.45 U	1.48 U	1.48 U	1.46 U	1.46 U	1.48 U	1.45 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	1.49 U	1.45 U	1.48 U	1.48 U	1.46 U	1.46 U	1.48 U	1.45 U
Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	1.49 U	1.45 U	1.48 U	1.48 U	1.46 U	1.46 U	1.48 U	1.45 U
Perfluorobutanesulfonic acid (PFBS)	1.49 U	1.45 U	1.48 U	1.48 U	23.7	62.5	23.7	29
Perfluorodecanoic Acid (PFDA)	1.49 U	1.45 U	1.48 U	1.48 U	1.46 U	1.46 U	1.48 U	1.45 U
Perfluorododecanoic Acid (PFDoA)	1.49 U	1.45 U	1.48 U	1.48 U	1.46 U	1.46 U	1.48 U	1.45 U
Perfluoroheptanoic acid (PFHpA)	1.49 U	1.45 U	1.48 U	1.48 U	13.2	17.9	3.93	8.69
Perfluorohexanesulfonic acid (PFHxS)	1.49 U	1.45 U	1.48 U	1.48 U	181	275	166	418 DD
Perfluorohexanoic Acid (PFHxA)	1.49 U	1.45 U	1.48 U	1.48 U	37.1	68.8	22	53
Perfluorononanoic acid (PFNA)	1.49 U	1.45 U	1.48 U	1.48 U	0.875 J	1.46 U	1.48 U	1.45 U
Perfluorooctane Sulfonate (PFOS)	1.49 U	1.45 U	1.48 U	1.48 U	64.2	16.6	32.5	245
Perfluorooctanoic acid (PFOA)	1.49 U	1.45 U	1.48 U	1.48 U	48.7	27	50.1	57.2
Perfluorotetradecanoic Acid (PFTeDA)	1.49 U	1.45 U	1.48 U	1.48 U	1.46 U	1.46 U	1.48 U	1.45 U
Perfluorotridecanoic Acid (PFTrDA)	1.49 U	1.45 U	1.48 U	1.48 U	1.46 U	1.46 U	1.48 U	1.45 U
Perfluoroundecanoic Acid (PFUnA)	1.49 U	1.45 U	1.48 U	1.48 U	1.46 U	1.46 U	1.48 U	1.45 U

Notes:

DD - Diluted result

J - Analyte present. Value may or may not be accurate or precise

NG/L - Nanograms per liter

U - The material was analyzed for, but not detected

Whidbey Island
CTO 4384
Unvalidated

Sample ID	WI-AF-1FB25-0421	WI-AF-1RW25-0421	WI-AF-3FB18-0421	WI-AF-3RW18-0421	WI-CV-2FB02-0421	WI-CV-2RW02-0421	WI-CV-3FB07-0421	WI-CV-3RW07-0421
Sample Date	4/15/21	4/15/21	4/15/21	4/15/21	4/14/21	4/14/21	4/14/21	4/14/21
Chemical Name								
Semivolatile Organic Compounds (NG/L)								
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11CI-PF3OUdS)	1.46 U	1.47 U	1.43 U	1.51 U	1.46 U	1.42 U	1.5 U	1.48 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.46 U	1.47 U	1.43 U	1.51 U	1.46 U	1.42 U	1.5 U	1.48 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9CI-PF3ONS)	1.46 U	1.47 U	1.43 U	1.51 U	1.46 U	1.42 U	1.5 U	1.48 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	1.46 U	1.47 U	1.43 U	1.51 U	1.46 U	1.42 U	1.5 U	1.48 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	1.46 U	1.47 U	1.43 U	1.51 U	1.46 U	1.42 U	1.5 U	1.48 U
Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	1.46 U	1.47 U	1.43 U	1.51 U	1.46 U	1.42 U	1.5 U	1.48 U
Perfluorobutanesulfonic acid (PFBS)	1.46 U	0.839 J	1.43 U	1.51 U	1.46 U	25.6	1.5 U	1.48 U
Perfluorodecanoic Acid (PFDA)	1.46 U	1.47 U	1.43 U	1.51 U	1.46 U	1.42 U	1.5 U	1.48 U
Perfluorododecanoic Acid (PFDoA)	1.46 U	1.47 U	1.43 U	1.51 U	1.46 U	1.42 U	1.5 U	1.48 U
Perfluoroheptanoic acid (PFHpA)	1.46 U	1.47 U	1.43 U	1.51 U	1.46 U	17.2	1.5 U	1.48 U
Perfluorohexanesulfonic acid (PFHxS)	1.46 U	1.47 U	1.43 U	1.51 U	1.46 U	66.9	1.5 U	1.48 U
Perfluorohexanoic Acid (PFHxA)	1.46 U	1.47 U	1.43 U	1.51 U	1.46 U	70.7	1.5 U	1.48 U
Perfluorononanoic acid (PFNA)	1.46 U	1.47 U	1.43 U	1.51 U	1.46 U	1.42 U	1.5 U	1.48 U
Perfluorooctane Sulfonate (PFOS)	1.46 U	1.47 U	1.43 U	1.51 U	1.46 U	1.42 U	1.5 U	1.48 U
Perfluorooctanoic acid (PFOA)	1.46 U	1.47 U	1.43 U	1.51 U	1.46 U	298	1.5 U	1.48 U
Perfluorotetradecanoic Acid (PFTeDA)	1.46 U	1.47 U	1.43 U	1.51 U	1.46 U	1.42 U	1.5 U	1.48 U
Perfluorotridecanoic Acid (PFTrDA)	1.46 U	1.47 U	1.43 U	1.51 U	1.46 U	1.42 U	1.5 U	1.48 U
Perfluoroundecanoic Acid (PFUnA)	1.46 U	1.47 U	1.43 U	1.51 U	1.46 U	1.42 U	1.5 U	1.48 U

Notes:

DD - Diluted result

J - Analyte present. Value may or may not be accurate or precise

NG/L - Nanograms per liter

U - The material was analyzed for, but not detected

Whitey Island Residential
CTO 4384

Sample ID	WI-A06-FB08-0421	WI-A06-FB19-0421	WI-A06-RW08-0421	WI-A06-RW19-0421	WI-AF-1FB32-0421	WI-AF-1FB32PP-0421	WI-AF-1FB51-0421	WI-AF-1RW32-0421
Sample Date	4/16/21	4/16/21	4/16/21	4/16/21	4/16/21	4/16/21	4/16/21	4/16/21
Chemical Name								
Semivolatile Organic Compounds (NG/L)								
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.49 U	1.53 U	1.42 U	1.45 U	1.48 U	1.55 U	1.48 U	1.52 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.49 U	1.53 U	1.42 U	1.45 U	1.48 U	1.55 U	1.48 U	1.52 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	1.49 U	1.53 U	1.42 U	1.45 U	1.48 U	1.55 U	1.48 U	1.52 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	1.49 U	1.53 U	1.42 U	1.45 U	1.48 U	1.55 U	1.48 U	1.52 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	1.49 U	1.53 U	1.42 U	1.45 U	1.48 U	1.55 U	1.48 U	1.52 U
Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	1.49 U	1.53 U	1.42 U	1.45 U	1.48 U	1.55 U	1.48 U	1.52 U
Perfluorobutanesulfonic acid (PFBS)	1.49 U	1.53 U	22	65.6	1.48 U	1.55 U	1.48 U	1,170 DD
Perfluorodecanoic Acid (PFDA)	1.49 U	1.53 U	1.42 U	1.45 U	1.48 U	1.55 U	1.48 U	0.948 J
Perfluorododecanoic Acid (PFDoA)	1.49 U	1.53 U	1.42 U	1.45 U	1.48 U	1.55 U	1.48 U	1.52 U
Perfluoroheptanoic acid (PFHpA)	1.49 U	1.53 U	7.58	30.9	1.48 U	1.55 U	1.48 U	99.6
Perfluorohexanesulfonic acid (PFHxS)	1.49 U	1.53 U	112	299	1.48 U	1.55 U	1.48 U	10,800 DD
Perfluorohexanoic Acid (PFHxA)	1.49 U	1.53 U	13.9	61.7	1.48 U	1.55 U	1.48 U	863 DD
Perfluorononanoic acid (PFNA)	1.49 U	1.53 U	2.91	2.87	1.48 U	1.55 U	1.48 U	3.24
Perfluorooctane Sulfonate (PFOS)	1.49 U	1.53 U	82.1	99	1.48 U	1.55 U	1.48 U	46,800 DD
Perfluorooctanoic acid (PFOA)	1.49 U	1.53 U	25.1	48.6	1.48 U	1.55 U	1.48 U	306
Perfluorotetradecanoic Acid (PFTeDA)	1.49 U	1.53 U	1.42 U	1.45 U	1.48 U	1.55 U	1.48 U	1.52 U
Perfluorotridecanoic Acid (PFTTrDA)	1.49 U	1.53 U	1.42 U	1.45 U	1.48 U	1.55 U	1.48 U	1.52 U
Perfluoroundecanoic Acid (PFUnA)	1.49 U	1.53 U	1.42 U	1.45 U	1.48 U	1.55 U	1.48 U	1.52 U

Notes:

DD - Analyzed at a dilution

J - Analyte present. Value may or may not be accurate or precise

NG/L - Nanograms per liter

U - The material was analyzed for, but not detected

Whitey Island Residential
CTO 4384

Sample ID	WI-AF-1RW32PP-0421	WI-AF-1RW51-0421	WI-CV-1FB22-0421	WI-CV-1FB23-0421	WI-CV-1FB25-0421	WI-CV-1FB26-0421	WI-CV-1FB37-0421	WI-CV-1FB40-0421
Sample Date	4/16/21	4/16/21	4/14/21	4/14/21	4/14/21	4/14/21	4/16/21	4/14/21
Chemical Name								
Semivolatile Organic Compounds (NG/L)								
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.54 U	1.43 U	1.44 U	1.49 U	1.48 U	1.51 U	1.48 U	1.48 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.54 U	1.43 U	1.44 U	1.49 U	1.48 U	1.51 U	1.48 U	1.48 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	1.54 U	1.43 U	1.44 U	1.49 U	1.48 U	1.51 U	1.48 U	1.48 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	1.54 U	1.43 U	1.44 U	1.49 U	1.48 U	1.51 U	1.48 U	1.48 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	1.54 U	1.43 U	1.44 U	1.49 U	1.48 U	1.51 U	1.48 U	1.48 U
Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	1.54 U	1.43 U	1.44 U	1.49 U	1.48 U	1.51 U	1.48 U	1.48 U
Perfluorobutanesulfonic acid (PFBS)	38.4	1.43 U	1.44 U	1.49 U	1.48 U	1.51 U	1.48 U	1.48 U
Perfluorodecanoic Acid (PFDA)	1.54 U	1.43 U	1.44 U	1.49 U	1.48 U	1.51 U	1.48 U	1.48 U
Perfluorododecanoic Acid (PFDoA)	1.54 U	1.43 U	1.44 U	1.49 U	1.48 U	1.51 U	1.48 U	1.48 U
Perfluoroheptanoic acid (PFHpA)	1.54 U	1.43 U	1.44 U	1.49 U	1.48 U	1.51 U	1.48 U	1.48 U
Perfluorohexanesulfonic acid (PFHxS)	1.54 U	0.922 J	1.44 U	1.49 U	1.48 U	1.51 U	1.48 U	1.48 U
Perfluorohexanoic Acid (PFHxA)	1.54 U	1.43 U	1.44 U	1.49 U	1.48 U	1.51 U	1.48 U	1.48 U
Perfluorononanoic acid (PFNA)	1.54 U	1.43 U	1.44 U	1.49 U	1.48 U	1.51 U	1.48 U	1.48 U
Perfluorooctane Sulfonate (PFOS)	78.6	1.43 U	1.44 U	1.49 U	1.48 U	1.51 U	1.48 U	1.48 U
Perfluorooctanoic acid (PFOA)	43.4	1.43 U	1.44 U	1.49 U	1.48 U	1.51 U	1.48 U	1.48 U
Perfluorotetradecanoic Acid (PFTeDA)	1.54 U	1.43 U	1.44 U	1.49 U	1.48 U	1.51 U	1.48 U	1.48 U
Perfluorotridecanoic Acid (PFTrDA)	1.54 U	1.43 U	1.44 U	1.49 U	1.48 U	1.51 U	1.48 U	1.48 U
Perfluoroundecanoic Acid (PFUnA)	1.54 U	1.43 U	1.44 U	1.49 U	1.48 U	1.51 U	1.48 U	1.48 U

Notes:

DD - Analyzed at a dilution

J - Analyte present. Value may or may not be accurate or precise

NG/L - Nanograms per liter

U - The material was analyzed for, but not detected

Whidey Island Residential
CTO 4384

Sample ID	WI-CV-1FB67-0421	WI-CV-1RW22-0421	WI-CV-1RW23-0421	WI-CV-1RW25-0421	WI-CV-1RW26-0421	WI-CV-1RW26P-0421	WI-CV-1RW37-0421	WI-CV-1RW40-0421
Sample Date	4/14/21	4/14/21	4/14/21	4/14/21	4/14/21	4/14/21	4/16/21	4/14/21
Chemical Name								
Semivolatile Organic Compounds (NG/L)								
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.43 U	1.48 U	1.45 U	1.46 U	1.46 U	1.49 U	1.47 U	1.42 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.43 U	1.48 U	1.45 U	1.46 U	1.46 U	1.49 U	1.47 U	1.42 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	1.43 U	1.48 U	1.45 U	1.46 U	1.46 U	1.49 U	1.47 U	1.42 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	1.43 U	1.48 U	1.45 U	1.46 U	1.46 U	1.49 U	1.47 U	1.42 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	1.43 U	1.48 U	1.45 U	1.46 U	1.46 U	1.49 U	1.47 U	1.42 U
Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	1.43 U	1.48 U	1.45 U	1.46 U	1.46 U	1.49 U	1.47 U	1.42 U
Perfluorobutanesulfonic acid (PFBS)	1.43 U	1.48 U	20.6	1.46 U	1.46 U	1.49 U	1.47 U	1.42 U
Perfluorodecanoic Acid (PFDA)	1.43 U	1.48 U	1.45 U	1.46 U	1.46 U	1.49 U	1.47 U	1.42 U
Perfluorododecanoic Acid (PFDoA)	1.43 U	1.48 U	1.45 U	1.46 U	1.46 U	1.49 U	1.47 U	1.42 U
Perfluoroheptanoic acid (PFHpA)	1.43 U	1.48 U	9.96	1.46 U	1.46 U	1.49 U	1.47 U	1.42 U
Perfluorohexanesulfonic acid (PFHxS)	1.43 U	1.48 U	69.7	1.46 U	1.46 U	1.49 U	1.47 U	1.42 U
Perfluorohexanoic Acid (PFHxA)	1.43 U	1.48 U	39.6	1.46 U	1.46 U	1.49 U	1.47 U	1.42 U
Perfluorononanoic acid (PFNA)	1.43 U	1.48 U	1.45 U	1.46 U	1.46 U	1.49 U	1.47 U	1.42 U
Perfluorooctane Sulfonate (PFOS)	1.43 U	1.48 U	1.44 J	1.46 U	1.46 U	1.49 U	1.47 U	1.42 U
Perfluorooctanoic acid (PFOA)	1.43 U	1.48 U	66.3	1.46 U	1.46 U	1.49 U	1.47 U	1.42 U
Perfluorotetradecanoic Acid (PFTeDA)	1.43 U	1.48 U	1.45 U	1.46 U	1.46 U	1.49 U	1.47 U	1.42 U
Perfluorotridecanoic Acid (PFTTrDA)	1.43 U	1.48 U	1.45 U	1.46 U	1.46 U	1.49 U	1.47 U	1.42 U
Perfluoroundecanoic Acid (PFUnA)	1.43 U	1.48 U	1.45 U	1.46 U	1.46 U	1.49 U	1.47 U	1.42 U

Notes:

DD - Analyzed at a dilution

J - Analyte present. Value may or may not be accurate or precise

NG/L - Nanograms per liter

U - The material was analyzed for, but not detected

Whidey Island Residential
CTO 4384

Sample ID	WI-CV-1RW67-0421	WI-CV-3FB10-0421	WI-CV-3FB11-0421	WI-CV-3FB18-0421	WI-CV-3RW10-0421	WI-CV-3RW11-0421	WI-CV-3RW11P-0421	WI-CV-3RW18-0421
Sample Date	4/14/21	4/14/21	4/16/21	4/16/21	4/14/21	4/16/21	4/16/21	4/16/21
Chemical Name								
Semivolatile Organic Compounds (NG/L)								
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.46 U	1.45 U	1.48 U	1.48 U	1.44 U	1.54 U	1.53 U	1.44 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.46 U	1.45 U	1.48 U	1.48 U	1.44 U	1.54 U	1.53 U	1.44 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	1.46 U	1.45 U	1.48 U	1.48 U	1.44 U	1.54 U	1.53 U	1.44 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	1.46 U	1.45 U	1.48 U	1.48 U	1.44 U	1.54 U	1.53 U	1.44 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	1.46 U	1.45 U	1.48 U	1.48 U	1.44 U	1.54 U	1.53 U	1.44 U
Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	1.46 U	1.45 U	1.48 U	1.48 U	1.44 U	1.54 U	1.53 U	1.44 U
Perfluorobutanesulfonic acid (PFBS)	1.46 U	1.45 U	1.48 U	1.48 U	229	33.5	33	1.44 U
Perfluorodecanoic Acid (PFDA)	1.46 U	1.45 U	1.48 U	1.48 U	1.44 U	1.54 U	1.53 U	1.44 U
Perfluorododecanoic Acid (PFDoA)	1.46 U	1.45 U	1.48 U	1.48 U	1.44 U	1.54 U	1.53 U	1.44 U
Perfluoroheptanoic acid (PFHpA)	1.46 U	1.45 U	1.48 U	1.48 U	22.9	12.5	12.6	1.44 U
Perfluorohexanesulfonic acid (PFHxS)	1.46 U	1.45 U	1.48 U	1.48 U	117	91.1	87.6	1.44 U
Perfluorohexanoic Acid (PFHxA)	1.46 U	1.45 U	1.48 U	1.48 U	237	69.6	70.8	1.44 U
Perfluorononanoic acid (PFNA)	1.46 U	1.45 U	1.48 U	1.48 U	1.44 U	1.54 U	1.53 U	1.44 U
Perfluorooctane Sulfonate (PFOS)	1.46 U	1.45 U	1.48 U	1.48 U	2.41	1.66 J	1.85 J	1.44 U
Perfluorooctanoic acid (PFOA)	1.46 U	1.45 U	1.48 U	1.48 U	133	346	375	1.44 U
Perfluorotetradecanoic Acid (PFTeDA)	1.46 U	1.45 U	1.48 U	1.48 U	1.44 U	1.54 U	1.53 U	1.44 U
Perfluorotridecanoic Acid (PFTTrDA)	1.46 U	1.45 U	1.48 U	1.48 U	1.44 U	1.54 U	1.53 U	1.44 U
Perfluoroundecanoic Acid (PFUnA)	1.46 U	1.45 U	1.48 U	1.48 U	1.44 U	1.54 U	1.53 U	1.44 U

Notes:

DD - Analyzed at a dilution

J - Analyte present. Value may or may not be accurate or precise

NG/L - Nanograms per liter

U - The material was analyzed for, but not detected

Whidbey Island Residential
CTO 4384

Sample ID	WI-CV-1FB90-0421	WI-CV-1RW90-0421
Sample Date	4/21/21	4/21/21
Chemical Name		
Semivolatile Organic Compounds (NG/L)		
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (11Cl-PF3OUdS)	1.51 U	1.45 U
4,8-dioxa-3H-perfluorononanoic acid (ADONA)	1.51 U	1.45 U
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid (9Cl-PF3ONS)	1.51 U	1.45 U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (EtFOSAA)	1.51 U	1.45 U
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	1.51 U	1.45 U
Perfluoro-2-methyl-3-oxahexanoic acid (HFPO-DA)	1.51 U	1.45 U
Perfluorobutanesulfonic acid (PFBS)	1.51 U	41.3
Perfluorodecanoic Acid (PFDA)	1.51 U	1.45 U
Perfluorododecanoic Acid (PFDoA)	1.51 U	1.45 U
Perfluoroheptanoic acid (PFHpA)	1.51 U	18.2
Perfluorohexanesulfonic acid (PFHxS)	1.51 U	174
Perfluorohexanoic Acid (PFHxA)	1.51 U	58
Perfluorononanoic acid (PFNA)	1.51 U	1.45 U
Perfluorooctane Sulfonate (PFOS)	1.51 U	9.28
Perfluorooctanoic acid (PFOA)	1.51 U	161
Perfluorotetradecanoic Acid (PFTeDA)	1.51 U	1.45 U
Perfluorotridecanoic Acid (PFTrDA)	1.51 U	1.45 U
Perfluoroundecanoic Acid (PFUnA)	1.51 U	1.45 U

Notes:

NG/L - Nanograms per liter

U - The material was analyzed for, but not detected

Attachment 3
Data Validation Summary Reports

**DATA VALIDATION SUMMARY REPORT
NAS WHIDBEY ISLAND, WASHINGTON**

Client: CH2M HILL, Inc., Corvallis, Oregon
 SDG: 2104150
 Laboratory: Vista Analytical Laboratory, El Dorado Hills, California
 Site: NAS Whidbey Island, Residential Wells, CTO-4384, Washington
 Date: May 26, 2021

PFAS			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	WI-CV-1RW01-0421	2104150-01	Water
2	WI-CV-1FB01-0421	2104150-02	Water
3	WI-CV-1RW07-0421	2104150-03	Water
4	WI-CV-1RW07P-0421	2104150-04	Water
5	WI-CV-1FB07-0421	2104150-05	Water
6	WI-CV-3RW17-0421	2104150-06	Water
7	WI-CV-3FB17-0421	2104150-07	Water
8	WI-CV-1RW14-0421	2104150-08	Water
9	WI-CV-1FB14-0421	2104150-09	Water
10	WI-CV-2RW04-0421	2104150-10	Water
11	WI-CV-2FB04-0421	2104150-11	Water
12	WI-CV-1RW72-0421	2104150-12	Water
13	WI-CV-1FB72-0421	2104150-13	Water
14	WI-AF-1RW68-0421	2104150-14	Water
15	WI-AF-1FB68-0421	2104150-15	Water
16	WI-AF-1RW12-0421	2104150-16	Water
17	WI-AF-1RW12P-0421	2104150-17	Water
18	WI-AF-1FB12-0421	2104150-18	Water

A Stage 2B/4 data validation was performed on the analytical data for ten water samples and eight aqueous field blank samples collected on April 12-13, 2021 by CH2M Hill at the NAS Whidbey Island site in Washington. The samples were analyzed under the EPA Method “Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)”.

Specific method references are as follows:

Analysis
PFAS

Method References
USEPA Method 537.1

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, the Final Sampling and Analysis Plan Investigation of Per- and Polyfluoroalkyl Substances in Off-Base Drinking Water Ault Field, Area 6, and Outlying Landing Field Coupeville, Naval Air Station Whidbey Island, April, 2020, Field Change Request (FCR) No. 1,

September 2020, FCR No. 2, November 2020, and the DoD Final General Data Validation Guidelines, November 2019, and the USEPA Data Review and Validation Guidelines as follows:

- The USEPA “Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537,” November 2018;
- and the reviewer's professional judgment.

The following data quality indicators were reviewed for this report:

Organics

- Date Completeness, Case Narrative & Custody Documentation
- Holding times
- Liquid Chromatography/Mass Spectrometry (LC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field QC blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

A Stage 2B/4 data validation was performed with this review including a recalculation of 100% of the detected results in the samples.

Data Usability Assessment

There were no serious deficiencies of data.

The data are acceptable for the intended purposes. There were no qualifications.

Perfluorinated Alkyl Substances (PFAS)

Data Completeness, Case Narrative & Custody Documentation

- The case narrative and chain-of-custody documentation were included in the data package as required. All criteria were met.

Holding Times

- All samples were extracted within 14 days for water samples and analyzed within 28 days.

LC/MS Tuning

- All criteria were met.

Initial Calibration

- All relative standard deviation (%RSD) and/or correlation coefficients criteria were met.

Continuing Calibration

- All percent difference (%D) and RRF criteria were met.

Method Blank

- The method blanks were free of contamination.

Field QC Blank

- Field QC sample results are summarized in the table below.

Blank ID	Compound	Conc. ng/L	Qualifier	Affected Samples
WI-CV-1FB01-0421	None - ND	-	-	-
WI-CV-1FB07-0421	None - ND	-	-	-
WI-CV-3FB17-0421	None - ND	-	-	-
WI-CV-1FB14-0421	None - ND	-	-	-
WI-CV-2FB04-0421	None - ND	-	-	-
WI-CV-1FB72-0421	None - ND	-	-	-
WI-AF-1FB68-0421	None - ND	-	-	-
WI-AF-1FB12-0421	None - ND	-	-	-

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- MS/MSD samples were not analyzed.

Laboratory Control Samples (LCS)

- The LCS samples exhibited acceptable percent recoveries (%R).

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- All criteria were met.

Field Duplicate Sample Precision

- Field duplicate samples are summarized below. The precision was acceptable.

Compound	WI-CV-1RW07-0421 ng/L	WI-CV-1RW07P-0421 ng/L	RPD	Qualifier
PFBS	32.3	32.4	0%	None
PFHxA	64.2	67.1	4%	
PFHpA	13.7	14.0	2%	
PFHxS	80.1	83.3	4%	
PFOA	240	243	1%	
PFOS	2.32	2.27	2%	

Compound	WI-AF-1RW12-0421 ng/L	WI-AF-1RW12P-0421 ng/L	RPD	Qualifier
PFBS	2.49	2.44	2%	None
PFHxA	1.35	1.33	1%	
PFHpA	1.17	1.11	5%	
PFHxS	1.71	1.45	16%	
PFOA	6.73	6.88	2%	
PFOS	2.63	2.13	21%	

Please contact the undersigned at (561) 475-2000 if you have any questions or need further information.

Signed:

Nancy Weaver
Nancy Weaver
Senior Chemist

Dated: 5/28/21

Qualifier	Definition
U	The analyte was not detected and was reported as less than the LOD or as defined by the customer. The LOD has been adjusted for any dilution or concentration of the sample.
J	The reported result was an estimated value with an unknown bias.
J+	The result was an estimated quantity, but the result may be biased high.
J-	The result was an estimated quantity, but the result may be biased low.
N	The analysis indicates the presence of an analyte for which there was presumptive evidence to make a "tentative identification."
NJ	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value was the estimated concentration in the sample.
UJ	The analyte was not detected and was reported as less than the LOD or as defined by the customer. However, the associated numerical value is approximate.
X	<p>The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided.</p> <p>Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.</p>

Sample ID: WI-CV-1RW01-0421							EPA Method 537.1				
Client Data				Laboratory Data							
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104150-01	Column:	BEH C18				
Project:	9000NVT8	Date Collected:	12-Apr-21 10:31	Date Received:	16-Apr-21 09:58						
Location:	Drinking Water										
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	27.7	0.704	1.41	1.88		B1D0135	20-Apr-21	0.266 L	21-Apr-21 20:14	1
PFHxA	307-24-4	73.0	0.704	1.41	1.88		B1D0135	20-Apr-21	0.266 L	21-Apr-21 20:14	1
HFPO-DA	13252-13-6	ND	0.704	1.41	1.88		B1D0135	20-Apr-21	0.266 L	21-Apr-21 20:14	1
PFHpA	375-85-9	20.5	0.704	1.41	1.88		B1D0135	20-Apr-21	0.266 L	21-Apr-21 20:14	1
ADONA	919005-14-4	ND	0.704	1.41	1.88		B1D0135	20-Apr-21	0.266 L	21-Apr-21 20:14	1
PFHxS	355-46-4	276	0.704	1.41	1.88		B1D0135	20-Apr-21	0.266 L	21-Apr-21 20:14	1
PFOA	335-67-1	248	0.704	1.41	1.88		B1D0135	20-Apr-21	0.266 L	21-Apr-21 20:14	1
PFNA	375-95-1	ND	0.704	1.41	1.88		B1D0135	20-Apr-21	0.266 L	21-Apr-21 20:14	1
PFOS	1763-23-1	2.89	0.704	1.41	1.88		B1D0135	20-Apr-21	0.266 L	21-Apr-21 20:14	1
9CI-PF3ONS	756426-58-1	ND	0.704	1.41	1.88		B1D0135	20-Apr-21	0.266 L	21-Apr-21 20:14	1
PFDA	335-76-2	ND	0.704	1.41	1.88		B1D0135	20-Apr-21	0.266 L	21-Apr-21 20:14	1
MeFOSAA	2355-31-9	ND	0.704	1.41	1.88		B1D0135	20-Apr-21	0.266 L	21-Apr-21 20:14	1
EtFOSAA	2991-50-6	ND	0.704	1.41	1.88		B1D0135	20-Apr-21	0.266 L	21-Apr-21 20:14	1
PFUnA	2058-94-8	ND	0.704	1.41	1.88		B1D0135	20-Apr-21	0.266 L	21-Apr-21 20:14	1
PFDoA	307-55-1	ND	0.704	1.41	1.88		B1D0135	20-Apr-21	0.266 L	21-Apr-21 20:14	1
PFTrDA	72629-94-8	ND	0.704	1.41	1.88		B1D0135	20-Apr-21	0.266 L	21-Apr-21 20:14	1
11CI-PF3OUdS	763051-92-9	ND	0.704	1.41	1.88		B1D0135	20-Apr-21	0.266 L	21-Apr-21 20:14	1
PFTeDA	376-06-7	ND	0.704	1.41	1.88		B1D0135	20-Apr-21	0.266 L	21-Apr-21 20:14	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	109	70 - 130			B1D0135	20-Apr-21	0.266 L	21-Apr-21 20:14	1	
13C2-PFDA	SURR	109	70 - 130			B1D0135	20-Apr-21	0.266 L	21-Apr-21 20:14	1	
d5-EtFOSAA	SURR	90.4	70 - 130			B1D0135	20-Apr-21	0.266 L	21-Apr-21 20:14	1	
13C3-HFPO-DA	SURR	107	70 - 130			B1D0135	20-Apr-21	0.266 L	21-Apr-21 20:14	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW 5/26/21

Sample ID: WI-CV-1FB01-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104150-02	Column:	BEH C18
Project:	9000NVT8	Date Collected:	12-Apr-21 10:33	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.740	1.48	1.97		B1D0135	20-Apr-21	0.253 L	21-Apr-21 20:25	1
PFHxA	307-24-4	ND	0.740	1.48	1.97		B1D0135	20-Apr-21	0.253 L	21-Apr-21 20:25	1
HFPO-DA	13252-13-6	ND	0.740	1.48	1.97		B1D0135	20-Apr-21	0.253 L	21-Apr-21 20:25	1
PFHpA	375-85-9	ND	0.740	1.48	1.97		B1D0135	20-Apr-21	0.253 L	21-Apr-21 20:25	1
ADONA	919005-14-4	ND	0.740	1.48	1.97		B1D0135	20-Apr-21	0.253 L	21-Apr-21 20:25	1
PFHxS	355-46-4	ND	0.740	1.48	1.97		B1D0135	20-Apr-21	0.253 L	21-Apr-21 20:25	1
PFOA	335-67-1	ND	0.740	1.48	1.97		B1D0135	20-Apr-21	0.253 L	21-Apr-21 20:25	1
PFNA	375-95-1	ND	0.740	1.48	1.97		B1D0135	20-Apr-21	0.253 L	21-Apr-21 20:25	1
PFOS	1763-23-1	ND	0.740	1.48	1.97		B1D0135	20-Apr-21	0.253 L	21-Apr-21 20:25	1
9CI-PF3ONS	756426-58-1	ND	0.740	1.48	1.97		B1D0135	20-Apr-21	0.253 L	21-Apr-21 20:25	1
PFDA	335-76-2	ND	0.740	1.48	1.97		B1D0135	20-Apr-21	0.253 L	21-Apr-21 20:25	1
MeFOSAA	2355-31-9	ND	0.740	1.48	1.97		B1D0135	20-Apr-21	0.253 L	21-Apr-21 20:25	1
EtFOSAA	2991-50-6	ND	0.740	1.48	1.97		B1D0135	20-Apr-21	0.253 L	21-Apr-21 20:25	1
PFUnA	2058-94-8	ND	0.740	1.48	1.97		B1D0135	20-Apr-21	0.253 L	21-Apr-21 20:25	1
PFDoA	307-55-1	ND	0.740	1.48	1.97		B1D0135	20-Apr-21	0.253 L	21-Apr-21 20:25	1
PFTTrDA	72629-94-8	ND	0.740	1.48	1.97		B1D0135	20-Apr-21	0.253 L	21-Apr-21 20:25	1
11CI-PF3OUdS	763051-92-9	ND	0.740	1.48	1.97		B1D0135	20-Apr-21	0.253 L	21-Apr-21 20:25	1
PFTeDA	376-06-7	ND	0.740	1.48	1.97		B1D0135	20-Apr-21	0.253 L	21-Apr-21 20:25	1
Labeled Standards	Type	% Recovery	Limits			Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	109	70 - 130				B1D0135	20-Apr-21	0.253 L	21-Apr-21 20:25	1
13C2-PFDA	SURR	107	70 - 130				B1D0135	20-Apr-21	0.253 L	21-Apr-21 20:25	1
d5-EtFOSAA	SURR	104	70 - 130				B1D0135	20-Apr-21	0.253 L	21-Apr-21 20:25	1
13C3-HFPO-DA	SURR	110	70 - 130				B1D0135	20-Apr-21	0.253 L	21-Apr-21 20:25	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 5/26/21

Sample ID: WI-CV-1RW07-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104150-03	Column:	BEH C18
Project:	9000NVT8	Date Collected:	12-Apr-21 10:53	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	32.3	0.713	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 20:36	1
PFHxA	307-24-4	64.2	0.713	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 20:36	1
HFPO-DA	13252-13-6	ND	0.713	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 20:36	1
PFHpA	375-85-9	13.7	0.713	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 20:36	1
ADONA	919005-14-4	ND	0.713	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 20:36	1
PFHxS	355-46-4	80.1	0.713	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 20:36	1
PFOA	335-67-1	240	0.713	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 20:36	1
PFNA	375-95-1	ND	0.713	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 20:36	1
PFOS	1763-23-1	2.32	0.713	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 20:36	1
9CI-PF3ONS	756426-58-1	ND	0.713	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 20:36	1
PFDA	335-76-2	ND	0.713	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 20:36	1
MeFOSAA	2355-31-9	ND	0.713	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 20:36	1
EtFOSAA	2991-50-6	ND	0.713	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 20:36	1
PFUnA	2058-94-8	ND	0.713	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 20:36	1
PFDoA	307-55-1	ND	0.713	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 20:36	1
PFTTrDA	72629-94-8	ND	0.713	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 20:36	1
11CI-PF3OUdS	763051-92-9	ND	0.713	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 20:36	1
PFTeDA	376-06-7	ND	0.713	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 20:36	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	103	70 - 130			B1D0135	20-Apr-21	0.263 L	21-Apr-21 20:36	1	
13C2-PFDA	SURR	95.4	70 - 130			B1D0135	20-Apr-21	0.263 L	21-Apr-21 20:36	1	
d5-EtFOSAA	SURR	89.6	70 - 130			B1D0135	20-Apr-21	0.263 L	21-Apr-21 20:36	1	
13C3-HFPO-DA	SURR	102	70 - 130			B1D0135	20-Apr-21	0.263 L	21-Apr-21 20:36	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 5/26/21

Sample ID: WI-CV-1RW07P-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104150-04	Column:	BEH C18
Project:	9000NVT8	Date Collected:	12-Apr-21 10:54	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	32.4	0.758	1.51	2.02		B1D0135	20-Apr-21	0.248 L	21-Apr-21 20:47	1
PFHxA	307-24-4	67.1	0.758	1.51	2.02		B1D0135	20-Apr-21	0.248 L	21-Apr-21 20:47	1
HFPO-DA	13252-13-6	ND	0.758	1.51	2.02		B1D0135	20-Apr-21	0.248 L	21-Apr-21 20:47	1
PFHpA	375-85-9	14.0	0.758	1.51	2.02		B1D0135	20-Apr-21	0.248 L	21-Apr-21 20:47	1
ADONA	919005-14-4	ND	0.758	1.51	2.02		B1D0135	20-Apr-21	0.248 L	21-Apr-21 20:47	1
PFHxS	355-46-4	83.3	0.758	1.51	2.02		B1D0135	20-Apr-21	0.248 L	21-Apr-21 20:47	1
PFOA	335-67-1	243	0.758	1.51	2.02		B1D0135	20-Apr-21	0.248 L	21-Apr-21 20:47	1
PFNA	375-95-1	ND	0.758	1.51	2.02		B1D0135	20-Apr-21	0.248 L	21-Apr-21 20:47	1
PFOS	1763-23-1	2.27	0.758	1.51	2.02		B1D0135	20-Apr-21	0.248 L	21-Apr-21 20:47	1
9CI-PF3ONS	756426-58-1	ND	0.758	1.51	2.02		B1D0135	20-Apr-21	0.248 L	21-Apr-21 20:47	1
PFDA	335-76-2	ND	0.758	1.51	2.02		B1D0135	20-Apr-21	0.248 L	21-Apr-21 20:47	1
MeFOSAA	2355-31-9	ND	0.758	1.51	2.02		B1D0135	20-Apr-21	0.248 L	21-Apr-21 20:47	1
EtFOSAA	2991-50-6	ND	0.758	1.51	2.02		B1D0135	20-Apr-21	0.248 L	21-Apr-21 20:47	1
PFUnA	2058-94-8	ND	0.758	1.51	2.02		B1D0135	20-Apr-21	0.248 L	21-Apr-21 20:47	1
PFDoA	307-55-1	ND	0.758	1.51	2.02		B1D0135	20-Apr-21	0.248 L	21-Apr-21 20:47	1
PFTTrDA	72629-94-8	ND	0.758	1.51	2.02		B1D0135	20-Apr-21	0.248 L	21-Apr-21 20:47	1
11CI-PF3OUdS	763051-92-9	ND	0.758	1.51	2.02		B1D0135	20-Apr-21	0.248 L	21-Apr-21 20:47	1
PFTeDA	376-06-7	ND	0.758	1.51	2.02		B1D0135	20-Apr-21	0.248 L	21-Apr-21 20:47	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	108	70 - 130		B1D0135	20-Apr-21	0.248 L	21-Apr-21 20:47	1
13C2-PFDA	SURR	103	70 - 130		B1D0135	20-Apr-21	0.248 L	21-Apr-21 20:47	1
d5-EtFOSAA	SURR	98.2	70 - 130		B1D0135	20-Apr-21	0.248 L	21-Apr-21 20:47	1
13C3-HFPO-DA	SURR	112	70 - 130		B1D0135	20-Apr-21	0.248 L	21-Apr-21 20:47	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 5/26/21

Sample ID: WI-CV-1FB07-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104150-05	Column:	BEH C18
Project:	9000NVT8	Date Collected:	12-Apr-21 10:56	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.723	1.45	1.93		B1D0135	20-Apr-21	0.259 L	21-Apr-21 20:58	1
PFHxA	307-24-4	ND	0.723	1.45	1.93		B1D0135	20-Apr-21	0.259 L	21-Apr-21 20:58	1
HFPO-DA	13252-13-6	ND	0.723	1.45	1.93		B1D0135	20-Apr-21	0.259 L	21-Apr-21 20:58	1
PFHpA	375-85-9	ND	0.723	1.45	1.93		B1D0135	20-Apr-21	0.259 L	21-Apr-21 20:58	1
ADONA	919005-14-4	ND	0.723	1.45	1.93		B1D0135	20-Apr-21	0.259 L	21-Apr-21 20:58	1
PFHxS	355-46-4	ND	0.723	1.45	1.93		B1D0135	20-Apr-21	0.259 L	21-Apr-21 20:58	1
PFOA	335-67-1	ND	0.723	1.45	1.93		B1D0135	20-Apr-21	0.259 L	21-Apr-21 20:58	1
PFNA	375-95-1	ND	0.723	1.45	1.93		B1D0135	20-Apr-21	0.259 L	21-Apr-21 20:58	1
PFOS	1763-23-1	ND	0.723	1.45	1.93		B1D0135	20-Apr-21	0.259 L	21-Apr-21 20:58	1
9CI-PF3ONS	756426-58-1	ND	0.723	1.45	1.93		B1D0135	20-Apr-21	0.259 L	21-Apr-21 20:58	1
PFDA	335-76-2	ND	0.723	1.45	1.93		B1D0135	20-Apr-21	0.259 L	21-Apr-21 20:58	1
MeFOSAA	2355-31-9	ND	0.723	1.45	1.93		B1D0135	20-Apr-21	0.259 L	21-Apr-21 20:58	1
EtFOSAA	2991-50-6	ND	0.723	1.45	1.93		B1D0135	20-Apr-21	0.259 L	21-Apr-21 20:58	1
PFUnA	2058-94-8	ND	0.723	1.45	1.93		B1D0135	20-Apr-21	0.259 L	21-Apr-21 20:58	1
PFDoA	307-55-1	ND	0.723	1.45	1.93		B1D0135	20-Apr-21	0.259 L	21-Apr-21 20:58	1
PFTTrDA	72629-94-8	ND	0.723	1.45	1.93		B1D0135	20-Apr-21	0.259 L	21-Apr-21 20:58	1
11CI-PF3OUdS	763051-92-9	ND	0.723	1.45	1.93		B1D0135	20-Apr-21	0.259 L	21-Apr-21 20:58	1
PFTeDA	376-06-7	ND	0.723	1.45	1.93		B1D0135	20-Apr-21	0.259 L	21-Apr-21 20:58	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	108	70 - 130			B1D0135	20-Apr-21	0.259 L	21-Apr-21 20:58	1	
13C2-PFDA	SURR	107	70 - 130			B1D0135	20-Apr-21	0.259 L	21-Apr-21 20:58	1	
d5-EtFOSAA	SURR	99.0	70 - 130			B1D0135	20-Apr-21	0.259 L	21-Apr-21 20:58	1	
13C3-HFPO-DA	SURR	109	70 - 130			B1D0135	20-Apr-21	0.259 L	21-Apr-21 20:58	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

mw 5/26/21

Sample ID: WI-CV-3RW17-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104150-06	Column:	BEH C18
Project:	9000NVT8	Date Collected:	12-Apr-21 11:05	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 21:09	1
PFHxA	307-24-4	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 21:09	1
HFPO-DA	13252-13-6	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 21:09	1
PFHpA	375-85-9	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 21:09	1
ADONA	919005-14-4	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 21:09	1
PFHxS	355-46-4	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 21:09	1
PFOA	335-67-1	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 21:09	1
PFNA	375-95-1	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 21:09	1
PFOS	1763-23-1	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 21:09	1
9Cl-PF3ONS	756426-58-1	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 21:09	1
PFDA	335-76-2	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 21:09	1
MeFOSAA	2355-31-9	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 21:09	1
EtFOSAA	2991-50-6	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 21:09	1
PFUnA	2058-94-8	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 21:09	1
PFDoA	307-55-1	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 21:09	1
PFTTrDA	72629-94-8	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 21:09	1
11Cl-PF3OUdS	763051-92-9	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 21:09	1
PFTeDA	376-06-7	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 21:09	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	102	70 - 130			B1D0135	20-Apr-21	0.252 L	21-Apr-21 21:09	1	
13C2-PFDA	SURR	99.5	70 - 130			B1D0135	20-Apr-21	0.252 L	21-Apr-21 21:09	1	
d5-EtFOSAA	SURR	92.1	70 - 130			B1D0135	20-Apr-21	0.252 L	21-Apr-21 21:09	1	
13C3-HFPO-DA	SURR	101	70 - 130			B1D0135	20-Apr-21	0.252 L	21-Apr-21 21:09	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

ms 5/28/21

Sample ID: WI-CV-3FB17-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104150-07	Column:	BEH C18
Project:	9000NVT8	Date Collected:	12-Apr-21 11:07	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.729	1.46	1.94		B1D0135	20-Apr-21	0.257 L	21-Apr-21 21:20	1
PFHxA	307-24-4	ND	0.729	1.46	1.94		B1D0135	20-Apr-21	0.257 L	21-Apr-21 21:20	1
HFPO-DA	13252-13-6	ND	0.729	1.46	1.94		B1D0135	20-Apr-21	0.257 L	21-Apr-21 21:20	1
PFHpA	375-85-9	ND	0.729	1.46	1.94		B1D0135	20-Apr-21	0.257 L	21-Apr-21 21:20	1
ADONA	919005-14-4	ND	0.729	1.46	1.94		B1D0135	20-Apr-21	0.257 L	21-Apr-21 21:20	1
PFHxS	355-46-4	ND	0.729	1.46	1.94		B1D0135	20-Apr-21	0.257 L	21-Apr-21 21:20	1
PFOA	335-67-1	ND	0.729	1.46	1.94		B1D0135	20-Apr-21	0.257 L	21-Apr-21 21:20	1
PFNA	375-95-1	ND	0.729	1.46	1.94		B1D0135	20-Apr-21	0.257 L	21-Apr-21 21:20	1
PFOS	1763-23-1	ND	0.729	1.46	1.94		B1D0135	20-Apr-21	0.257 L	21-Apr-21 21:20	1
9CI-PF3ONS	756426-58-1	ND	0.729	1.46	1.94		B1D0135	20-Apr-21	0.257 L	21-Apr-21 21:20	1
PFDA	335-76-2	ND	0.729	1.46	1.94		B1D0135	20-Apr-21	0.257 L	21-Apr-21 21:20	1
MeFOSAA	2355-31-9	ND	0.729	1.46	1.94		B1D0135	20-Apr-21	0.257 L	21-Apr-21 21:20	1
EtFOSAA	2991-50-6	ND	0.729	1.46	1.94		B1D0135	20-Apr-21	0.257 L	21-Apr-21 21:20	1
PFUnA	2058-94-8	ND	0.729	1.46	1.94		B1D0135	20-Apr-21	0.257 L	21-Apr-21 21:20	1
PFDoA	307-55-1	ND	0.729	1.46	1.94		B1D0135	20-Apr-21	0.257 L	21-Apr-21 21:20	1
PFTTrDA	72629-94-8	ND	0.729	1.46	1.94		B1D0135	20-Apr-21	0.257 L	21-Apr-21 21:20	1
11CI-PF3OUdS	763051-92-9	ND	0.729	1.46	1.94		B1D0135	20-Apr-21	0.257 L	21-Apr-21 21:20	1
PFTeDA	376-06-7	ND	0.729	1.46	1.94		B1D0135	20-Apr-21	0.257 L	21-Apr-21 21:20	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	107	70 - 130			B1D0135	20-Apr-21	0.257 L	21-Apr-21 21:20	1	
13C2-PFDA	SURR	101	70 - 130			B1D0135	20-Apr-21	0.257 L	21-Apr-21 21:20	1	
d5-EtFOSAA	SURR	92.5	70 - 130			B1D0135	20-Apr-21	0.257 L	21-Apr-21 21:20	1	
13C3-HFPO-DA	SURR	107	70 - 130			B1D0135	20-Apr-21	0.257 L	21-Apr-21 21:20	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

W 5/26/21

Sample ID: WI-CV-1RW14-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104150-08	Column:	BEH C18
Project:	9000NVT8	Date Collected:	12-Apr-21 14:17	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.710	1.42	1.89		B1D0135	20-Apr-21	0.264 L	21-Apr-21 21:31	1
PFHxA	307-24-4	ND	0.710	1.42	1.89		B1D0135	20-Apr-21	0.264 L	21-Apr-21 21:31	1
HFPO-DA	13252-13-6	ND	0.710	1.42	1.89		B1D0135	20-Apr-21	0.264 L	21-Apr-21 21:31	1
PFHpA	375-85-9	ND	0.710	1.42	1.89		B1D0135	20-Apr-21	0.264 L	21-Apr-21 21:31	1
ADONA	919005-14-4	ND	0.710	1.42	1.89		B1D0135	20-Apr-21	0.264 L	21-Apr-21 21:31	1
PFHxS	355-46-4	ND	0.710	1.42	1.89		B1D0135	20-Apr-21	0.264 L	21-Apr-21 21:31	1
PFOA	335-67-1	ND	0.710	1.42	1.89		B1D0135	20-Apr-21	0.264 L	21-Apr-21 21:31	1
PFNA	375-95-1	ND	0.710	1.42	1.89		B1D0135	20-Apr-21	0.264 L	21-Apr-21 21:31	1
PFOS	1763-23-1	ND	0.710	1.42	1.89		B1D0135	20-Apr-21	0.264 L	21-Apr-21 21:31	1
9Cl-PF3ONS	756426-58-1	ND	0.710	1.42	1.89		B1D0135	20-Apr-21	0.264 L	21-Apr-21 21:31	1
PFDA	335-76-2	ND	0.710	1.42	1.89		B1D0135	20-Apr-21	0.264 L	21-Apr-21 21:31	1
MeFOSAA	2355-31-9	ND	0.710	1.42	1.89		B1D0135	20-Apr-21	0.264 L	21-Apr-21 21:31	1
EtFOSAA	2991-50-6	ND	0.710	1.42	1.89		B1D0135	20-Apr-21	0.264 L	21-Apr-21 21:31	1
PFUnA	2058-94-8	ND	0.710	1.42	1.89		B1D0135	20-Apr-21	0.264 L	21-Apr-21 21:31	1
PFDoA	307-55-1	ND	0.710	1.42	1.89		B1D0135	20-Apr-21	0.264 L	21-Apr-21 21:31	1
PFTrDA	72629-94-8	ND	0.710	1.42	1.89		B1D0135	20-Apr-21	0.264 L	21-Apr-21 21:31	1
11Cl-PF3OUdS	763051-92-9	ND	0.710	1.42	1.89		B1D0135	20-Apr-21	0.264 L	21-Apr-21 21:31	1
PFTeDA	376-06-7	ND	0.710	1.42	1.89		B1D0135	20-Apr-21	0.264 L	21-Apr-21 21:31	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	109	70 - 130			B1D0135	20-Apr-21	0.264 L	21-Apr-21 21:31	1	
13C2-PFDA	SURR	105	70 - 130			B1D0135	20-Apr-21	0.264 L	21-Apr-21 21:31	1	
d5-EtFOSAA	SURR	88.4	70 - 130			B1D0135	20-Apr-21	0.264 L	21-Apr-21 21:31	1	
13C3-HFPO-DA	SURR	109	70 - 130			B1D0135	20-Apr-21	0.264 L	21-Apr-21 21:31	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 5/26/21

Sample ID: WI-CV-1FB14-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104150-09	Column:	BEH C18
Project:	9000NVT8	Date Collected:	12-Apr-21 14:19	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 21:42	1
PFHxA	307-24-4	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 21:42	1
HFPO-DA	13252-13-6	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 21:42	1
PFHpA	375-85-9	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 21:42	1
ADONA	919005-14-4	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 21:42	1
PFHxS	355-46-4	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 21:42	1
PFOA	335-67-1	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 21:42	1
PFNA	375-95-1	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 21:42	1
PFOS	1763-23-1	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 21:42	1
9CI-PF3ONS	756426-58-1	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 21:42	1
PFDA	335-76-2	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 21:42	1
MeFOSAA	2355-31-9	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 21:42	1
EtFOSAA	2991-50-6	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 21:42	1
PFUnA	2058-94-8	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 21:42	1
PFDoA	307-55-1	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 21:42	1
PFTTrDA	72629-94-8	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 21:42	1
11CI-PF3OUdS	763051-92-9	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 21:42	1
PFTeDA	376-06-7	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 21:42	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	104	70 - 130			B1D0135	20-Apr-21	0.255 L	21-Apr-21 21:42	1	
13C2-PFDA	SURR	98.0	70 - 130			B1D0135	20-Apr-21	0.255 L	21-Apr-21 21:42	1	
d5-EtFOSAA	SURR	92.2	70 - 130			B1D0135	20-Apr-21	0.255 L	21-Apr-21 21:42	1	
13C3-HFPO-DA	SURR	107	70 - 130			B1D0135	20-Apr-21	0.255 L	21-Apr-21 21:42	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

mw 5/26/21

Sample ID: WI-CV-2RW04-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104150-10	Column:	BEH C18
Project:	9000NVT8	Date Collected:	12-Apr-21 14:39	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	9.04	0.714	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 21:53	1
PFHxA	307-24-4	1.11	0.714	1.43	1.90	J	B1D0135	20-Apr-21	0.263 L	21-Apr-21 21:53	1
HFPO-DA	13252-13-6	ND	0.714	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 21:53	1
PFHpA	375-85-9	ND	0.714	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 21:53	1
ADONA	919005-14-4	ND	0.714	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 21:53	1
PFHxS	355-46-4	15.2	0.714	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 21:53	1
PFOA	335-67-1	3.59	0.714	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 21:53	1
PFNA	375-95-1	ND	0.714	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 21:53	1
PFOS	1763-23-1	11.1	0.714	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 21:53	1
9CI-PF3ONS	756426-58-1	ND	0.714	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 21:53	1
PFDA	335-76-2	ND	0.714	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 21:53	1
MeFOSAA	2355-31-9	ND	0.714	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 21:53	1
EtFOSAA	2991-50-6	ND	0.714	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 21:53	1
PFUnA	2058-94-8	ND	0.714	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 21:53	1
PFDoA	307-55-1	ND	0.714	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 21:53	1
PFTTrDA	72629-94-8	ND	0.714	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 21:53	1
11CI-PF3OUdS	763051-92-9	ND	0.714	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 21:53	1
PFTeDA	376-06-7	ND	0.714	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 21:53	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	106	70 - 130			B1D0135	20-Apr-21	0.263 L	21-Apr-21 21:53	1	
13C2-PFDA	SURR	96.3	70 - 130			B1D0135	20-Apr-21	0.263 L	21-Apr-21 21:53	1	
d5-EtFOSAA	SURR	90.9	70 - 130			B1D0135	20-Apr-21	0.263 L	21-Apr-21 21:53	1	
13C3-HFPO-DA	SURR	108	70 - 130			B1D0135	20-Apr-21	0.263 L	21-Apr-21 21:53	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

MW 5/26/21

Sample ID: WI-CV-2FB04-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104150-11	Column:	BEH C18
Project:	9000NVT8	Date Collected:	12-Apr-21 14:42	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.743	1.48	1.98		B1D0135	20-Apr-21	0.253 L	21-Apr-21 22:04	1
PFHxA	307-24-4	ND	0.743	1.48	1.98		B1D0135	20-Apr-21	0.253 L	21-Apr-21 22:04	1
HFPO-DA	13252-13-6	ND	0.743	1.48	1.98		B1D0135	20-Apr-21	0.253 L	21-Apr-21 22:04	1
PFHpA	375-85-9	ND	0.743	1.48	1.98		B1D0135	20-Apr-21	0.253 L	21-Apr-21 22:04	1
ADONA	919005-14-4	ND	0.743	1.48	1.98		B1D0135	20-Apr-21	0.253 L	21-Apr-21 22:04	1
PFHxS	355-46-4	ND	0.743	1.48	1.98		B1D0135	20-Apr-21	0.253 L	21-Apr-21 22:04	1
PFOA	335-67-1	ND	0.743	1.48	1.98		B1D0135	20-Apr-21	0.253 L	21-Apr-21 22:04	1
PFNA	375-95-1	ND	0.743	1.48	1.98		B1D0135	20-Apr-21	0.253 L	21-Apr-21 22:04	1
PFOS	1763-23-1	ND	0.743	1.48	1.98		B1D0135	20-Apr-21	0.253 L	21-Apr-21 22:04	1
9CI-PF3ONS	756426-58-1	ND	0.743	1.48	1.98		B1D0135	20-Apr-21	0.253 L	21-Apr-21 22:04	1
PFDA	335-76-2	ND	0.743	1.48	1.98		B1D0135	20-Apr-21	0.253 L	21-Apr-21 22:04	1
MeFOSAA	2355-31-9	ND	0.743	1.48	1.98		B1D0135	20-Apr-21	0.253 L	21-Apr-21 22:04	1
EtFOSAA	2991-50-6	ND	0.743	1.48	1.98		B1D0135	20-Apr-21	0.253 L	21-Apr-21 22:04	1
PFUnA	2058-94-8	ND	0.743	1.48	1.98		B1D0135	20-Apr-21	0.253 L	21-Apr-21 22:04	1
PFDoA	307-55-1	ND	0.743	1.48	1.98		B1D0135	20-Apr-21	0.253 L	21-Apr-21 22:04	1
PFTTrDA	72629-94-8	ND	0.743	1.48	1.98		B1D0135	20-Apr-21	0.253 L	21-Apr-21 22:04	1
11CI-PF3OUdS	763051-92-9	ND	0.743	1.48	1.98		B1D0135	20-Apr-21	0.253 L	21-Apr-21 22:04	1
PFTeDA	376-06-7	ND	0.743	1.48	1.98		B1D0135	20-Apr-21	0.253 L	21-Apr-21 22:04	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	105	70 - 130			B1D0135	20-Apr-21	0.253 L	21-Apr-21 22:04	1	
13C2-PFDA	SURR	98.6	70 - 130			B1D0135	20-Apr-21	0.253 L	21-Apr-21 22:04	1	
d5-EtFOSAA	SURR	94.1	70 - 130			B1D0135	20-Apr-21	0.253 L	21-Apr-21 22:04	1	
13C3-HFPO-DA	SURR	108	70 - 130			B1D0135	20-Apr-21	0.253 L	21-Apr-21 22:04	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

MW 5/26/21

Sample ID: WI-CV-1RW72-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104150-12	Column:	BEH C18
Project:	9000NVT8	Date Collected:	12-Apr-21 16:08	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	1.74	0.733	1.46	1.95	J	B1D0135	20-Apr-21	0.256 L	21-Apr-21 22:15	1
PFHxA	307-24-4	1.53	0.733	1.46	1.95	J	B1D0135	20-Apr-21	0.256 L	21-Apr-21 22:15	1
HFPO-DA	13252-13-6	ND	0.733	1.46	1.95		B1D0135	20-Apr-21	0.256 L	21-Apr-21 22:15	1
PFHpA	375-85-9	ND	0.733	1.46	1.95		B1D0135	20-Apr-21	0.256 L	21-Apr-21 22:15	1
ADONA	919005-14-4	ND	0.733	1.46	1.95		B1D0135	20-Apr-21	0.256 L	21-Apr-21 22:15	1
PFHxS	355-46-4	1.09	0.733	1.46	1.95	J	B1D0135	20-Apr-21	0.256 L	21-Apr-21 22:15	1
PFOA	335-67-1	1.10	0.733	1.46	1.95	J	B1D0135	20-Apr-21	0.256 L	21-Apr-21 22:15	1
PFNA	375-95-1	ND	0.733	1.46	1.95		B1D0135	20-Apr-21	0.256 L	21-Apr-21 22:15	1
PFOS	1763-23-1	ND	0.733	1.46	1.95		B1D0135	20-Apr-21	0.256 L	21-Apr-21 22:15	1
9CI-PF3ONS	756426-58-1	ND	0.733	1.46	1.95		B1D0135	20-Apr-21	0.256 L	21-Apr-21 22:15	1
PFDA	335-76-2	ND	0.733	1.46	1.95		B1D0135	20-Apr-21	0.256 L	21-Apr-21 22:15	1
MeFOSAA	2355-31-9	ND	0.733	1.46	1.95		B1D0135	20-Apr-21	0.256 L	21-Apr-21 22:15	1
EtFOSAA	2991-50-6	ND	0.733	1.46	1.95		B1D0135	20-Apr-21	0.256 L	21-Apr-21 22:15	1
PFUnA	2058-94-8	ND	0.733	1.46	1.95		B1D0135	20-Apr-21	0.256 L	21-Apr-21 22:15	1
PFDoA	307-55-1	ND	0.733	1.46	1.95		B1D0135	20-Apr-21	0.256 L	21-Apr-21 22:15	1
PFTrDA	72629-94-8	ND	0.733	1.46	1.95		B1D0135	20-Apr-21	0.256 L	21-Apr-21 22:15	1
11CI-PF3OUdS	763051-92-9	ND	0.733	1.46	1.95		B1D0135	20-Apr-21	0.256 L	21-Apr-21 22:15	1
PFTeDA	376-06-7	ND	0.733	1.46	1.95		B1D0135	20-Apr-21	0.256 L	21-Apr-21 22:15	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	108	70 - 130			B1D0135	20-Apr-21	0.256 L	21-Apr-21 22:15	1	
13C2-PFDA	SURR	96.8	70 - 130			B1D0135	20-Apr-21	0.256 L	21-Apr-21 22:15	1	
d5-EtFOSAA	SURR	79.5	70 - 130			B1D0135	20-Apr-21	0.256 L	21-Apr-21 22:15	1	
13C3-HFPO-DA	SURR	107	70 - 130			B1D0135	20-Apr-21	0.256 L	21-Apr-21 22:15	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

W 5/26/21

Sample ID: WI-CV-1FB72-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104150-13	Column:	BEH C18
Project:	9000NVT8	Date Collected:	12-Apr-21 16:10	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 22:26	1
PFHxA	307-24-4	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 22:26	1
HFPO-DA	13252-13-6	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 22:26	1
PFHpA	375-85-9	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 22:26	1
ADONA	919005-14-4	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 22:26	1
PFHxS	355-46-4	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 22:26	1
PFOA	335-67-1	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 22:26	1
PFNA	375-95-1	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 22:26	1
PFOS	1763-23-1	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 22:26	1
9CI-PF3ONS	756426-58-1	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 22:26	1
PFDA	335-76-2	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 22:26	1
MeFOSAA	2355-31-9	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 22:26	1
EtFOSAA	2991-50-6	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 22:26	1
PFUnA	2058-94-8	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 22:26	1
PFDoA	307-55-1	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 22:26	1
PFTTrDA	72629-94-8	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 22:26	1
11CI-PF3OUdS	763051-92-9	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 22:26	1
PFTeDA	376-06-7	ND	0.734	1.47	1.96		B1D0135	20-Apr-21	0.255 L	21-Apr-21 22:26	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	112	70 - 130			B1D0135	20-Apr-21	0.255 L	21-Apr-21 22:26	1	
13C2-PFDA	SURR	107	70 - 130			B1D0135	20-Apr-21	0.255 L	21-Apr-21 22:26	1	
d5-EtFOSAA	SURR	103	70 - 130			B1D0135	20-Apr-21	0.255 L	21-Apr-21 22:26	1	
13C3-HFPO-DA	SURR	114	70 - 130			B1D0135	20-Apr-21	0.255 L	21-Apr-21 22:26	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW 5/26/21

Sample ID: WI-AF-1RW68-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104150-14	Column:	BEH C18
Project:	9000NVT8	Date Collected:	13-Apr-21 08:15	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.750	1.50	2.00		B1D0135	20-Apr-21	0.250 L	21-Apr-21 22:37	1
PFHxA	307-24-4	ND	0.750	1.50	2.00		B1D0135	20-Apr-21	0.250 L	21-Apr-21 22:37	1
HFPO-DA	13252-13-6	ND	0.750	1.50	2.00		B1D0135	20-Apr-21	0.250 L	21-Apr-21 22:37	1
PFHpA	375-85-9	ND	0.750	1.50	2.00		B1D0135	20-Apr-21	0.250 L	21-Apr-21 22:37	1
ADONA	919005-14-4	ND	0.750	1.50	2.00		B1D0135	20-Apr-21	0.250 L	21-Apr-21 22:37	1
PFHxS	355-46-4	ND	0.750	1.50	2.00		B1D0135	20-Apr-21	0.250 L	21-Apr-21 22:37	1
PFOA	335-67-1	ND	0.750	1.50	2.00		B1D0135	20-Apr-21	0.250 L	21-Apr-21 22:37	1
PFNA	375-95-1	ND	0.750	1.50	2.00		B1D0135	20-Apr-21	0.250 L	21-Apr-21 22:37	1
PFOS	1763-23-1	ND	0.750	1.50	2.00		B1D0135	20-Apr-21	0.250 L	21-Apr-21 22:37	1
9Cl-PF3ONS	756426-58-1	ND	0.750	1.50	2.00		B1D0135	20-Apr-21	0.250 L	21-Apr-21 22:37	1
PFDA	335-76-2	ND	0.750	1.50	2.00		B1D0135	20-Apr-21	0.250 L	21-Apr-21 22:37	1
MeFOSAA	2355-31-9	ND	0.750	1.50	2.00		B1D0135	20-Apr-21	0.250 L	21-Apr-21 22:37	1
EtFOSAA	2991-50-6	ND	0.750	1.50	2.00		B1D0135	20-Apr-21	0.250 L	21-Apr-21 22:37	1
PFUnA	2058-94-8	ND	0.750	1.50	2.00		B1D0135	20-Apr-21	0.250 L	21-Apr-21 22:37	1
PFDoA	307-55-1	ND	0.750	1.50	2.00		B1D0135	20-Apr-21	0.250 L	21-Apr-21 22:37	1
PFTTrDA	72629-94-8	ND	0.750	1.50	2.00		B1D0135	20-Apr-21	0.250 L	21-Apr-21 22:37	1
11Cl-PF3OUdS	763051-92-9	ND	0.750	1.50	2.00		B1D0135	20-Apr-21	0.250 L	21-Apr-21 22:37	1
PFTeDA	376-06-7	ND	0.750	1.50	2.00		B1D0135	20-Apr-21	0.250 L	21-Apr-21 22:37	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	110	70 - 130			B1D0135	20-Apr-21	0.250 L	21-Apr-21 22:37	1	
13C2-PFDA	SURR	102	70 - 130			B1D0135	20-Apr-21	0.250 L	21-Apr-21 22:37	1	
d5-EtFOSAA	SURR	90.2	70 - 130			B1D0135	20-Apr-21	0.250 L	21-Apr-21 22:37	1	
13C3-HFPO-DA	SURR	111	70 - 130			B1D0135	20-Apr-21	0.250 L	21-Apr-21 22:37	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

MW 5/26/21

Sample ID: WI-AF-1FB68-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104150-15	Column:	BEH C18
Project:	9000NVT8	Date Collected:	13-Apr-21 08:17	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 22:48	1
PFHxA	307-24-4	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 22:48	1
HFPO-DA	13252-13-6	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 22:48	1
PFHpA	375-85-9	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 22:48	1
ADONA	919005-14-4	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 22:48	1
PFHxS	355-46-4	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 22:48	1
PFOA	335-67-1	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 22:48	1
PFNA	375-95-1	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 22:48	1
PFOS	1763-23-1	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 22:48	1
9CI-PF3ONS	756426-58-1	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 22:48	1
PFDA	335-76-2	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 22:48	1
MeFOSAA	2355-31-9	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 22:48	1
EtFOSAA	2991-50-6	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 22:48	1
PFUnA	2058-94-8	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 22:48	1
PFDoA	307-55-1	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 22:48	1
PFTrDA	72629-94-8	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 22:48	1
11CI-PF3OUdS	763051-92-9	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 22:48	1
PFTeDA	376-06-7	ND	0.745	1.49	1.99		B1D0135	20-Apr-21	0.252 L	21-Apr-21 22:48	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	106	70 - 130			B1D0135	20-Apr-21	0.252 L	21-Apr-21 22:48	1	
13C2-PFDA	SURR	100	70 - 130			B1D0135	20-Apr-21	0.252 L	21-Apr-21 22:48	1	
d5-EtFOSAA	SURR	93.9	70 - 130			B1D0135	20-Apr-21	0.252 L	21-Apr-21 22:48	1	
13C3-HFPO-DA	SURR	106	70 - 130			B1D0135	20-Apr-21	0.252 L	21-Apr-21 22:48	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW 5/26/21

Sample ID: WI-AF-1RW12-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104150-16	Column:	BEH C18
Project:	9000NVT8	Date Collected:	13-Apr-21 09:12	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	2.49	0.712	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 22:59	1
PFHxA	307-24-4	1.35	0.712	1.43	1.90	J	B1D0135	20-Apr-21	0.263 L	21-Apr-21 22:59	1
HFPO-DA	13252-13-6	ND	0.712	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 22:59	1
PFHpA	375-85-9	1.17	0.712	1.43	1.90	J	B1D0135	20-Apr-21	0.263 L	21-Apr-21 22:59	1
ADONA	919005-14-4	ND	0.712	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 22:59	1
PFHxS	355-46-4	1.71	0.712	1.43	1.90	J	B1D0135	20-Apr-21	0.263 L	21-Apr-21 22:59	1
PFOA	335-67-1	6.73	0.712	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 22:59	1
PFNA	375-95-1	ND	0.712	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 22:59	1
PFOS	1763-23-1	2.63	0.712	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 22:59	1
9CI-PF3ONS	756426-58-1	ND	0.712	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 22:59	1
PFDA	335-76-2	ND	0.712	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 22:59	1
MeFOSAA	2355-31-9	ND	0.712	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 22:59	1
EtFOSAA	2991-50-6	ND	0.712	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 22:59	1
PFUnA	2058-94-8	ND	0.712	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 22:59	1
PFDoA	307-55-1	ND	0.712	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 22:59	1
PFTTrDA	72629-94-8	ND	0.712	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 22:59	1
11CI-PF3OUdS	763051-92-9	ND	0.712	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 22:59	1
PFTeDA	376-06-7	ND	0.712	1.43	1.90		B1D0135	20-Apr-21	0.263 L	21-Apr-21 22:59	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	103	70 - 130			B1D0135	20-Apr-21	0.263 L	21-Apr-21 22:59	1	
13C2-PFDA	SURR	99.7	70 - 130			B1D0135	20-Apr-21	0.263 L	21-Apr-21 22:59	1	
d5-EtFOSAA	SURR	86.5	70 - 130			B1D0135	20-Apr-21	0.263 L	21-Apr-21 22:59	1	
13C3-HFPO-DA	SURR	106	70 - 130			B1D0135	20-Apr-21	0.263 L	21-Apr-21 22:59	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

new 5/26/21

Sample ID: WI-AF-1RW12P-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104150-17	Column:	BEH C18
Project:	9000NVT8	Date Collected:	13-Apr-21 09:14	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	2.44	0.707	1.42	1.89		B1D0135	20-Apr-21	0.265 L	22-Apr-21 18:54	1
PFHxA	307-24-4	1.33	0.707	1.42	1.89	J	B1D0135	20-Apr-21	0.265 L	22-Apr-21 18:54	1
HFPO-DA	13252-13-6	ND	0.707	1.42	1.89		B1D0135	20-Apr-21	0.265 L	22-Apr-21 18:54	1
PFHpA	375-85-9	1.11	0.707	1.42	1.89	J	B1D0135	20-Apr-21	0.265 L	22-Apr-21 18:54	1
ADONA	919005-14-4	ND	0.707	1.42	1.89		B1D0135	20-Apr-21	0.265 L	22-Apr-21 18:54	1
PFHxS	355-46-4	1.45	0.707	1.42	1.89	J	B1D0135	20-Apr-21	0.265 L	22-Apr-21 18:54	1
PFOA	335-67-1	6.88	0.707	1.42	1.89		B1D0135	20-Apr-21	0.265 L	22-Apr-21 18:54	1
PFNA	375-95-1	ND	0.707	1.42	1.89		B1D0135	20-Apr-21	0.265 L	22-Apr-21 18:54	1
PFOS	1763-23-1	2.13	0.707	1.42	1.89		B1D0135	20-Apr-21	0.265 L	22-Apr-21 18:54	1
9CI-PF3ONS	756426-58-1	ND	0.707	1.42	1.89		B1D0135	20-Apr-21	0.265 L	22-Apr-21 18:54	1
PFDA	335-76-2	ND	0.707	1.42	1.89		B1D0135	20-Apr-21	0.265 L	22-Apr-21 18:54	1
MeFOSAA	2355-31-9	ND	0.707	1.42	1.89		B1D0135	20-Apr-21	0.265 L	22-Apr-21 18:54	1
EtFOSAA	2991-50-6	ND	0.707	1.42	1.89		B1D0135	20-Apr-21	0.265 L	22-Apr-21 18:54	1
PFUnA	2058-94-8	ND	0.707	1.42	1.89		B1D0135	20-Apr-21	0.265 L	22-Apr-21 18:54	1
PFDoA	307-55-1	ND	0.707	1.42	1.89		B1D0135	20-Apr-21	0.265 L	22-Apr-21 18:54	1
PFTrDA	72629-94-8	ND	0.707	1.42	1.89		B1D0135	20-Apr-21	0.265 L	22-Apr-21 18:54	1
11CI-PF3OUdS	763051-92-9	ND	0.707	1.42	1.89		B1D0135	20-Apr-21	0.265 L	22-Apr-21 18:54	1
PFTeDA	376-06-7	ND	0.707	1.42	1.89		B1D0135	20-Apr-21	0.265 L	22-Apr-21 18:54	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	94.7	70 - 130			B1D0135	20-Apr-21	0.265 L	22-Apr-21 18:54	1	
13C2-PFDA	SURR	114	70 - 130			B1D0135	20-Apr-21	0.265 L	22-Apr-21 18:54	1	
d5-EtFOSAA	SURR	97.7	70 - 130			B1D0135	20-Apr-21	0.265 L	22-Apr-21 18:54	1	
13C3-HFPO-DA	SURR	72.8	70 - 130			B1D0135	20-Apr-21	0.265 L	22-Apr-21 18:54	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

MW 5/26/21

Sample ID: WI-AF-1FB12-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104150-18	Column:	BEH C18
Project:	9000NVT8	Date Collected:	13-Apr-21 09:16	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.727	1.45	1.94		B1D0135	20-Apr-21	0.258 L	21-Apr-21 23:55	1
PFHxA	307-24-4	ND	0.727	1.45	1.94		B1D0135	20-Apr-21	0.258 L	21-Apr-21 23:55	1
HFPO-DA	13252-13-6	ND	0.727	1.45	1.94		B1D0135	20-Apr-21	0.258 L	21-Apr-21 23:55	1
PFHpA	375-85-9	ND	0.727	1.45	1.94		B1D0135	20-Apr-21	0.258 L	21-Apr-21 23:55	1
ADONA	919005-14-4	ND	0.727	1.45	1.94		B1D0135	20-Apr-21	0.258 L	21-Apr-21 23:55	1
PFHxS	355-46-4	ND	0.727	1.45	1.94		B1D0135	20-Apr-21	0.258 L	21-Apr-21 23:55	1
PFOA	335-67-1	ND	0.727	1.45	1.94		B1D0135	20-Apr-21	0.258 L	21-Apr-21 23:55	1
PFNA	375-95-1	ND	0.727	1.45	1.94		B1D0135	20-Apr-21	0.258 L	21-Apr-21 23:55	1
PFOS	1763-23-1	ND	0.727	1.45	1.94		B1D0135	20-Apr-21	0.258 L	21-Apr-21 23:55	1
9CI-PF3ONS	756426-58-1	ND	0.727	1.45	1.94		B1D0135	20-Apr-21	0.258 L	21-Apr-21 23:55	1
PFDA	335-76-2	ND	0.727	1.45	1.94		B1D0135	20-Apr-21	0.258 L	21-Apr-21 23:55	1
MeFOSAA	2355-31-9	ND	0.727	1.45	1.94		B1D0135	20-Apr-21	0.258 L	21-Apr-21 23:55	1
EtFOSAA	2991-50-6	ND	0.727	1.45	1.94		B1D0135	20-Apr-21	0.258 L	21-Apr-21 23:55	1
PFUnA	2058-94-8	ND	0.727	1.45	1.94		B1D0135	20-Apr-21	0.258 L	21-Apr-21 23:55	1
PFDoA	307-55-1	ND	0.727	1.45	1.94		B1D0135	20-Apr-21	0.258 L	21-Apr-21 23:55	1
PFTTrDA	72629-94-8	ND	0.727	1.45	1.94		B1D0135	20-Apr-21	0.258 L	21-Apr-21 23:55	1
11CI-PF3OUdS	763051-92-9	ND	0.727	1.45	1.94		B1D0135	20-Apr-21	0.258 L	21-Apr-21 23:55	1
PFTeDA	376-06-7	ND	0.727	1.45	1.94		B1D0135	20-Apr-21	0.258 L	21-Apr-21 23:55	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	104	70 - 130			B1D0135	20-Apr-21	0.258 L	21-Apr-21 23:55	1	
13C2-PFDA	SURR	99.9	70 - 130			B1D0135	20-Apr-21	0.258 L	21-Apr-21 23:55	1	
d5-EtFOSAA	SURR	94.7	70 - 130			B1D0135	20-Apr-21	0.258 L	21-Apr-21 23:55	1	
13C3-HFPO-DA	SURR	106	70 - 130			B1D0135	20-Apr-21	0.258 L	21-Apr-21 23:55	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW 5/26/21

**DATA VALIDATION SUMMARY REPORT
NAS WHIDBEY ISLAND, WASHINGTON**

Client: CH2M HILL, Inc., Corvallis, Oregon
 SDG: 2104163
 Laboratory: Vista Analytical Laboratory, El Dorado Hills, California
 Site: NAS Whidbey Island, Residential Wells, CTO-4384, Washington
 Date: May 26, 2021

PFAS			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	WI-CV-3RW07-0421	2104163-01	Water
2	WI-CV-3FB07-0421	2104163-02	Water
3	WI-CV-2RW02-0421	2104163-03	Water
4	WI-CV-2FB02-0421	2104163-04	Water
5	WI-AF-3RW18-0421	2104163-05	Water
6	WI-AF-3FB18-0421	2104163-06	Water
7	WI-A06-RW05-0421	2104163-07	Water
7MS	WI-A06-RW05-0421MS	2104163-07MS	Water
7MSD	WI-A06-RW05-0421MSD	2104163-07MSD	Water
8	WI-A06-FB05-0421	2104163-08	Water
9	WI-A06-RW24-0421	2104163-09	Water
10	WI-A06-FB24-0421	2104163-10	Water
11	WI-A06-RW20-0421	2104163-11	Water
12	WI-A06-FB20-0421	2104163-12	Water
13	WI-AF-1RW25-0421	2104163-13	Water
14	WI-AF-1FB25-0421	2104163-14	Water
15	WI-A06-RW14-0421	2104163-15	Water
16	WI-A06-FB14-0421	2104163-16	Water

A Stage 2B/4 data validation was performed on the analytical data for eight water samples and eight aqueous field blank samples collected on April 14-15, 2021 by CH2M Hill at the NAS Whidbey Island site in Washington. The samples were analyzed under the EPA Method “Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)”.

Specific method references are as follows:

Analysis
PFAS

Method References
USEPA Method 537.1

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, the Final Sampling and Analysis Plan Investigation of Per- and Polyfluoroalkyl Substances in Off-Base Drinking Water Ault Field, Area 6, and Outlying Landing Field Coupeville, Naval Air Station Whidbey Island, April, 2020, Field Change Request (FCR) No. 1,

September 2020, FCR No. 2, November 2020, and the DoD Final General Data Validation Guidelines, November 2019, and the USEPA Data Review and Validation Guidelines as follows:

- The USEPA “Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537,” November 2018;
- and the reviewer's professional judgment.

The following data quality indicators were reviewed for this report:

Organics

- Date Completeness, Case Narrative & Custody Documentation
- Holding times
- Liquid Chromatography/Mass Spectrometry (LC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field QC blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

A Stage 2B/4 data validation was performed with this review including a recalculation of 100% of the detected results in the samples.

Data Usability Assessment

There were no serious deficiencies of data.

The data are acceptable for the intended purposes. There were no qualifications.

Perfluorinated Alkyl Substances (PFAS)

Data Completeness, Case Narrative & Custody Documentation

- The case narrative and chain-of-custody documentation were included in the data package as required. All criteria were met.

Holding Times

- All samples were extracted within 14 days for water samples and analyzed within 28 days.

LC/MS Tuning

- All criteria were met.

Initial Calibration

- All relative standard deviation (%RSD) and/or correlation coefficients criteria were met.

Continuing Calibration

- All percent difference (%D) and RRF criteria were met.

Method Blank

- The method blanks were free of contamination.

Field QC Blank

- Field QC sample results are summarized in the table below.

Blank ID	Compound	Conc. ng/L	Qualifier	Affected Samples
WI-CV-3FB07-0421	None - ND	-	-	-
WI-CV-2FB02-0421	None - ND	-	-	-
WI-AF-3FB18-0421	None - ND	-	-	-
WI-A06-FB05-0421	None - ND	-	-	-
WI-A06-FB24-0421	None - ND	-	-	-
WI-A06-FB20-0421	None - ND	-	-	-
WI-AF-1FB25-0421	None - ND	-	-	-
WI-A06-FB14-0421	None - ND	-	-	-

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- The MS/MSD samples exhibited acceptable percent recoveries (%R) and RPD values.

Laboratory Control Samples (LCS)

- The LCS samples exhibited acceptable percent recoveries (%R).

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- All criteria were met.

Field Duplicate Sample Precision

- Field duplicate samples were not collected.

Please contact the undersigned at (561) 475-2000 if you have any questions or need further information.

Signed:

Nancy Weaver
Nancy Weaver
Senior Chemist

Dated: 5/28/21

Qualifier	Definition
U	The analyte was not detected and was reported as less than the LOD or as defined by the customer. The LOD has been adjusted for any dilution or concentration of the sample.
J	The reported result was an estimated value with an unknown bias.
J+	The result was an estimated quantity, but the result may be biased high.
J-	The result was an estimated quantity, but the result may be biased low.
N	The analysis indicates the presence of an analyte for which there was presumptive evidence to make a "tentative identification."
NJ	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value was the estimated concentration in the sample.
UJ	The analyte was not detected and was reported as less than the LOD or as defined by the customer. However, the associated numerical value is approximate.
X	<p>The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided.</p> <p>Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.</p>

Sample ID: WI-CV-3RW07-0421						EPA Method 537.1					
Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2104163-01	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	14-Apr-21 14:20		Date Received:	16-Apr-21 09:58					
Location:	Drinking Water										
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.741	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 20:05	1
PFHxA	307-24-4	ND	0.741	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 20:05	1
HFPO-DA	13252-13-6	ND	0.741	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 20:05	1
PFHpA	375-85-9	ND	0.741	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 20:05	1
ADONA	919005-14-4	ND	0.741	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 20:05	1
PFHxS	355-46-4	ND	0.741	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 20:05	1
PFOA	335-67-1	ND	0.741	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 20:05	1
PFNA	375-95-1	ND	0.741	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 20:05	1
PFOS	1763-23-1	ND	0.741	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 20:05	1
9CI-PF3ONS	756426-58-1	ND	0.741	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 20:05	1
PFDA	335-76-2	ND	0.741	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 20:05	1
MeFOSAA	2355-31-9	ND	0.741	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 20:05	1
EtFOSAA	2991-50-6	ND	0.741	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 20:05	1
PFUnA	2058-94-8	ND	0.741	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 20:05	1
PFDoA	307-55-1	ND	0.741	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 20:05	1
PFTrDA	72629-94-8	ND	0.741	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 20:05	1
11CI-PF3OUdS	763051-92-9	ND	0.741	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 20:05	1
PFTeDA	376-06-7	ND	0.741	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 20:05	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	98.7	70 - 130			B1D0137	25-Apr-21	0.253 L	26-Apr-21 20:05	1	
13C2-PFDA	SURR	92.3	70 - 130			B1D0137	25-Apr-21	0.253 L	26-Apr-21 20:05	1	
d5-EtFOSAA	SURR	89.5	70 - 130			B1D0137	25-Apr-21	0.253 L	26-Apr-21 20:05	1	
13C3-HFPO-DA	SURR	105	70 - 130			B1D0137	25-Apr-21	0.253 L	26-Apr-21 20:05	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

mw 5/26/21

Sample ID: WI-CV-3FB07-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104163-02	Column:	BEH C18
Project:	9000NVT8	Date Collected:	14-Apr-21 14:22	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.751	1.50	2.00		B1D0137	25-Apr-21	0.250 L	26-Apr-21 20:17	1
PFHxA	307-24-4	ND	0.751	1.50	2.00		B1D0137	25-Apr-21	0.250 L	26-Apr-21 20:17	1
HFPO-DA	13252-13-6	ND	0.751	1.50	2.00		B1D0137	25-Apr-21	0.250 L	26-Apr-21 20:17	1
PFHpA	375-85-9	ND	0.751	1.50	2.00		B1D0137	25-Apr-21	0.250 L	26-Apr-21 20:17	1
ADONA	919005-14-4	ND	0.751	1.50	2.00		B1D0137	25-Apr-21	0.250 L	26-Apr-21 20:17	1
PFHxS	355-46-4	ND	0.751	1.50	2.00		B1D0137	25-Apr-21	0.250 L	26-Apr-21 20:17	1
PFOA	335-67-1	ND	0.751	1.50	2.00		B1D0137	25-Apr-21	0.250 L	26-Apr-21 20:17	1
PFNA	375-95-1	ND	0.751	1.50	2.00		B1D0137	25-Apr-21	0.250 L	26-Apr-21 20:17	1
PFOS	1763-23-1	ND	0.751	1.50	2.00		B1D0137	25-Apr-21	0.250 L	26-Apr-21 20:17	1
9Cl-PF3ONS	756426-58-1	ND	0.751	1.50	2.00		B1D0137	25-Apr-21	0.250 L	26-Apr-21 20:17	1
PFDA	335-76-2	ND	0.751	1.50	2.00		B1D0137	25-Apr-21	0.250 L	26-Apr-21 20:17	1
MeFOSAA	2355-31-9	ND	0.751	1.50	2.00		B1D0137	25-Apr-21	0.250 L	26-Apr-21 20:17	1
EtFOSAA	2991-50-6	ND	0.751	1.50	2.00		B1D0137	25-Apr-21	0.250 L	26-Apr-21 20:17	1
PFUnA	2058-94-8	ND	0.751	1.50	2.00		B1D0137	25-Apr-21	0.250 L	26-Apr-21 20:17	1
PFDoA	307-55-1	ND	0.751	1.50	2.00		B1D0137	25-Apr-21	0.250 L	26-Apr-21 20:17	1
PFTTrDA	72629-94-8	ND	0.751	1.50	2.00		B1D0137	25-Apr-21	0.250 L	26-Apr-21 20:17	1
11Cl-PF3OUdS	763051-92-9	ND	0.751	1.50	2.00		B1D0137	25-Apr-21	0.250 L	26-Apr-21 20:17	1
PFTeDA	376-06-7	ND	0.751	1.50	2.00		B1D0137	25-Apr-21	0.250 L	26-Apr-21 20:17	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	101	70 - 130			B1D0137	25-Apr-21	0.250 L	26-Apr-21 20:17	1	
13C2-PFDA	SURR	95.5	70 - 130			B1D0137	25-Apr-21	0.250 L	26-Apr-21 20:17	1	
d5-EtFOSAA	SURR	92.5	70 - 130			B1D0137	25-Apr-21	0.250 L	26-Apr-21 20:17	1	
13C3-HFPO-DA	SURR	104	70 - 130			B1D0137	25-Apr-21	0.250 L	26-Apr-21 20:17	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nr 5/26/21

Sample ID: WI-CV-2RW02-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104163-03	Column:	BEH C18
Project:	9000NVT8	Date Collected:	14-Apr-21 15:33	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	25.6	0.710	1.42	1.89		B1D0137	25-Apr-21	0.264 L	26-Apr-21 20:28	1
PFHxA	307-24-4	70.7	0.710	1.42	1.89		B1D0137	25-Apr-21	0.264 L	26-Apr-21 20:28	1
HFPO-DA	13252-13-6	ND	0.710	1.42	1.89		B1D0137	25-Apr-21	0.264 L	26-Apr-21 20:28	1
PFHpA	375-85-9	17.2	0.710	1.42	1.89		B1D0137	25-Apr-21	0.264 L	26-Apr-21 20:28	1
ADONA	919005-14-4	ND	0.710	1.42	1.89		B1D0137	25-Apr-21	0.264 L	26-Apr-21 20:28	1
PFHxS	355-46-4	66.9	0.710	1.42	1.89		B1D0137	25-Apr-21	0.264 L	26-Apr-21 20:28	1
PFOA	335-67-1	298	0.710	1.42	1.89		B1D0137	25-Apr-21	0.264 L	26-Apr-21 20:28	1
PFNA	375-95-1	ND	0.710	1.42	1.89		B1D0137	25-Apr-21	0.264 L	26-Apr-21 20:28	1
PFOS	1763-23-1	ND	0.710	1.42	1.89		B1D0137	25-Apr-21	0.264 L	26-Apr-21 20:28	1
9CI-PF3ONS	756426-58-1	ND	0.710	1.42	1.89		B1D0137	25-Apr-21	0.264 L	26-Apr-21 20:28	1
PFDA	335-76-2	ND	0.710	1.42	1.89		B1D0137	25-Apr-21	0.264 L	26-Apr-21 20:28	1
MeFOSAA	2355-31-9	ND	0.710	1.42	1.89		B1D0137	25-Apr-21	0.264 L	26-Apr-21 20:28	1
EtFOSAA	2991-50-6	ND	0.710	1.42	1.89		B1D0137	25-Apr-21	0.264 L	26-Apr-21 20:28	1
PFUnA	2058-94-8	ND	0.710	1.42	1.89		B1D0137	25-Apr-21	0.264 L	26-Apr-21 20:28	1
PFDoA	307-55-1	ND	0.710	1.42	1.89		B1D0137	25-Apr-21	0.264 L	26-Apr-21 20:28	1
PFTrDA	72629-94-8	ND	0.710	1.42	1.89		B1D0137	25-Apr-21	0.264 L	26-Apr-21 20:28	1
11CI-PF3OUdS	763051-92-9	ND	0.710	1.42	1.89		B1D0137	25-Apr-21	0.264 L	26-Apr-21 20:28	1
PFTeDA	376-06-7	ND	0.710	1.42	1.89		B1D0137	25-Apr-21	0.264 L	26-Apr-21 20:28	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	102	70 - 130			B1D0137	25-Apr-21	0.264 L	26-Apr-21 20:28	1	
13C2-PFDA	SURR	100	70 - 130			B1D0137	25-Apr-21	0.264 L	26-Apr-21 20:28	1	
d5-EtFOSAA	SURR	87.8	70 - 130			B1D0137	25-Apr-21	0.264 L	26-Apr-21 20:28	1	
13C3-HFPO-DA	SURR	106	70 - 130			B1D0137	25-Apr-21	0.264 L	26-Apr-21 20:28	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

WS/26/21

Sample ID: WI-CV-2FB02-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104163-04	Column:	BEH C18
Project:	9000NVT8	Date Collected:	14-Apr-21 15:35	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 20:39	1
PFHxA	307-24-4	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 20:39	1
HFPO-DA	13252-13-6	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 20:39	1
PFHpA	375-85-9	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 20:39	1
ADONA	919005-14-4	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 20:39	1
PFHxS	355-46-4	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 20:39	1
PFOA	335-67-1	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 20:39	1
PFNA	375-95-1	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 20:39	1
PFOS	1763-23-1	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 20:39	1
9CI-PF3ONS	756426-58-1	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 20:39	1
PFDA	335-76-2	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 20:39	1
MeFOSAA	2355-31-9	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 20:39	1
EtFOSAA	2991-50-6	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 20:39	1
PFUnA	2058-94-8	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 20:39	1
PFDoA	307-55-1	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 20:39	1
PFTTrDA	72629-94-8	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 20:39	1
11CI-PF3OUdS	763051-92-9	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 20:39	1
PFTeDA	376-06-7	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 20:39	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	98.6	70 - 130			B1D0137	25-Apr-21	0.256 L	26-Apr-21 20:39	1	
13C2-PFDA	SURR	97.7	70 - 130			B1D0137	25-Apr-21	0.256 L	26-Apr-21 20:39	1	
d5-EtFOSAA	SURR	87.1	70 - 130			B1D0137	25-Apr-21	0.256 L	26-Apr-21 20:39	1	
13C3-HFPO-DA	SURR	105	70 - 130			B1D0137	25-Apr-21	0.256 L	26-Apr-21 20:39	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

MW 5/26/21

Sample ID: WI-AF-3RW18-0421 **EPA Method 537.1**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104163-05	Column:	BEH C18
Project:	9000NVT8	Date Collected:	15-Apr-21 08:47	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.754	1.51	2.01		B1D0137	25-Apr-21	0.249 L	26-Apr-21 20:50	1
PFHxA	307-24-4	ND	0.754	1.51	2.01		B1D0137	25-Apr-21	0.249 L	26-Apr-21 20:50	1
HFPO-DA	13252-13-6	ND	0.754	1.51	2.01		B1D0137	25-Apr-21	0.249 L	26-Apr-21 20:50	1
PFHpA	375-85-9	ND	0.754	1.51	2.01		B1D0137	25-Apr-21	0.249 L	26-Apr-21 20:50	1
ADONA	919005-14-4	ND	0.754	1.51	2.01		B1D0137	25-Apr-21	0.249 L	26-Apr-21 20:50	1
PFHxS	355-46-4	ND	0.754	1.51	2.01		B1D0137	25-Apr-21	0.249 L	26-Apr-21 20:50	1
PFOA	335-67-1	ND	0.754	1.51	2.01		B1D0137	25-Apr-21	0.249 L	26-Apr-21 20:50	1
PFNA	375-95-1	ND	0.754	1.51	2.01		B1D0137	25-Apr-21	0.249 L	26-Apr-21 20:50	1
PFOS	1763-23-1	ND	0.754	1.51	2.01		B1D0137	25-Apr-21	0.249 L	26-Apr-21 20:50	1
9CI-PF3ONS	756426-58-1	ND	0.754	1.51	2.01		B1D0137	25-Apr-21	0.249 L	26-Apr-21 20:50	1
PFDA	335-76-2	ND	0.754	1.51	2.01		B1D0137	25-Apr-21	0.249 L	26-Apr-21 20:50	1
MeFOSAA	2355-31-9	ND	0.754	1.51	2.01		B1D0137	25-Apr-21	0.249 L	26-Apr-21 20:50	1
EtFOSAA	2991-50-6	ND	0.754	1.51	2.01		B1D0137	25-Apr-21	0.249 L	26-Apr-21 20:50	1
PFUnA	2058-94-8	ND	0.754	1.51	2.01		B1D0137	25-Apr-21	0.249 L	26-Apr-21 20:50	1
PFDoA	307-55-1	ND	0.754	1.51	2.01		B1D0137	25-Apr-21	0.249 L	26-Apr-21 20:50	1
PFTTrDA	72629-94-8	ND	0.754	1.51	2.01		B1D0137	25-Apr-21	0.249 L	26-Apr-21 20:50	1
11CI-PF3OUdS	763051-92-9	ND	0.754	1.51	2.01		B1D0137	25-Apr-21	0.249 L	26-Apr-21 20:50	1
PFTeDA	376-06-7	ND	0.754	1.51	2.01		B1D0137	25-Apr-21	0.249 L	26-Apr-21 20:50	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	102	70 - 130		B1D0137	25-Apr-21	0.249 L	26-Apr-21 20:50	1
13C2-PFDA	SURR	97.8	70 - 130		B1D0137	25-Apr-21	0.249 L	26-Apr-21 20:50	1
d5-EtFOSAA	SURR	88.6	70 - 130		B1D0137	25-Apr-21	0.249 L	26-Apr-21 20:50	1
13C3-HFPO-DA	SURR	104	70 - 130		B1D0137	25-Apr-21	0.249 L	26-Apr-21 20:50	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW 5/26/21

Sample ID: WI-AF-3FB18-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104163-06	Column:	BEH C18
Project:	9000NVT8	Date Collected:	15-Apr-21 08:49	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.717	1.43	1.91		B1D0137	25-Apr-21	0.262 L	26-Apr-21 21:01	1
PFHxA	307-24-4	ND	0.717	1.43	1.91		B1D0137	25-Apr-21	0.262 L	26-Apr-21 21:01	1
HFPO-DA	13252-13-6	ND	0.717	1.43	1.91		B1D0137	25-Apr-21	0.262 L	26-Apr-21 21:01	1
PFHpA	375-85-9	ND	0.717	1.43	1.91		B1D0137	25-Apr-21	0.262 L	26-Apr-21 21:01	1
ADONA	919005-14-4	ND	0.717	1.43	1.91		B1D0137	25-Apr-21	0.262 L	26-Apr-21 21:01	1
PFHxS	355-46-4	ND	0.717	1.43	1.91		B1D0137	25-Apr-21	0.262 L	26-Apr-21 21:01	1
PFOA	335-67-1	ND	0.717	1.43	1.91		B1D0137	25-Apr-21	0.262 L	26-Apr-21 21:01	1
PFNA	375-95-1	ND	0.717	1.43	1.91		B1D0137	25-Apr-21	0.262 L	26-Apr-21 21:01	1
PFOS	1763-23-1	ND	0.717	1.43	1.91		B1D0137	25-Apr-21	0.262 L	26-Apr-21 21:01	1
9CI-PF3ONS	756426-58-1	ND	0.717	1.43	1.91		B1D0137	25-Apr-21	0.262 L	26-Apr-21 21:01	1
PFDA	335-76-2	ND	0.717	1.43	1.91		B1D0137	25-Apr-21	0.262 L	26-Apr-21 21:01	1
MeFOSAA	2355-31-9	ND	0.717	1.43	1.91		B1D0137	25-Apr-21	0.262 L	26-Apr-21 21:01	1
EtFOSAA	2991-50-6	ND	0.717	1.43	1.91		B1D0137	25-Apr-21	0.262 L	26-Apr-21 21:01	1
PFUnA	2058-94-8	ND	0.717	1.43	1.91		B1D0137	25-Apr-21	0.262 L	26-Apr-21 21:01	1
PFDoA	307-55-1	ND	0.717	1.43	1.91		B1D0137	25-Apr-21	0.262 L	26-Apr-21 21:01	1
PFTrDA	72629-94-8	ND	0.717	1.43	1.91		B1D0137	25-Apr-21	0.262 L	26-Apr-21 21:01	1
11CI-PF3OUdS	763051-92-9	ND	0.717	1.43	1.91		B1D0137	25-Apr-21	0.262 L	26-Apr-21 21:01	1
PFTeDA	376-06-7	ND	0.717	1.43	1.91		B1D0137	25-Apr-21	0.262 L	26-Apr-21 21:01	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	95.8	70 - 130			B1D0137	25-Apr-21	0.262 L	26-Apr-21 21:01	1	
13C2-PFDA	SURR	93.8	70 - 130			B1D0137	25-Apr-21	0.262 L	26-Apr-21 21:01	1	
d5-EtFOSAA	SURR	91.1	70 - 130			B1D0137	25-Apr-21	0.262 L	26-Apr-21 21:01	1	
13C3-HFPO-DA	SURR	102	70 - 130			B1D0137	25-Apr-21	0.262 L	26-Apr-21 21:01	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

M/S/26/21

Sample ID: WI-A06-RW05-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104163-07	Column:	BEH C18
Project:	9000NVT8	Date Collected:	15-Apr-21 09:15	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	23.7	0.730	1.46	1.95		B1D0137	25-Apr-21	0.257 L	26-Apr-21 21:12	1
PFHxA	307-24-4	37.1	0.730	1.46	1.95		B1D0137	25-Apr-21	0.257 L	26-Apr-21 21:12	1
HFPO-DA	13252-13-6	ND	0.730	1.46	1.95		B1D0137	25-Apr-21	0.257 L	26-Apr-21 21:12	1
PFHpA	375-85-9	13.2	0.730	1.46	1.95		B1D0137	25-Apr-21	0.257 L	26-Apr-21 21:12	1
ADONA	919005-14-4	ND	0.730	1.46	1.95		B1D0137	25-Apr-21	0.257 L	26-Apr-21 21:12	1
PFHxS	355-46-4	181	0.730	1.46	1.95		B1D0137	25-Apr-21	0.257 L	26-Apr-21 21:12	1
PFOA	335-67-1	48.7	0.730	1.46	1.95		B1D0137	25-Apr-21	0.257 L	26-Apr-21 21:12	1
PFNA	375-95-1	0.875	0.730	1.46	1.95	J	B1D0137	25-Apr-21	0.257 L	26-Apr-21 21:12	1
PFOS	1763-23-1	64.2	0.730	1.46	1.95		B1D0137	25-Apr-21	0.257 L	26-Apr-21 21:12	1
9CI-PF3ONS	756426-58-1	ND	0.730	1.46	1.95		B1D0137	25-Apr-21	0.257 L	26-Apr-21 21:12	1
PFDA	335-76-2	ND	0.730	1.46	1.95		B1D0137	25-Apr-21	0.257 L	26-Apr-21 21:12	1
MeFOSAA	2355-31-9	ND	0.730	1.46	1.95		B1D0137	25-Apr-21	0.257 L	26-Apr-21 21:12	1
EtFOSAA	2991-50-6	ND	0.730	1.46	1.95		B1D0137	25-Apr-21	0.257 L	26-Apr-21 21:12	1
PFUnA	2058-94-8	ND	0.730	1.46	1.95		B1D0137	25-Apr-21	0.257 L	26-Apr-21 21:12	1
PFDoA	307-55-1	ND	0.730	1.46	1.95		B1D0137	25-Apr-21	0.257 L	26-Apr-21 21:12	1
PFTTrDA	72629-94-8	ND	0.730	1.46	1.95		B1D0137	25-Apr-21	0.257 L	26-Apr-21 21:12	1
11CI-PF3OUdS	763051-92-9	ND	0.730	1.46	1.95		B1D0137	25-Apr-21	0.257 L	26-Apr-21 21:12	1
PFTeDA	376-06-7	ND	0.730	1.46	1.95		B1D0137	25-Apr-21	0.257 L	26-Apr-21 21:12	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	99.3	70 - 130			B1D0137	25-Apr-21	0.257 L	26-Apr-21 21:12	1	
13C2-PFDA	SURR	94.1	70 - 130			B1D0137	25-Apr-21	0.257 L	26-Apr-21 21:12	1	
d5-EtFOSAA	SURR	96.1	70 - 130			B1D0137	25-Apr-21	0.257 L	26-Apr-21 21:12	1	
13C3-HFPO-DA	SURR	106	70 - 130			B1D0137	25-Apr-21	0.257 L	26-Apr-21 21:12	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 5/26/21

Sample ID: WI-A06-FB05-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104163-08	Column:	BEH C18
Project:	9000NVT8	Date Collected:	15-Apr-21 09:17	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.745	1.49	1.99		B1D0137	25-Apr-21	0.252 L	26-Apr-21 21:23	1
PFHxA	307-24-4	ND	0.745	1.49	1.99		B1D0137	25-Apr-21	0.252 L	26-Apr-21 21:23	1
HFPO-DA	13252-13-6	ND	0.745	1.49	1.99		B1D0137	25-Apr-21	0.252 L	26-Apr-21 21:23	1
PFHpA	375-85-9	ND	0.745	1.49	1.99		B1D0137	25-Apr-21	0.252 L	26-Apr-21 21:23	1
ADONA	919005-14-4	ND	0.745	1.49	1.99		B1D0137	25-Apr-21	0.252 L	26-Apr-21 21:23	1
PFHxS	355-46-4	ND	0.745	1.49	1.99		B1D0137	25-Apr-21	0.252 L	26-Apr-21 21:23	1
PFOA	335-67-1	ND	0.745	1.49	1.99		B1D0137	25-Apr-21	0.252 L	26-Apr-21 21:23	1
PFNA	375-95-1	ND	0.745	1.49	1.99		B1D0137	25-Apr-21	0.252 L	26-Apr-21 21:23	1
PFOS	1763-23-1	ND	0.745	1.49	1.99		B1D0137	25-Apr-21	0.252 L	26-Apr-21 21:23	1
9CI-PF3ONS	756426-58-1	ND	0.745	1.49	1.99		B1D0137	25-Apr-21	0.252 L	26-Apr-21 21:23	1
PFDA	335-76-2	ND	0.745	1.49	1.99		B1D0137	25-Apr-21	0.252 L	26-Apr-21 21:23	1
MeFOSAA	2355-31-9	ND	0.745	1.49	1.99		B1D0137	25-Apr-21	0.252 L	26-Apr-21 21:23	1
EtFOSAA	2991-50-6	ND	0.745	1.49	1.99		B1D0137	25-Apr-21	0.252 L	26-Apr-21 21:23	1
PFUnA	2058-94-8	ND	0.745	1.49	1.99		B1D0137	25-Apr-21	0.252 L	26-Apr-21 21:23	1
PFDoA	307-55-1	ND	0.745	1.49	1.99		B1D0137	25-Apr-21	0.252 L	26-Apr-21 21:23	1
PFTrDA	72629-94-8	ND	0.745	1.49	1.99		B1D0137	25-Apr-21	0.252 L	26-Apr-21 21:23	1
11CI-PF3OUdS	763051-92-9	ND	0.745	1.49	1.99		B1D0137	25-Apr-21	0.252 L	26-Apr-21 21:23	1
PFTeDA	376-06-7	ND	0.745	1.49	1.99		B1D0137	25-Apr-21	0.252 L	26-Apr-21 21:23	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	98.9	70 - 130			B1D0137	25-Apr-21	0.252 L	26-Apr-21 21:23	1	
13C2-PFDA	SURR	97.4	70 - 130			B1D0137	25-Apr-21	0.252 L	26-Apr-21 21:23	1	
d5-EtFOSAA	SURR	82.8	70 - 130			B1D0137	25-Apr-21	0.252 L	26-Apr-21 21:23	1	
13C3-HFPO-DA	SURR	103	70 - 130			B1D0137	25-Apr-21	0.252 L	26-Apr-21 21:23	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 5/26/21

Sample ID: WI-A06-RW24-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104163-09	Column:	BEH C18
Project:	9000NVT8	Date Collected:	15-Apr-21 09:50	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	29.0	0.724	1.45	1.93		B1D0137	25-Apr-21	0.259 L	26-Apr-21 21:34	1
PFHxA	307-24-4	53.0	0.724	1.45	1.93		B1D0137	25-Apr-21	0.259 L	26-Apr-21 21:34	1
HFPO-DA	13252-13-6	ND	0.724	1.45	1.93		B1D0137	25-Apr-21	0.259 L	26-Apr-21 21:34	1
PFHpA	375-85-9	8.69	0.724	1.45	1.93		B1D0137	25-Apr-21	0.259 L	26-Apr-21 21:34	1
ADONA	919005-14-4	ND	0.724	1.45	1.93		B1D0137	25-Apr-21	0.259 L	26-Apr-21 21:34	1
PFHxS	355-46-4	418	36.2	72.4	96.5	D	B1D0137	25-Apr-21	0.259 L	28-Apr-21 15:17	50
PFOA	335-67-1	57.2	0.724	1.45	1.93		B1D0137	25-Apr-21	0.259 L	26-Apr-21 21:34	1
PFNA	375-95-1	ND	0.724	1.45	1.93		B1D0137	25-Apr-21	0.259 L	26-Apr-21 21:34	1
PFOS	1763-23-1	245	0.724	1.45	1.93		B1D0137	25-Apr-21	0.259 L	26-Apr-21 21:34	1
9CI-PF3ONS	756426-58-1	ND	0.724	1.45	1.93		B1D0137	25-Apr-21	0.259 L	26-Apr-21 21:34	1
PFDA	335-76-2	ND	0.724	1.45	1.93		B1D0137	25-Apr-21	0.259 L	26-Apr-21 21:34	1
MeFOSAA	2355-31-9	ND	0.724	1.45	1.93		B1D0137	25-Apr-21	0.259 L	26-Apr-21 21:34	1
EtFOSAA	2991-50-6	ND	0.724	1.45	1.93		B1D0137	25-Apr-21	0.259 L	26-Apr-21 21:34	1
PFUnA	2058-94-8	ND	0.724	1.45	1.93		B1D0137	25-Apr-21	0.259 L	26-Apr-21 21:34	1
PFDoA	307-55-1	ND	0.724	1.45	1.93		B1D0137	25-Apr-21	0.259 L	26-Apr-21 21:34	1
PFTrDA	72629-94-8	ND	0.724	1.45	1.93		B1D0137	25-Apr-21	0.259 L	26-Apr-21 21:34	1
11CI-PF3OUdS	763051-92-9	ND	0.724	1.45	1.93		B1D0137	25-Apr-21	0.259 L	26-Apr-21 21:34	1
PFTeDA	376-06-7	ND	0.724	1.45	1.93		B1D0137	25-Apr-21	0.259 L	26-Apr-21 21:34	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	103	70 - 130			B1D0137	25-Apr-21	0.259 L	26-Apr-21 21:34	1	
13C2-PFDA	SURR	99.6	70 - 130			B1D0137	25-Apr-21	0.259 L	26-Apr-21 21:34	1	
d5-EtFOSAA	SURR	83.1	70 - 130			B1D0137	25-Apr-21	0.259 L	26-Apr-21 21:34	1	
13C3-HFPO-DA	SURR	106	70 - 130			B1D0137	25-Apr-21	0.259 L	26-Apr-21 21:34	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

MW 5/26/21

Sample ID: WI-A06-FB24-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104163-10	Column:	BEH C18
Project:	9000NVT8	Date Collected:	15-Apr-21 09:52	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.740	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 21:45	1
PFHxA	307-24-4	ND	0.740	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 21:45	1
HFPO-DA	13252-13-6	ND	0.740	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 21:45	1
PFHpA	375-85-9	ND	0.740	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 21:45	1
ADONA	919005-14-4	ND	0.740	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 21:45	1
PFHxS	355-46-4	ND	0.740	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 21:45	1
PFOA	335-67-1	ND	0.740	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 21:45	1
PFNA	375-95-1	ND	0.740	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 21:45	1
PFOS	1763-23-1	ND	0.740	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 21:45	1
9CI-PF3ONS	756426-58-1	ND	0.740	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 21:45	1
PFDA	335-76-2	ND	0.740	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 21:45	1
MeFOSAA	2355-31-9	ND	0.740	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 21:45	1
EtFOSAA	2991-50-6	ND	0.740	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 21:45	1
PFUnA	2058-94-8	ND	0.740	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 21:45	1
PFDoA	307-55-1	ND	0.740	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 21:45	1
PFTrDA	72629-94-8	ND	0.740	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 21:45	1
11CI-PF3OUdS	763051-92-9	ND	0.740	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 21:45	1
PFTeDA	376-06-7	ND	0.740	1.48	1.97		B1D0137	25-Apr-21	0.253 L	26-Apr-21 21:45	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	99.9	70 - 130			B1D0137	25-Apr-21	0.253 L	26-Apr-21 21:45	1	
13C2-PFDA	SURR	94.3	70 - 130			B1D0137	25-Apr-21	0.253 L	26-Apr-21 21:45	1	
d5-EtFOSAA	SURR	94.5	70 - 130			B1D0137	25-Apr-21	0.253 L	26-Apr-21 21:45	1	
13C3-HFPO-DA	SURR	107	70 - 130			B1D0137	25-Apr-21	0.253 L	26-Apr-21 21:45	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

ms 5/26/21

Sample ID: WI-A06-RW20-0421						EPA Method 537.1					
Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104163-11	Column:	BEH C18				
Project:	9000NVT8	Date Collected:	15-Apr-21 09:32	Date Received:	16-Apr-21 09:58						
Location:	Drinking Water										
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	23.7	0.737	1.48	1.97		B1D0137	25-Apr-21	0.254 L	26-Apr-21 21:56	1
PFHxA	307-24-4	22.0	0.737	1.48	1.97		B1D0137	25-Apr-21	0.254 L	26-Apr-21 21:56	1
HFPO-DA	13252-13-6	ND	0.737	1.48	1.97		B1D0137	25-Apr-21	0.254 L	26-Apr-21 21:56	1
PFHpA	375-85-9	3.93	0.737	1.48	1.97		B1D0137	25-Apr-21	0.254 L	26-Apr-21 21:56	1
ADONA	919005-14-4	ND	0.737	1.48	1.97		B1D0137	25-Apr-21	0.254 L	26-Apr-21 21:56	1
PFHxS	355-46-4	166	0.737	1.48	1.97		B1D0137	25-Apr-21	0.254 L	26-Apr-21 21:56	1
PFOA	335-67-1	50.1	0.737	1.48	1.97		B1D0137	25-Apr-21	0.254 L	26-Apr-21 21:56	1
PFNA	375-95-1	ND	0.737	1.48	1.97		B1D0137	25-Apr-21	0.254 L	26-Apr-21 21:56	1
PFOS	1763-23-1	32.5	0.737	1.48	1.97		B1D0137	25-Apr-21	0.254 L	26-Apr-21 21:56	1
9CI-PF3ONS	756426-58-1	ND	0.737	1.48	1.97		B1D0137	25-Apr-21	0.254 L	26-Apr-21 21:56	1
PFDA	335-76-2	ND	0.737	1.48	1.97		B1D0137	25-Apr-21	0.254 L	26-Apr-21 21:56	1
MeFOSAA	2355-31-9	ND	0.737	1.48	1.97		B1D0137	25-Apr-21	0.254 L	26-Apr-21 21:56	1
EtFOSAA	2991-50-6	ND	0.737	1.48	1.97		B1D0137	25-Apr-21	0.254 L	26-Apr-21 21:56	1
PFOA	2058-94-8	ND	0.737	1.48	1.97		B1D0137	25-Apr-21	0.254 L	26-Apr-21 21:56	1
PFDoA	307-55-1	ND	0.737	1.48	1.97		B1D0137	25-Apr-21	0.254 L	26-Apr-21 21:56	1
PFTTrDA	72629-94-8	ND	0.737	1.48	1.97		B1D0137	25-Apr-21	0.254 L	26-Apr-21 21:56	1
11CI-PF3OUdS	763051-92-9	ND	0.737	1.48	1.97		B1D0137	25-Apr-21	0.254 L	26-Apr-21 21:56	1
PFTeDA	376-06-7	ND	0.737	1.48	1.97		B1D0137	25-Apr-21	0.254 L	26-Apr-21 21:56	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	97.1	70 - 130			B1D0137	25-Apr-21	0.254 L	26-Apr-21 21:56	1	
13C2-PFDA	SURR	89.6	70 - 130			B1D0137	25-Apr-21	0.254 L	26-Apr-21 21:56	1	
d5-EtFOSAA	SURR	82.1	70 - 130			B1D0137	25-Apr-21	0.254 L	26-Apr-21 21:56	1	
13C3-HFPO-DA	SURR	101	70 - 130			B1D0137	25-Apr-21	0.254 L	26-Apr-21 21:56	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW 5/26/21

Sample ID: WI-A06-FB20-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104163-12	Column:	BEH C18
Project:	9000NVT8	Date Collected:	15-Apr-21 09:34	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.742	1.48	1.98		B1D0137	25-Apr-21	0.253 L	26-Apr-21 22:07	1
PFHxA	307-24-4	ND	0.742	1.48	1.98		B1D0137	25-Apr-21	0.253 L	26-Apr-21 22:07	1
HFPO-DA	13252-13-6	ND	0.742	1.48	1.98		B1D0137	25-Apr-21	0.253 L	26-Apr-21 22:07	1
PFHpA	375-85-9	ND	0.742	1.48	1.98		B1D0137	25-Apr-21	0.253 L	26-Apr-21 22:07	1
ADONA	919005-14-4	ND	0.742	1.48	1.98		B1D0137	25-Apr-21	0.253 L	26-Apr-21 22:07	1
PFHxS	355-46-4	ND	0.742	1.48	1.98		B1D0137	25-Apr-21	0.253 L	26-Apr-21 22:07	1
PFOA	335-67-1	ND	0.742	1.48	1.98		B1D0137	25-Apr-21	0.253 L	26-Apr-21 22:07	1
PFNA	375-95-1	ND	0.742	1.48	1.98		B1D0137	25-Apr-21	0.253 L	26-Apr-21 22:07	1
PFOS	1763-23-1	ND	0.742	1.48	1.98		B1D0137	25-Apr-21	0.253 L	26-Apr-21 22:07	1
9CI-PF3ONS	756426-58-1	ND	0.742	1.48	1.98		B1D0137	25-Apr-21	0.253 L	26-Apr-21 22:07	1
PFDA	335-76-2	ND	0.742	1.48	1.98		B1D0137	25-Apr-21	0.253 L	26-Apr-21 22:07	1
MeFOSAA	2355-31-9	ND	0.742	1.48	1.98		B1D0137	25-Apr-21	0.253 L	26-Apr-21 22:07	1
EtFOSAA	2991-50-6	ND	0.742	1.48	1.98		B1D0137	25-Apr-21	0.253 L	26-Apr-21 22:07	1
PFUnA	2058-94-8	ND	0.742	1.48	1.98		B1D0137	25-Apr-21	0.253 L	26-Apr-21 22:07	1
PFDoA	307-55-1	ND	0.742	1.48	1.98		B1D0137	25-Apr-21	0.253 L	26-Apr-21 22:07	1
PFTrDA	72629-94-8	ND	0.742	1.48	1.98		B1D0137	25-Apr-21	0.253 L	26-Apr-21 22:07	1
11CI-PF3OUdS	763051-92-9	ND	0.742	1.48	1.98		B1D0137	25-Apr-21	0.253 L	26-Apr-21 22:07	1
PFTeDA	376-06-7	ND	0.742	1.48	1.98		B1D0137	25-Apr-21	0.253 L	26-Apr-21 22:07	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	101	70 - 130			B1D0137	25-Apr-21	0.253 L	26-Apr-21 22:07	1	
13C2-PFDA	SURR	97.9	70 - 130			B1D0137	25-Apr-21	0.253 L	26-Apr-21 22:07	1	
d5-EtFOSAA	SURR	87.9	70 - 130			B1D0137	25-Apr-21	0.253 L	26-Apr-21 22:07	1	
13C3-HFPO-DA	SURR	106	70 - 130			B1D0137	25-Apr-21	0.253 L	26-Apr-21 22:07	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW 5/26/21

Sample ID: WI-AF-1RW25-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104163-13	Column:	BEH C18
Project:	9000NVT8	Date Collected:	15-Apr-21 11:43	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	0.839	0.734	1.47	1.96	J	B1D0137	25-Apr-21	0.255 L	26-Apr-21 22:18	1
PFHxA	307-24-4	ND	0.734	1.47	1.96		B1D0137	25-Apr-21	0.255 L	26-Apr-21 22:18	1
HFPO-DA	13252-13-6	ND	0.734	1.47	1.96		B1D0137	25-Apr-21	0.255 L	26-Apr-21 22:18	1
PFHpA	375-85-9	ND	0.734	1.47	1.96		B1D0137	25-Apr-21	0.255 L	26-Apr-21 22:18	1
ADONA	919005-14-4	ND	0.734	1.47	1.96		B1D0137	25-Apr-21	0.255 L	26-Apr-21 22:18	1
PFHxS	355-46-4	ND	0.734	1.47	1.96		B1D0137	25-Apr-21	0.255 L	26-Apr-21 22:18	1
PFOA	335-67-1	ND	0.734	1.47	1.96		B1D0137	25-Apr-21	0.255 L	26-Apr-21 22:18	1
PFNA	375-95-1	ND	0.734	1.47	1.96		B1D0137	25-Apr-21	0.255 L	26-Apr-21 22:18	1
PFOS	1763-23-1	ND	0.734	1.47	1.96		B1D0137	25-Apr-21	0.255 L	26-Apr-21 22:18	1
9CI-PF3ONS	756426-58-1	ND	0.734	1.47	1.96		B1D0137	25-Apr-21	0.255 L	26-Apr-21 22:18	1
PFDA	335-76-2	ND	0.734	1.47	1.96		B1D0137	25-Apr-21	0.255 L	26-Apr-21 22:18	1
MeFOSAA	2355-31-9	ND	0.734	1.47	1.96		B1D0137	25-Apr-21	0.255 L	26-Apr-21 22:18	1
EtFOSAA	2991-50-6	ND	0.734	1.47	1.96		B1D0137	25-Apr-21	0.255 L	26-Apr-21 22:18	1
PFUnA	2058-94-8	ND	0.734	1.47	1.96		B1D0137	25-Apr-21	0.255 L	26-Apr-21 22:18	1
PFDoA	307-55-1	ND	0.734	1.47	1.96		B1D0137	25-Apr-21	0.255 L	26-Apr-21 22:18	1
PFTTrDA	72629-94-8	ND	0.734	1.47	1.96		B1D0137	25-Apr-21	0.255 L	26-Apr-21 22:18	1
11CI-PF3OUdS	763051-92-9	ND	0.734	1.47	1.96		B1D0137	25-Apr-21	0.255 L	26-Apr-21 22:18	1
PFTeDA	376-06-7	ND	0.734	1.47	1.96		B1D0137	25-Apr-21	0.255 L	26-Apr-21 22:18	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	99.8	70 - 130			B1D0137	25-Apr-21	0.255 L	26-Apr-21 22:18	1	
13C2-PFDA	SURR	89.8	70 - 130			B1D0137	25-Apr-21	0.255 L	26-Apr-21 22:18	1	
d5-EtFOSAA	SURR	74.9	70 - 130			B1D0137	25-Apr-21	0.255 L	26-Apr-21 22:18	1	
13C3-HFPO-DA	SURR	102	70 - 130			B1D0137	25-Apr-21	0.255 L	26-Apr-21 22:18	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

rw 5/26/21

Sample ID: WI-AF-1FB25-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104163-14	Column:	BEH C18
Project:	9000NVT8	Date Collected:	15-Apr-21 11:45	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.733	1.46	1.96		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:29	1
PFHxA	307-24-4	ND	0.733	1.46	1.96		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:29	1
HFPO-DA	13252-13-6	ND	0.733	1.46	1.96		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:29	1
PFHpA	375-85-9	ND	0.733	1.46	1.96		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:29	1
ADONA	919005-14-4	ND	0.733	1.46	1.96		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:29	1
PFHxS	355-46-4	ND	0.733	1.46	1.96		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:29	1
PFOA	335-67-1	ND	0.733	1.46	1.96		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:29	1
PFNA	375-95-1	ND	0.733	1.46	1.96		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:29	1
PFOS	1763-23-1	ND	0.733	1.46	1.96		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:29	1
9CI-PF3ONS	756426-58-1	ND	0.733	1.46	1.96		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:29	1
PFDA	335-76-2	ND	0.733	1.46	1.96		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:29	1
MeFOSAA	2355-31-9	ND	0.733	1.46	1.96		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:29	1
EtFOSAA	2991-50-6	ND	0.733	1.46	1.96		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:29	1
PFUnA	2058-94-8	ND	0.733	1.46	1.96		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:29	1
PFDoA	307-55-1	ND	0.733	1.46	1.96		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:29	1
PFTTrDA	72629-94-8	ND	0.733	1.46	1.96		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:29	1
11CI-PF3OUdS	763051-92-9	ND	0.733	1.46	1.96		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:29	1
PFTeDA	376-06-7	ND	0.733	1.46	1.96		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:29	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	101	70 - 130			B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:29	1	
13C2-PFDA	SURR	97.5	70 - 130			B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:29	1	
d5-EtFOSAA	SURR	89.9	70 - 130			B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:29	1	
13C3-HFPO-DA	SURR	103	70 - 130			B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:29	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

rw 5/26/21

Sample ID: WI-A06-RW14-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104163-15	Column:	BEH C18
Project:	9000NVT8	Date Collected:	15-Apr-21 12:07	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	62.5	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:40	1
PFHxA	307-24-4	68.8	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:40	1
HFPO-DA	13252-13-6	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:40	1
PFHpA	375-85-9	17.9	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:40	1
ADONA	919005-14-4	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:40	1
PFHxS	355-46-4	275	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:40	1
PFOA	335-67-1	27.0	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:40	1
PFNA	375-95-1	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:40	1
PFOS	1763-23-1	16.6	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:40	1
9Cl-PF3ONS	756426-58-1	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:40	1
PFDA	335-76-2	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:40	1
MeFOSAA	2355-31-9	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:40	1
EtFOSAA	2991-50-6	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:40	1
PFUnA	2058-94-8	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:40	1
PFDoA	307-55-1	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:40	1
PFTTrDA	72629-94-8	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:40	1
11Cl-PF3OUdS	763051-92-9	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:40	1
PFTeDA	376-06-7	ND	0.732	1.46	1.95		B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:40	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	101	70 - 130			B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:40	1	
13C2-PFDA	SURR	94.8	70 - 130			B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:40	1	
d5-EtFOSAA	SURR	86.5	70 - 130			B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:40	1	
13C3-HFPO-DA	SURR	102	70 - 130			B1D0137	25-Apr-21	0.256 L	26-Apr-21 22:40	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

ms 5/26/21

Sample ID: WI-A06-FB14-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104163-16	Column:	BEH C18
Project:	9000NVT8	Date Collected:	15-Apr-21 12:09	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.727	1.45	1.94		B1D0137	25-Apr-21	0.258 L	26-Apr-21 22:51	1
PFHxA	307-24-4	ND	0.727	1.45	1.94		B1D0137	25-Apr-21	0.258 L	26-Apr-21 22:51	1
HFPO-DA	13252-13-6	ND	0.727	1.45	1.94		B1D0137	25-Apr-21	0.258 L	26-Apr-21 22:51	1
PFHpA	375-85-9	ND	0.727	1.45	1.94		B1D0137	25-Apr-21	0.258 L	26-Apr-21 22:51	1
ADONA	919005-14-4	ND	0.727	1.45	1.94		B1D0137	25-Apr-21	0.258 L	26-Apr-21 22:51	1
PFHxS	355-46-4	ND	0.727	1.45	1.94		B1D0137	25-Apr-21	0.258 L	26-Apr-21 22:51	1
PFOA	335-67-1	ND	0.727	1.45	1.94		B1D0137	25-Apr-21	0.258 L	26-Apr-21 22:51	1
PFNA	375-95-1	ND	0.727	1.45	1.94		B1D0137	25-Apr-21	0.258 L	26-Apr-21 22:51	1
PFOS	1763-23-1	ND	0.727	1.45	1.94		B1D0137	25-Apr-21	0.258 L	26-Apr-21 22:51	1
9CI-PF3ONS	756426-58-1	ND	0.727	1.45	1.94		B1D0137	25-Apr-21	0.258 L	26-Apr-21 22:51	1
PFDA	335-76-2	ND	0.727	1.45	1.94		B1D0137	25-Apr-21	0.258 L	26-Apr-21 22:51	1
MeFOSAA	2355-31-9	ND	0.727	1.45	1.94		B1D0137	25-Apr-21	0.258 L	26-Apr-21 22:51	1
EtFOSAA	2991-50-6	ND	0.727	1.45	1.94		B1D0137	25-Apr-21	0.258 L	26-Apr-21 22:51	1
PFUnA	2058-94-8	ND	0.727	1.45	1.94		B1D0137	25-Apr-21	0.258 L	26-Apr-21 22:51	1
PFDoA	307-55-1	ND	0.727	1.45	1.94		B1D0137	25-Apr-21	0.258 L	26-Apr-21 22:51	1
PFTTrDA	72629-94-8	ND	0.727	1.45	1.94		B1D0137	25-Apr-21	0.258 L	26-Apr-21 22:51	1
11CI-PF3OUdS	763051-92-9	ND	0.727	1.45	1.94		B1D0137	25-Apr-21	0.258 L	26-Apr-21 22:51	1
PFTeDA	376-06-7	ND	0.727	1.45	1.94		B1D0137	25-Apr-21	0.258 L	26-Apr-21 22:51	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	99.4	70 - 130			B1D0137	25-Apr-21	0.258 L	26-Apr-21 22:51	1	
13C2-PFDA	SURR	93.2	70 - 130			B1D0137	25-Apr-21	0.258 L	26-Apr-21 22:51	1	
d5-EtFOSAA	SURR	93.8	70 - 130			B1D0137	25-Apr-21	0.258 L	26-Apr-21 22:51	1	
13C3-HFPO-DA	SURR	104	70 - 130			B1D0137	25-Apr-21	0.258 L	26-Apr-21 22:51	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

mw 5/28/21

**DATA VALIDATION SUMMARY REPORT
NAS WHIDBEY ISLAND, WASHINGTON**

Client: CH2M HILL, Inc., Corvallis, Oregon
 SDG: 2104164
 Laboratory: Vista Analytical Laboratory, El Dorado Hills, California
 Site: NAS Whidbey Island, Residential Wells, CTO-4384, Washington
 Date: May 26, 2021

PFAS			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	WI-AF-1RW33-0421	2104164-01	Water
2	WI-AF-1FB33-0421	2104164-02	Water
3	WI-AF-1RW28-0421	2104164-03	Water
3MS	WI-AF-1RW28-0421MS	2104164-03MS	Water
3MSD	WI-AF-1RW28-0421MSD	2104164-03MSD	Water
4	WI-AF-1FB28-0421	2104164-04	Water
5	WI-A06-RW04-0421	2104164-05	Water
6	WI-A06-FB04-0421	2104164-06	Water
7	WI-A06-RW03-0421	2104164-07	Water
8	WI-A06-RW03P-0421	2104164-08	Water
9	WI-A06-FB03-0421	2104164-09	Water
10	WI-AF-1RW01-0421	2104164-10	Water
11	WI-AF-1FB01-0421	2104164-11	Water
12	WI-AF-1RW40-0421	2104164-12	Water
13	WI-AF-1FB40-0421	2104164-13	Water
14	WI-AF-3RW41-0421	2104164-14	Water
15	WI-AF-3RW41P-0421	2104164-15	Water
16	WI-AF-3FB41-0421	2104164-16	Water
17	WI-CV-1RW27-0421	2104164-17	Water
18	WI-CV-1FB27-0421	2104164-18	Water

A Stage 2B/4 data validation was performed on the analytical data for ten water samples and eight aqueous field blank samples collected on April 13-14, 2021 by CH2M Hill at the NAS Whidbey Island site in Washington. The samples were analyzed under the EPA Method “Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)”.

Specific method references are as follows:

Analysis
PFAS

Method References
USEPA Method 537.1

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, the Final Sampling and Analysis Plan Investigation of Per- and

Polyfluoroalkyl Substances in Off-Base Drinking Water Ault Field, Area 6, and Outlying Landing Field Coupeville, Naval Air Station Whidbey Island, April, 2020, Field Change Request (FCR) No. 1, September 2020, FCR No. 2, November 2020, and the DoD Final General Data Validation Guidelines, November 2019, and the USEPA Data Review and Validation Guidelines as follows:

- The USEPA “Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537,” November 2018;
- and the reviewer's professional judgment.

The following data quality indicators were reviewed for this report:

Organics

- Date Completeness, Case Narrative & Custody Documentation
- Holding times
- Liquid Chromatography/Mass Spectrometry (LC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field QC blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

A Stage 2B/4 data validation was performed with this review including a recalculation of 100% of the detected results in the samples.

Data Usability Assessment

There were no serious deficiencies of data.

The data are acceptable for the intended purposes. There were no qualifications.

Perfluorinated Alkyl Substances (PFAS)

Data Completeness, Case Narrative & Custody Documentation

- The case narrative and chain-of-custody documentation were included in the data package as required. All criteria were met.

Holding Times

- All samples were extracted within 14 days for water samples and analyzed within 28 days.

LC/MS Tuning

- All criteria were met.

Initial Calibration

- All relative standard deviation (%RSD) and/or correlation coefficients criteria were met.

Continuing Calibration

- All percent difference (%D) and RRF criteria were met.

Method Blank

- The method blanks were free of contamination.

Field QC Blank

- Field QC sample results are summarized in the table below.

Blank ID	Compound	Conc. ng/L	Qualifier	Affected Samples
WI-AF-1FB33-0421	None - ND	-	-	-
WI-AF-1FB28-0421	None - ND	-	-	-
WI-A06-FB04-0421	None - ND	-	-	-
WI-A06-FB03-0421	None - ND	-	-	-
WI-AF-1FB01-0421	None - ND	-	-	-
WI-AF-1FB40-0421	None - ND	-	-	-
WI-AF-3FB41-0421	None - ND	-	-	-
WI-CV-1FB27-0421	None - ND	-	-	-

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- The MS/MSD samples exhibited acceptable percent recoveries (%R) and RPD values.

Laboratory Control Samples (LCS)

- The LCS samples exhibited acceptable percent recoveries (%R).

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- All criteria were met.

Field Duplicate Sample Precision

- Field duplicate samples are summarized below. The precision was acceptable.

Compound	WI-A06-RW03-0421 ng/L	WI-A06-RW03P-0421 ng/L	RPD	Qualifier
PFBS	43.0	40.7	5%	None
PFHxA	52.6	51.7	2%	
PFHpA	18.6	18.4	1%	
PFHxS	131	120	9%	
PFOA	36.4	36.3	0%	
PFOS	16.5	16.3	1%	

Compound	WI-AF-3RW41-0421 ng/L	WI-AF-3RW41P-0421 ng/L	RPD	Qualifier
PFBS	53.6	55.3	3%	None
PFHxA	12.5	12.6	1%	
PFHpA	2.84	2.84	0%	
PFHxS	60.1	60.2	0%	
PFOA	4.68	4.80	3%	
PFOS	17.7	17.5	1%	

Please contact the undersigned at (561) 475-2000 if you have any questions or need further information.

Signed:

Nancy Weaver
Nancy Weaver
Senior Chemist

Dated: 5/28/21

Qualifier	Definition
U	The analyte was not detected and was reported as less than the LOD or as defined by the customer. The LOD has been adjusted for any dilution or concentration of the sample.
J	The reported result was an estimated value with an unknown bias.
J+	The result was an estimated quantity, but the result may be biased high.
J-	The result was an estimated quantity, but the result may be biased low.
N	The analysis indicates the presence of an analyte for which there was presumptive evidence to make a "tentative identification."
NJ	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value was the estimated concentration in the sample.
UJ	The analyte was not detected and was reported as less than the LOD or as defined by the customer. However, the associated numerical value is approximate.
X	<p>The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided.</p> <p>Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.</p>

Sample ID: WI-AF-1RW33-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104164-01	Column:	BEH C18
Project:	9000NVT8	Date Collected:	13-Apr-21 10:02	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	88.6	0.762	1.52	2.03		B1D0136	21-Apr-21	0.246 L	22-Apr-21 19:49	1
PFHxA	307-24-4	84.5	0.762	1.52	2.03		B1D0136	21-Apr-21	0.246 L	22-Apr-21 19:49	1
HFPO-DA	13252-13-6	ND	0.762	1.52	2.03		B1D0136	21-Apr-21	0.246 L	22-Apr-21 19:49	1
PFHpA	375-85-9	2.57	0.762	1.52	2.03		B1D0136	21-Apr-21	0.246 L	22-Apr-21 19:49	1
ADONA	919005-14-4	ND	0.762	1.52	2.03		B1D0136	21-Apr-21	0.246 L	22-Apr-21 19:49	1
PFHxS	355-46-4	11.1	0.762	1.52	2.03		B1D0136	21-Apr-21	0.246 L	22-Apr-21 19:49	1
PFOA	335-67-1	ND	0.762	1.52	2.03		B1D0136	21-Apr-21	0.246 L	22-Apr-21 19:49	1
PFNA	375-95-1	ND	0.762	1.52	2.03		B1D0136	21-Apr-21	0.246 L	22-Apr-21 19:49	1
PFOS	1763-23-1	ND	0.762	1.52	2.03		B1D0136	21-Apr-21	0.246 L	22-Apr-21 19:49	1
9CI-PF3ONS	756426-58-1	ND	0.762	1.52	2.03		B1D0136	21-Apr-21	0.246 L	22-Apr-21 19:49	1
PFDA	335-76-2	ND	0.762	1.52	2.03		B1D0136	21-Apr-21	0.246 L	22-Apr-21 19:49	1
MeFOSAA	2355-31-9	ND	0.762	1.52	2.03		B1D0136	21-Apr-21	0.246 L	22-Apr-21 19:49	1
EtFOSAA	2991-50-6	ND	0.762	1.52	2.03		B1D0136	21-Apr-21	0.246 L	22-Apr-21 19:49	1
PFUnA	2058-94-8	ND	0.762	1.52	2.03		B1D0136	21-Apr-21	0.246 L	22-Apr-21 19:49	1
PFDoA	307-55-1	ND	0.762	1.52	2.03		B1D0136	21-Apr-21	0.246 L	22-Apr-21 19:49	1
PFTTrDA	72629-94-8	ND	0.762	1.52	2.03		B1D0136	21-Apr-21	0.246 L	22-Apr-21 19:49	1
11CI-PF3OUdS	763051-92-9	ND	0.762	1.52	2.03		B1D0136	21-Apr-21	0.246 L	22-Apr-21 19:49	1
PFTeDA	376-06-7	ND	0.762	1.52	2.03		B1D0136	21-Apr-21	0.246 L	22-Apr-21 19:49	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	95.0	70 - 130			B1D0136	21-Apr-21	0.246 L	22-Apr-21 19:49	1	
13C2-PFDA	SURR	109	70 - 130			B1D0136	21-Apr-21	0.246 L	22-Apr-21 19:49	1	
d5-EtFOSAA	SURR	89.9	70 - 130			B1D0136	21-Apr-21	0.246 L	22-Apr-21 19:49	1	
13C3-HFPO-DA	SURR	80.0	70 - 130			B1D0136	21-Apr-21	0.246 L	22-Apr-21 19:49	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

mw 5/26/21

Sample ID: WI-AF-1FB33-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104164-02	Column:	BEH C18
Project:	9000NVT8	Date Collected:	13-Apr-21 10:04	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.792	1.58	2.11		B1D0136	21-Apr-21	0.237 L	22-Apr-21 20:00	1
PFHxA	307-24-4	ND	0.792	1.58	2.11		B1D0136	21-Apr-21	0.237 L	22-Apr-21 20:00	1
HFPO-DA	13252-13-6	ND	0.792	1.58	2.11		B1D0136	21-Apr-21	0.237 L	22-Apr-21 20:00	1
PFHpA	375-85-9	ND	0.792	1.58	2.11		B1D0136	21-Apr-21	0.237 L	22-Apr-21 20:00	1
ADONA	919005-14-4	ND	0.792	1.58	2.11		B1D0136	21-Apr-21	0.237 L	22-Apr-21 20:00	1
PFHxS	355-46-4	ND	0.792	1.58	2.11		B1D0136	21-Apr-21	0.237 L	22-Apr-21 20:00	1
PFOA	335-67-1	ND	0.792	1.58	2.11		B1D0136	21-Apr-21	0.237 L	22-Apr-21 20:00	1
PFNA	375-95-1	ND	0.792	1.58	2.11		B1D0136	21-Apr-21	0.237 L	22-Apr-21 20:00	1
PFOS	1763-23-1	ND	0.792	1.58	2.11		B1D0136	21-Apr-21	0.237 L	22-Apr-21 20:00	1
9CI-PF3ONS	756426-58-1	ND	0.792	1.58	2.11		B1D0136	21-Apr-21	0.237 L	22-Apr-21 20:00	1
PFDA	335-76-2	ND	0.792	1.58	2.11		B1D0136	21-Apr-21	0.237 L	22-Apr-21 20:00	1
MeFOSAA	2355-31-9	ND	0.792	1.58	2.11		B1D0136	21-Apr-21	0.237 L	22-Apr-21 20:00	1
EtFOSAA	2991-50-6	ND	0.792	1.58	2.11		B1D0136	21-Apr-21	0.237 L	22-Apr-21 20:00	1
PFUnA	2058-94-8	ND	0.792	1.58	2.11		B1D0136	21-Apr-21	0.237 L	22-Apr-21 20:00	1
PFDoA	307-55-1	ND	0.792	1.58	2.11		B1D0136	21-Apr-21	0.237 L	22-Apr-21 20:00	1
PFTTrDA	72629-94-8	ND	0.792	1.58	2.11		B1D0136	21-Apr-21	0.237 L	22-Apr-21 20:00	1
11CI-PF3OUdS	763051-92-9	ND	0.792	1.58	2.11		B1D0136	21-Apr-21	0.237 L	22-Apr-21 20:00	1
PFTeDA	376-06-7	ND	0.792	1.58	2.11		B1D0136	21-Apr-21	0.237 L	22-Apr-21 20:00	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	101	70 - 130			B1D0136	21-Apr-21	0.237 L	22-Apr-21 20:00	1	
13C2-PFDA	SURR	122	70 - 130			B1D0136	21-Apr-21	0.237 L	22-Apr-21 20:00	1	
d5-EtFOSAA	SURR	101	70 - 130			B1D0136	21-Apr-21	0.237 L	22-Apr-21 20:00	1	
13C3-HFPO-DA	SURR	82.1	70 - 130			B1D0136	21-Apr-21	0.237 L	22-Apr-21 20:00	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 5/26/21

Sample ID: WI-AF-1RW28-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104164-03	Column:	BEH C18
Project:	9000NVT8	Date Collected:	13-Apr-21 10:19	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	2.62	0.706	1.41	1.88		B1D0136	21-Apr-21	0.266 L	23-Apr-21 11:16	1
PFHxA	307-24-4	6.10	0.706	1.41	1.88		B1D0136	21-Apr-21	0.266 L	23-Apr-21 11:16	1
HFPO-DA	13252-13-6	ND	0.706	1.41	1.88		B1D0136	21-Apr-21	0.266 L	23-Apr-21 11:16	1
PFHpA	375-85-9	3.96	0.706	1.41	1.88		B1D0136	21-Apr-21	0.266 L	23-Apr-21 11:16	1
ADONA	919005-14-4	ND	0.706	1.41	1.88		B1D0136	21-Apr-21	0.266 L	23-Apr-21 11:16	1
PFHxS	355-46-4	10.8	0.706	1.41	1.88		B1D0136	21-Apr-21	0.266 L	23-Apr-21 11:16	1
PFOA	335-67-1	37.3	0.706	1.41	1.88		B1D0136	21-Apr-21	0.266 L	23-Apr-21 11:16	1
PFNA	375-95-1	ND	0.706	1.41	1.88		B1D0136	21-Apr-21	0.266 L	23-Apr-21 11:16	1
PFOS	1763-23-1	0.969	0.706	1.41	1.88	J	B1D0136	21-Apr-21	0.266 L	23-Apr-21 11:16	1
9CI-PF3ONS	756426-58-1	ND	0.706	1.41	1.88		B1D0136	21-Apr-21	0.266 L	23-Apr-21 11:16	1
PFDA	335-76-2	ND	0.706	1.41	1.88		B1D0136	21-Apr-21	0.266 L	23-Apr-21 11:16	1
MeFOSAA	2355-31-9	ND	0.706	1.41	1.88		B1D0136	21-Apr-21	0.266 L	23-Apr-21 11:16	1
EtFOSAA	2991-50-6	ND	0.706	1.41	1.88		B1D0136	21-Apr-21	0.266 L	23-Apr-21 11:16	1
PFUnA	2058-94-8	ND	0.706	1.41	1.88		B1D0136	21-Apr-21	0.266 L	23-Apr-21 11:16	1
PFDoA	307-55-1	ND	0.706	1.41	1.88		B1D0136	21-Apr-21	0.266 L	23-Apr-21 11:16	1
PFTTrDA	72629-94-8	ND	0.706	1.41	1.88		B1D0136	21-Apr-21	0.266 L	23-Apr-21 11:16	1
11CI-PF3OUdS	763051-92-9	ND	0.706	1.41	1.88		B1D0136	21-Apr-21	0.266 L	23-Apr-21 11:16	1
PFTeDA	376-06-7	ND	0.706	1.41	1.88		B1D0136	21-Apr-21	0.266 L	23-Apr-21 11:16	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	106	70 - 130			B1D0136	21-Apr-21	0.266 L	23-Apr-21 11:16	1	
13C2-PFDA	SURR	122	70 - 130			B1D0136	21-Apr-21	0.266 L	23-Apr-21 11:16	1	
d5-EtFOSAA	SURR	70.0	70 - 130			B1D0136	21-Apr-21	0.266 L	23-Apr-21 11:16	1	
13C3-HFPO-DA	SURR	95.6	70 - 130			B1D0136	21-Apr-21	0.266 L	23-Apr-21 11:16	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 5/26/21

Sample ID: WI-AF-1FB28-0421						EPA Method 537.1					
Client Data				Laboratory Data							
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104164-04	Column:	BEH C18				
Project:	9000NVT8	Date Collected:	13-Apr-21 10:21	Date Received:	16-Apr-21 09:58						
Location:	Drinking Water										
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.746	1.49	1.99		B1D0136	21-Apr-21	0.251 L	22-Apr-21 20:23	1
PFHxA	307-24-4	ND	0.746	1.49	1.99		B1D0136	21-Apr-21	0.251 L	22-Apr-21 20:23	1
HFPO-DA	13252-13-6	ND	0.746	1.49	1.99		B1D0136	21-Apr-21	0.251 L	22-Apr-21 20:23	1
PFHpA	375-85-9	ND	0.746	1.49	1.99		B1D0136	21-Apr-21	0.251 L	22-Apr-21 20:23	1
ADONA	919005-14-4	ND	0.746	1.49	1.99		B1D0136	21-Apr-21	0.251 L	22-Apr-21 20:23	1
PFHxS	355-46-4	ND	0.746	1.49	1.99		B1D0136	21-Apr-21	0.251 L	22-Apr-21 20:23	1
PFOA	335-67-1	ND	0.746	1.49	1.99		B1D0136	21-Apr-21	0.251 L	22-Apr-21 20:23	1
PFNA	375-95-1	ND	0.746	1.49	1.99		B1D0136	21-Apr-21	0.251 L	22-Apr-21 20:23	1
PFOS	1763-23-1	ND	0.746	1.49	1.99		B1D0136	21-Apr-21	0.251 L	22-Apr-21 20:23	1
9CI-PF3ONS	756426-58-1	ND	0.746	1.49	1.99		B1D0136	21-Apr-21	0.251 L	22-Apr-21 20:23	1
PFDA	335-76-2	ND	0.746	1.49	1.99		B1D0136	21-Apr-21	0.251 L	22-Apr-21 20:23	1
MeFOSAA	2355-31-9	ND	0.746	1.49	1.99		B1D0136	21-Apr-21	0.251 L	22-Apr-21 20:23	1
EtFOSAA	2991-50-6	ND	0.746	1.49	1.99		B1D0136	21-Apr-21	0.251 L	22-Apr-21 20:23	1
PFUnA	2058-94-3	ND	0.746	1.49	1.99		B1D0136	21-Apr-21	0.251 L	22-Apr-21 20:23	1
PFDoA	307-55-1	ND	0.746	1.49	1.99		B1D0136	21-Apr-21	0.251 L	22-Apr-21 20:23	1
PFTTrDA	72629-94-8	ND	0.746	1.49	1.99		B1D0136	21-Apr-21	0.251 L	22-Apr-21 20:23	1
11CI-PF3OUdS	763051-92-9	ND	0.746	1.49	1.99		B1D0136	21-Apr-21	0.251 L	22-Apr-21 20:23	1
PFTeDA	376-06-7	ND	0.746	1.49	1.99		B1D0136	21-Apr-21	0.251 L	22-Apr-21 20:23	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	102	70 - 130			B1D0136	21-Apr-21	0.251 L	22-Apr-21 20:23	1	
13C2-PFDA	SURR	124	70 - 130			B1D0136	21-Apr-21	0.251 L	22-Apr-21 20:23	1	
d5-EtFOSAA	SURR	102	70 - 130			B1D0136	21-Apr-21	0.251 L	22-Apr-21 20:23	1	
13C3-HFPO-DA	SURR	83.9	70 - 130			B1D0136	21-Apr-21	0.251 L	22-Apr-21 20:23	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

W 5/26/21

Sample ID: WI-A06-RW04-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104164-05	Column:	BEH C18
Project:	9000NVT8	Date Collected:	13-Apr-21 13:07	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	40.1	0.730	1.46	1.95		B1D0136	21-Apr-21	0.257 L	22-Apr-21 20:34	1
PFHxA	307-24-4	5.99	0.730	1.46	1.95		B1D0136	21-Apr-21	0.257 L	22-Apr-21 20:34	1
HFPO-DA	13252-13-6	ND	0.730	1.46	1.95		B1D0136	21-Apr-21	0.257 L	22-Apr-21 20:34	1
PFHpA	375-85-9	3.08	0.730	1.46	1.95		B1D0136	21-Apr-21	0.257 L	22-Apr-21 20:34	1
ADONA	919005-14-4	ND	0.730	1.46	1.95		B1D0136	21-Apr-21	0.257 L	22-Apr-21 20:34	1
PFHxS	355-46-4	101	0.730	1.46	1.95		B1D0136	21-Apr-21	0.257 L	22-Apr-21 20:34	1
PFOA	335-67-1	7.15	0.730	1.46	1.95		B1D0136	21-Apr-21	0.257 L	22-Apr-21 20:34	1
PFNA	375-95-1	ND	0.730	1.46	1.95		B1D0136	21-Apr-21	0.257 L	22-Apr-21 20:34	1
PFOS	1763-23-1	7.37	0.730	1.46	1.95		B1D0136	21-Apr-21	0.257 L	22-Apr-21 20:34	1
9CI-PF3ONS	756426-58-1	ND	0.730	1.46	1.95		B1D0136	21-Apr-21	0.257 L	22-Apr-21 20:34	1
PFDA	335-76-2	ND	0.730	1.46	1.95		B1D0136	21-Apr-21	0.257 L	22-Apr-21 20:34	1
MeFOSAA	2355-31-9	ND	0.730	1.46	1.95		B1D0136	21-Apr-21	0.257 L	22-Apr-21 20:34	1
EtFOSAA	2991-50-6	ND	0.730	1.46	1.95		B1D0136	21-Apr-21	0.257 L	22-Apr-21 20:34	1
PFUnA	2058-94-8	ND	0.730	1.46	1.95		B1D0136	21-Apr-21	0.257 L	22-Apr-21 20:34	1
PFDoA	307-55-1	ND	0.730	1.46	1.95		B1D0136	21-Apr-21	0.257 L	22-Apr-21 20:34	1
PFTTrDA	72629-94-8	ND	0.730	1.46	1.95		B1D0136	21-Apr-21	0.257 L	22-Apr-21 20:34	1
11CI-PF3OUdS	763051-92-9	ND	0.730	1.46	1.95		B1D0136	21-Apr-21	0.257 L	22-Apr-21 20:34	1
PFTeDA	376-06-7	ND	0.730	1.46	1.95		B1D0136	21-Apr-21	0.257 L	22-Apr-21 20:34	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	92.6	70 - 130			B1D0136	21-Apr-21	0.257 L	22-Apr-21 20:34	1	
13C2-PFDA	SURR	110	70 - 130			B1D0136	21-Apr-21	0.257 L	22-Apr-21 20:34	1	
d5-EtFOSAA	SURR	93.1	70 - 130			B1D0136	21-Apr-21	0.257 L	22-Apr-21 20:34	1	
13C3-HFPO-DA	SURR	76.7	70 - 130			B1D0136	21-Apr-21	0.257 L	22-Apr-21 20:34	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW 5/26/21

Sample ID: WI-A06-FB04-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104164-06	Column:	BEH C18
Project:	9000NVT8	Date Collected:	13-Apr-21 13:09	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.742	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 20:45	1
PFHxA	307-24-4	ND	0.742	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 20:45	1
HFPO-DA	13252-13-6	ND	0.742	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 20:45	1
PFHpA	375-85-9	ND	0.742	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 20:45	1
ADONA	919005-14-4	ND	0.742	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 20:45	1
PFHxS	355-46-4	ND	0.742	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 20:45	1
PFOA	335-67-1	ND	0.742	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 20:45	1
PFNA	375-95-1	ND	0.742	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 20:45	1
PFOS	1763-23-1	ND	0.742	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 20:45	1
9CI-PF3ONS	756426-58-1	ND	0.742	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 20:45	1
PFDA	335-76-2	ND	0.742	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 20:45	1
MeFOSAA	2355-31-9	ND	0.742	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 20:45	1
EtFOSAA	2991-50-6	ND	0.742	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 20:45	1
PFUnA	2058-94-8	ND	0.742	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 20:45	1
PFDoA	307-55-1	ND	0.742	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 20:45	1
PFTTrDA	72629-94-8	ND	0.742	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 20:45	1
11CI-PF3OUdS	763051-92-9	ND	0.742	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 20:45	1
PFTeDA	376-06-7	ND	0.742	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 20:45	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	97.1	70 - 130			B1D0136	21-Apr-21	0.253 L	22-Apr-21 20:45	1	
13C2-PFDA	SURR	112	70 - 130			B1D0136	21-Apr-21	0.253 L	22-Apr-21 20:45	1	
d5-EtFOSAA	SURR	113	70 - 130			B1D0136	21-Apr-21	0.253 L	22-Apr-21 20:45	1	
13C3-HFPO-DA	SURR	81.6	70 - 130			B1D0136	21-Apr-21	0.253 L	22-Apr-21 20:45	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

W 5/26/21

Sample ID: WI-A06-RW03-0421						EPA Method 537.1					
Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2104164-07	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	13-Apr-21 13:20		Date Received:	16-Apr-21 09:58					
Location:	Drinking Water										
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	43.0	0.709	1.42	1.89		B1D0136	21-Apr-21	0.265 L	22-Apr-21 20:56	1
PFHxA	307-24-4	52.6	0.709	1.42	1.89		B1D0136	21-Apr-21	0.265 L	22-Apr-21 20:56	1
HFPO-DA	13252-13-6	ND	0.709	1.42	1.89		B1D0136	21-Apr-21	0.265 L	22-Apr-21 20:56	1
PFHpA	375-85-9	18.6	0.709	1.42	1.89		B1D0136	21-Apr-21	0.265 L	22-Apr-21 20:56	1
ADONA	919005-14-4	ND	0.709	1.42	1.89		B1D0136	21-Apr-21	0.265 L	22-Apr-21 20:56	1
PFHxS	355-46-4	131	0.709	1.42	1.89		B1D0136	21-Apr-21	0.265 L	22-Apr-21 20:56	1
PFOA	335-67-1	36.4	0.709	1.42	1.89		B1D0136	21-Apr-21	0.265 L	22-Apr-21 20:56	1
PFNA	375-95-1	ND	0.709	1.42	1.89		B1D0136	21-Apr-21	0.265 L	22-Apr-21 20:56	1
PFOS	1763-23-1	16.5	0.709	1.42	1.89		B1D0136	21-Apr-21	0.265 L	22-Apr-21 20:56	1
9CI-PF3ONS	756426-58-1	ND	0.709	1.42	1.89		B1D0136	21-Apr-21	0.265 L	22-Apr-21 20:56	1
PFDA	335-76-2	ND	0.709	1.42	1.89		B1D0136	21-Apr-21	0.265 L	22-Apr-21 20:56	1
MeFOSAA	2355-31-9	ND	0.709	1.42	1.89		B1D0136	21-Apr-21	0.265 L	22-Apr-21 20:56	1
EtFOSAA	2991-50-6	ND	0.709	1.42	1.89		B1D0136	21-Apr-21	0.265 L	22-Apr-21 20:56	1
PFOA	2058-94-8	ND	0.709	1.42	1.89		B1D0136	21-Apr-21	0.265 L	22-Apr-21 20:56	1
PFDoA	307-55-1	ND	0.709	1.42	1.89		B1D0136	21-Apr-21	0.265 L	22-Apr-21 20:56	1
PFTTrDA	72629-94-8	ND	0.709	1.42	1.89		B1D0136	21-Apr-21	0.265 L	22-Apr-21 20:56	1
11CI-PF3OUdS	763051-92-9	ND	0.709	1.42	1.89		B1D0136	21-Apr-21	0.265 L	22-Apr-21 20:56	1
PFTeDA	376-06-7	ND	0.709	1.42	1.89		B1D0136	21-Apr-21	0.265 L	22-Apr-21 20:56	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	96.8	70 - 130			B1D0136	21-Apr-21	0.265 L	22-Apr-21 20:56	1	
13C2-PFDA	SURR	116	70 - 130			B1D0136	21-Apr-21	0.265 L	22-Apr-21 20:56	1	
d5-EtFOSAA	SURR	94.5	70 - 130			B1D0136	21-Apr-21	0.265 L	22-Apr-21 20:56	1	
13C3-HFPO-DA	SURR	81.2	70 - 130			B1D0136	21-Apr-21	0.265 L	22-Apr-21 20:56	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW 5/26/21

Sample ID: WI-A06-RW03P-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104164-08	Column:	BEH C18
Project:	9000NVT8	Date Collected:	13-Apr-21 13:22	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	40.7	0.716	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 21:07	1
PFHxA	307-24-4	51.7	0.716	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 21:07	1
HFPO-DA	13252-13-6	ND	0.716	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 21:07	1
PFHpA	375-85-9	18.4	0.716	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 21:07	1
ADONA	919005-14-4	ND	0.716	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 21:07	1
PFHxS	355-46-4	120	0.716	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 21:07	1
PFOA	335-67-1	36.3	0.716	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 21:07	1
PFNA	375-95-1	ND	0.716	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 21:07	1
PFOS	1763-23-1	16.3	0.716	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 21:07	1
9CI-PF3ONS	756426-58-1	ND	0.716	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 21:07	1
PFDA	335-76-2	ND	0.716	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 21:07	1
MeFOSAA	2355-31-9	ND	0.716	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 21:07	1
EtFOSAA	2991-50-6	ND	0.716	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 21:07	1
PFUnA	2058-94-8	ND	0.716	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 21:07	1
PFDoA	307-55-1	ND	0.716	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 21:07	1
PFTrDA	72629-94-8	ND	0.716	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 21:07	1
11CI-PF3OUdS	763051-92-9	ND	0.716	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 21:07	1
PFTeDA	376-06-7	ND	0.716	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 21:07	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	93.4	70 - 130		B1D0136	21-Apr-21	0.262 L	22-Apr-21 21:07	1
13C2-PFDA	SURR	110	70 - 130		B1D0136	21-Apr-21	0.262 L	22-Apr-21 21:07	1
d5-EtFOSAA	SURR	96.9	70 - 130		B1D0136	21-Apr-21	0.262 L	22-Apr-21 21:07	1
13C3-HFPO-DA	SURR	81.3	70 - 130		B1D0136	21-Apr-21	0.262 L	22-Apr-21 21:07	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 5/26/21

Sample ID: WI-A06-FB03-0421						EPA Method 537.1					
Client Data				Laboratory Data							
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104164-09	Column:	BEH C18				
Project:	9000NVT8	Date Collected:	13-Apr-21 13:24	Date Received:	16-Apr-21 09:58						
Location:	Drinking Water										
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.752	1.51	2.00		B1D0136	21-Apr-21	0.249 L	22-Apr-21 21:18	1
PFHxA	307-24-4	ND	0.752	1.51	2.00		B1D0136	21-Apr-21	0.249 L	22-Apr-21 21:18	1
HFPO-DA	13252-13-6	ND	0.752	1.51	2.00		B1D0136	21-Apr-21	0.249 L	22-Apr-21 21:18	1
PFHpA	375-85-9	ND	0.752	1.51	2.00		B1D0136	21-Apr-21	0.249 L	22-Apr-21 21:18	1
ADONA	919005-14-4	ND	0.752	1.51	2.00		B1D0136	21-Apr-21	0.249 L	22-Apr-21 21:18	1
PFHxS	355-46-4	ND	0.752	1.51	2.00		B1D0136	21-Apr-21	0.249 L	22-Apr-21 21:18	1
PFOA	335-67-1	ND	0.752	1.51	2.00		B1D0136	21-Apr-21	0.249 L	22-Apr-21 21:18	1
PFNA	375-95-1	ND	0.752	1.51	2.00		B1D0136	21-Apr-21	0.249 L	22-Apr-21 21:18	1
PFOS	1763-23-1	ND	0.752	1.51	2.00		B1D0136	21-Apr-21	0.249 L	22-Apr-21 21:18	1
9CI-PF3ONS	756426-58-1	ND	0.752	1.51	2.00		B1D0136	21-Apr-21	0.249 L	22-Apr-21 21:18	1
PFDA	335-76-2	ND	0.752	1.51	2.00		B1D0136	21-Apr-21	0.249 L	22-Apr-21 21:18	1
MeFOSAA	2355-31-9	ND	0.752	1.51	2.00		B1D0136	21-Apr-21	0.249 L	22-Apr-21 21:18	1
EtFOSAA	2991-50-5	ND	0.752	1.51	2.00		B1D0136	21-Apr-21	0.249 L	22-Apr-21 21:18	1
PFUnA	2058-94-3	ND	0.752	1.51	2.00		B1D0136	21-Apr-21	0.249 L	22-Apr-21 21:18	1
PFDoA	307-55-1	ND	0.752	1.51	2.00		B1D0136	21-Apr-21	0.249 L	22-Apr-21 21:18	1
PFTTrDA	72629-94-8	ND	0.752	1.51	2.00		B1D0136	21-Apr-21	0.249 L	22-Apr-21 21:18	1
11CI-PF3OUdS	763051-92-9	ND	0.752	1.51	2.00		B1D0136	21-Apr-21	0.249 L	22-Apr-21 21:18	1
PFTeDA	376-06-7	ND	0.752	1.51	2.00		B1D0136	21-Apr-21	0.249 L	22-Apr-21 21:18	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	91.7	70 - 130			B1D0136	21-Apr-21	0.249 L	22-Apr-21 21:18	1	
13C2-PFDA	SURR	108	70 - 130			B1D0136	21-Apr-21	0.249 L	22-Apr-21 21:18	1	
d5-EtFOSAA	SURR	90.8	70 - 130			B1D0136	21-Apr-21	0.249 L	22-Apr-21 21:18	1	
13C3-HFPO-DA	SURR	78.4	70 - 130			B1D0136	21-Apr-21	0.249 L	22-Apr-21 21:18	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW 5/26/21

Sample ID: WI-AF-1RW01-0421						EPA Method 537.1					
Client Data				Laboratory Data							
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104164-10	Column:	BEH C18				
Project:	9000NVT8	Date Collected:	13-Apr-21 14:01	Date Received:	16-Apr-21 09:58						
Location:	Drinking Water										
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.733	1.46	1.96		B1D0136	21-Apr-21	0.256 L	22-Apr-21 21:29	1
PFHxA	307-24-4	ND	0.733	1.46	1.96		B1D0136	21-Apr-21	0.256 L	22-Apr-21 21:29	1
HFPO-DA	13252-13-6	ND	0.733	1.46	1.96		B1D0136	21-Apr-21	0.256 L	22-Apr-21 21:29	1
PFHpA	375-85-9	ND	0.733	1.46	1.96		B1D0136	21-Apr-21	0.256 L	22-Apr-21 21:29	1
ADONA	919005-14-4	ND	0.733	1.46	1.96		B1D0136	21-Apr-21	0.256 L	22-Apr-21 21:29	1
PFHxS	355-46-4	ND	0.733	1.46	1.96		B1D0136	21-Apr-21	0.256 L	22-Apr-21 21:29	1
PFOA	335-67-1	ND	0.733	1.46	1.96		B1D0136	21-Apr-21	0.256 L	22-Apr-21 21:29	1
PFNA	375-95-1	ND	0.733	1.46	1.96		B1D0136	21-Apr-21	0.256 L	22-Apr-21 21:29	1
PFOS	1763-23-1	ND	0.733	1.46	1.96		B1D0136	21-Apr-21	0.256 L	22-Apr-21 21:29	1
9CI-PF3ONS	756426-58-1	ND	0.733	1.46	1.96		B1D0136	21-Apr-21	0.256 L	22-Apr-21 21:29	1
PFDA	335-76-2	ND	0.733	1.46	1.96		B1D0136	21-Apr-21	0.256 L	22-Apr-21 21:29	1
MeFOSAA	2355-31-9	ND	0.733	1.46	1.96		B1D0136	21-Apr-21	0.256 L	22-Apr-21 21:29	1
EtFOSAA	2991-50-6	ND	0.733	1.46	1.96		B1D0136	21-Apr-21	0.256 L	22-Apr-21 21:29	1
PFUnA	2058-94-8	ND	0.733	1.46	1.96		B1D0136	21-Apr-21	0.256 L	22-Apr-21 21:29	1
PFDoA	307-55-1	ND	0.733	1.46	1.96		B1D0136	21-Apr-21	0.256 L	22-Apr-21 21:29	1
PFTTrDA	72629-94-8	ND	0.733	1.46	1.96		B1D0136	21-Apr-21	0.256 L	22-Apr-21 21:29	1
11CI-PF3OUdS	763051-92-9	ND	0.733	1.46	1.96		B1D0136	21-Apr-21	0.256 L	22-Apr-21 21:29	1
PFTeDA	376-06-7	ND	0.733	1.46	1.96		B1D0136	21-Apr-21	0.256 L	22-Apr-21 21:29	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	93.8	70 - 130			B1D0136	21-Apr-21	0.256 L	22-Apr-21 21:29	1	
13C2-PFDA	SURR	116	70 - 130			B1D0136	21-Apr-21	0.256 L	22-Apr-21 21:29	1	
d5-EtFOSAA	SURR	99.1	70 - 130			B1D0136	21-Apr-21	0.256 L	22-Apr-21 21:29	1	
13C3-HFPO-DA	SURR	77.9	70 - 130			B1D0136	21-Apr-21	0.256 L	22-Apr-21 21:29	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW 5/26/21

Sample ID: WI-AF-1FB01-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104164-11	Column:	BEH C18
Project:	9000NVT8	Date Collected:	13-Apr-21 14:03	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 21:40	1
PFHxA	307-24-4	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 21:40	1
HFPO-DA	13252-13-6	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 21:40	1
PFHpA	375-85-9	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 21:40	1
ADONA	919005-14-4	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 21:40	1
PFHxS	355-46-4	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 21:40	1
PFOA	335-67-1	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 21:40	1
PFNA	375-95-1	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 21:40	1
PFOS	1763-23-1	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 21:40	1
9CI-PF3ONS	756426-58-1	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 21:40	1
PFDA	335-76-2	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 21:40	1
MeFOSAA	2355-31-9	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 21:40	1
EtFOSAA	2991-50-5	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 21:40	1
PFUnA	2058-94-3	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 21:40	1
PFDoA	307-55-1	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 21:40	1
PFTTrDA	72629-94-8	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 21:40	1
11CI-PF3OUdS	763051-92-9	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 21:40	1
PFTeDA	376-06-7	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 21:40	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	90.2	70 - 130			B1D0136	21-Apr-21	0.255 L	22-Apr-21 21:40	1	
13C2-PFDA	SURR	112	70 - 130			B1D0136	21-Apr-21	0.255 L	22-Apr-21 21:40	1	
d5-EtFOSAA	SURR	93.7	70 - 130			B1D0136	21-Apr-21	0.255 L	22-Apr-21 21:40	1	
13C3-HFPO-DA	SURR	76.8	70 - 130			B1D0136	21-Apr-21	0.255 L	22-Apr-21 21:40	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quant tation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 5/26/21

Sample ID: WI-AF-1RW40-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104164-12	Column:	BEH C18
Project:	9000NVT8	Date Collected:	13-Apr-21 15:03	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	1.15	0.726	1.45	1.94	J	B1D0136	21-Apr-21	0.258 L	22-Apr-21 21:51	1
PFHxA	307-24-4	0.913	0.726	1.45	1.94	J	B1D0136	21-Apr-21	0.258 L	22-Apr-21 21:51	1
HFPO-DA	13252-13-6	ND	0.726	1.45	1.94		B1D0136	21-Apr-21	0.258 L	22-Apr-21 21:51	1
PFHpA	375-85-9	ND	0.726	1.45	1.94		B1D0136	21-Apr-21	0.258 L	22-Apr-21 21:51	1
ADONA	919005-14-4	ND	0.726	1.45	1.94		B1D0136	21-Apr-21	0.258 L	22-Apr-21 21:51	1
PFHxS	355-46-4	6.51	0.726	1.45	1.94		B1D0136	21-Apr-21	0.258 L	22-Apr-21 21:51	1
PFOA	335-67-1	3.24	0.726	1.45	1.94		B1D0136	21-Apr-21	0.258 L	22-Apr-21 21:51	1
PFNA	375-95-1	ND	0.726	1.45	1.94		B1D0136	21-Apr-21	0.258 L	22-Apr-21 21:51	1
PFOS	1763-23-1	3.91	0.726	1.45	1.94		B1D0136	21-Apr-21	0.258 L	22-Apr-21 21:51	1
9Cl-PF3ONS	756426-58-1	ND	0.726	1.45	1.94		B1D0136	21-Apr-21	0.258 L	22-Apr-21 21:51	1
PFDA	335-76-2	ND	0.726	1.45	1.94		B1D0136	21-Apr-21	0.258 L	22-Apr-21 21:51	1
MeFOSAA	2355-31-9	ND	0.726	1.45	1.94		B1D0136	21-Apr-21	0.258 L	22-Apr-21 21:51	1
EtFOSAA	2991-50-6	ND	0.726	1.45	1.94		B1D0136	21-Apr-21	0.258 L	22-Apr-21 21:51	1
PFUnA	2058-94-3	ND	0.726	1.45	1.94		B1D0136	21-Apr-21	0.258 L	22-Apr-21 21:51	1
PFDoA	307-55-1	ND	0.726	1.45	1.94		B1D0136	21-Apr-21	0.258 L	22-Apr-21 21:51	1
PFTTrDA	72629-94-8	ND	0.726	1.45	1.94		B1D0136	21-Apr-21	0.258 L	22-Apr-21 21:51	1
11Cl-PF3OUdS	763051-92-9	ND	0.726	1.45	1.94		B1D0136	21-Apr-21	0.258 L	22-Apr-21 21:51	1
PFTeDA	376-06-7	ND	0.726	1.45	1.94		B1D0136	21-Apr-21	0.258 L	22-Apr-21 21:51	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	95.6	70 - 130			B1D0136	21-Apr-21	0.258 L	22-Apr-21 21:51	1	
13C2-PFDA	SURR	109	70 - 130			B1D0136	21-Apr-21	0.258 L	22-Apr-21 21:51	1	
d5-EtFOSAA	SURR	76.9	70 - 130			B1D0136	21-Apr-21	0.258 L	22-Apr-21 21:51	1	
13C3-HFPO-DA	SURR	79.6	70 - 130			B1D0136	21-Apr-21	0.258 L	22-Apr-21 21:51	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

MW 5/26/21

Sample ID: WI-AF-1FB40-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104164-13	Column:	BEH C18
Project:	9000NVT8	Date Collected:	13-Apr-21 15:05	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 22:02	1
PFHxA	307-24-4	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 22:02	1
HFPO-DA	13252-13-6	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 22:02	1
PFHpA	375-85-9	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 22:02	1
ADONA	919005-14-4	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 22:02	1
PFHxS	355-46-4	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 22:02	1
PFOA	335-67-1	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 22:02	1
PFNA	375-95-1	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 22:02	1
PFOS	1763-23-1	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 22:02	1
9CI-PF3ONS	756426-58-1	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 22:02	1
PFDA	335-76-2	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 22:02	1
MeFOSAA	2355-31-9	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 22:02	1
EtFOSAA	2991-50-5	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 22:02	1
PFOA	2058-94-3	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 22:02	1
PFDoA	307-55-1	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 22:02	1
PFTTrDA	72629-94-8	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 22:02	1
11CI-PF3OUdS	763051-92-9	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 22:02	1
PFTeDA	376-06-7	ND	0.736	1.47	1.96		B1D0136	21-Apr-21	0.255 L	22-Apr-21 22:02	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	96.6	70 - 130			B1D0136	21-Apr-21	0.255 L	22-Apr-21 22:02	1	
13C2-PFDA	SURR	111	70 - 130			B1D0136	21-Apr-21	0.255 L	22-Apr-21 22:02	1	
d5-EtFOSAA	SURR	93.5	70 - 130			B1D0136	21-Apr-21	0.255 L	22-Apr-21 22:02	1	
13C3-HFPO-DA	SURR	81.5	70 - 130			B1D0136	21-Apr-21	0.255 L	22-Apr-21 22:02	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quant tation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

W 5/24/21

Sample ID: WI-AF-3RW41-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104164-14	Column:	BEH C18
Project:	9000NVT8	Date Collected:	13-Apr-21 16:07	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	53.6	0.733	1.46	1.95		B1D0136	21-Apr-21	0.256 L	22-Apr-21 22:13	1
PFHxA	307-24-4	12.5	0.733	1.46	1.95		B1D0136	21-Apr-21	0.256 L	22-Apr-21 22:13	1
HFPO-DA	13252-13-6	ND	0.733	1.46	1.95		B1D0136	21-Apr-21	0.256 L	22-Apr-21 22:13	1
PFHpA	375-85-9	2.84	0.733	1.46	1.95		B1D0136	21-Apr-21	0.256 L	22-Apr-21 22:13	1
ADONA	919005-14-4	ND	0.733	1.46	1.95		B1D0136	21-Apr-21	0.256 L	22-Apr-21 22:13	1
PFHxS	355-46-4	60.1	0.733	1.46	1.95		B1D0136	21-Apr-21	0.256 L	22-Apr-21 22:13	1
PFOA	335-67-1	4.68	0.733	1.46	1.95		B1D0136	21-Apr-21	0.256 L	22-Apr-21 22:13	1
PFNA	375-95-1	ND	0.733	1.46	1.95		B1D0136	21-Apr-21	0.256 L	22-Apr-21 22:13	1
PFOS	1763-23-1	17.7	0.733	1.46	1.95		B1D0136	21-Apr-21	0.256 L	22-Apr-21 22:13	1
9CI-PF3ONS	756426-58-1	ND	0.733	1.46	1.95		B1D0136	21-Apr-21	0.256 L	22-Apr-21 22:13	1
PFDA	335-76-2	ND	0.733	1.46	1.95		B1D0136	21-Apr-21	0.256 L	22-Apr-21 22:13	1
MeFOSAA	2355-31-9	ND	0.733	1.46	1.95		B1D0136	21-Apr-21	0.256 L	22-Apr-21 22:13	1
EtFOSAA	2991-50-6	ND	0.733	1.46	1.95		B1D0136	21-Apr-21	0.256 L	22-Apr-21 22:13	1
PFUnA	2058-94-8	ND	0.733	1.46	1.95		B1D0136	21-Apr-21	0.256 L	22-Apr-21 22:13	1
PFDoA	307-55-1	ND	0.733	1.46	1.95		B1D0136	21-Apr-21	0.256 L	22-Apr-21 22:13	1
PFTTrDA	72629-94-8	ND	0.733	1.46	1.95		B1D0136	21-Apr-21	0.256 L	22-Apr-21 22:13	1
11CI-PF3OUdS	763051-92-9	ND	0.733	1.46	1.95		B1D0136	21-Apr-21	0.256 L	22-Apr-21 22:13	1
PFTeDA	376-06-7	ND	0.733	1.46	1.95		B1D0136	21-Apr-21	0.256 L	22-Apr-21 22:13	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	92.5	70 - 130			B1D0136	21-Apr-21	0.256 L	22-Apr-21 22:13	1	
13C2-PFDA	SURR	105	70 - 130			B1D0136	21-Apr-21	0.256 L	22-Apr-21 22:13	1	
d5-EtFOSAA	SURR	74.9	70 - 130			B1D0136	21-Apr-21	0.256 L	22-Apr-21 22:13	1	
13C3-HFPO-DA	SURR	77.8	70 - 130			B1D0136	21-Apr-21	0.256 L	22-Apr-21 22:13	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

new 5/26/21

Sample ID: WI-AF-3RW41P-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104164-15	Column:	BEH C18
Project:	9000NVT8	Date Collected:	13-Apr-21 16:09	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	55.3	0.704	1.41	1.88		B1D0136	21-Apr-21	0.266 L	22-Apr-21 22:24	1
PFHxA	307-24-4	12.6	0.704	1.41	1.88		B1D0136	21-Apr-21	0.266 L	22-Apr-21 22:24	1
HFPO-DA	13252-13-6	ND	0.704	1.41	1.88		B1D0136	21-Apr-21	0.266 L	22-Apr-21 22:24	1
PFHpA	375-85-9	2.84	0.704	1.41	1.88		B1D0136	21-Apr-21	0.266 L	22-Apr-21 22:24	1
ADONA	919005-14-4	ND	0.704	1.41	1.88		B1D0136	21-Apr-21	0.266 L	22-Apr-21 22:24	1
PFHxS	355-46-4	60.2	0.704	1.41	1.88		B1D0136	21-Apr-21	0.266 L	22-Apr-21 22:24	1
PFOA	335-67-1	4.80	0.704	1.41	1.88		B1D0136	21-Apr-21	0.266 L	22-Apr-21 22:24	1
PFNA	375-95-1	ND	0.704	1.41	1.88		B1D0136	21-Apr-21	0.266 L	22-Apr-21 22:24	1
PFOS	1763-23-1	17.5	0.704	1.41	1.88		B1D0136	21-Apr-21	0.266 L	22-Apr-21 22:24	1
9CI-PF3ONS	756426-58-1	ND	0.704	1.41	1.88		B1D0136	21-Apr-21	0.266 L	22-Apr-21 22:24	1
PFDA	335-76-2	ND	0.704	1.41	1.88		B1D0136	21-Apr-21	0.266 L	22-Apr-21 22:24	1
MeFOSAA	2355-31-9	ND	0.704	1.41	1.88		B1D0136	21-Apr-21	0.266 L	22-Apr-21 22:24	1
EtFOSAA	2991-50-6	ND	0.704	1.41	1.88		B1D0136	21-Apr-21	0.266 L	22-Apr-21 22:24	1
PFUnA	2058-94-8	ND	0.704	1.41	1.88		B1D0136	21-Apr-21	0.266 L	22-Apr-21 22:24	1
PFDoA	307-55-1	ND	0.704	1.41	1.88		B1D0136	21-Apr-21	0.266 L	22-Apr-21 22:24	1
PFTTrDA	72629-94-8	ND	0.704	1.41	1.88		B1D0136	21-Apr-21	0.266 L	22-Apr-21 22:24	1
11CI-PF3OUdS	763051-92-9	ND	0.704	1.41	1.88		B1D0136	21-Apr-21	0.266 L	22-Apr-21 22:24	1
PFTeDA	376-06-7	ND	0.704	1.41	1.88		B1D0136	21-Apr-21	0.266 L	22-Apr-21 22:24	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	93.3	70 - 130			B1D0136	21-Apr-21	0.266 L	22-Apr-21 22:24	1	
13C2-PFDA	SURR	105	70 - 130			B1D0136	21-Apr-21	0.266 L	22-Apr-21 22:24	1	
d5-EtFOSAA	SURR	70.7	70 - 130			B1D0136	21-Apr-21	0.266 L	22-Apr-21 22:24	1	
13C3-HFPO-DA	SURR	78.5	70 - 130			B1D0136	21-Apr-21	0.266 L	22-Apr-21 22:24	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NR 5/26/21

Sample ID: WI-AF-3FB41-0421						EPA Method 537.1					
Client Data				Laboratory Data							
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104164-16	Column:	BEH C18				
Project:	9000NVT8	Date Collected:	13-Apr-21 16:11	Date Received:	16-Apr-21 09:58						
Location:	Drinking Water										
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 22:35	1
PFHxA	307-24-4	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 22:35	1
HFPO-DA	13252-13-6	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 22:35	1
PFHpA	375-85-9	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 22:35	1
ADONA	919005-14-4	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 22:35	1
PFHxS	355-46-4	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 22:35	1
PFOA	335-67-1	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 22:35	1
PFNA	375-95-1	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 22:35	1
PFOS	1763-23-1	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 22:35	1
9CI-PF3ONS	756426-58-1	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 22:35	1
PFDA	335-76-2	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 22:35	1
MeFOSAA	2355-31-9	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 22:35	1
EtFOSAA	2991-50-5	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 22:35	1
PFUnA	2058-94-3	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 22:35	1
PFDoA	307-55-1	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 22:35	1
PFTTrDA	72629-94-8	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 22:35	1
11CI-PF3OUdS	763051-92-9	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 22:35	1
PFTeDA	376-06-7	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 22:35	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	96.3	70 - 130			B1D0136	21-Apr-21	0.253 L	22-Apr-21 22:35	1	
13C2-PFDA	SURR	114	70 - 130			B1D0136	21-Apr-21	0.253 L	22-Apr-21 22:35	1	
d5-EtFOSAA	SURR	93.6	70 - 130			B1D0136	21-Apr-21	0.253 L	22-Apr-21 22:35	1	
13C3-HFPO-DA	SURR	77.9	70 - 130			B1D0136	21-Apr-21	0.253 L	22-Apr-21 22:35	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

new 5/26/21

Sample ID: WI-CV-1RW27-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104164-17	Column:	BEH C18
Project:	9000NVT8	Date Collected:	14-Apr-21 08:16	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.717	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 23:20	1
PFHxA	307-24-4	1.87	0.717	1.43	1.91	J	B1D0136	21-Apr-21	0.262 L	22-Apr-21 23:20	1
HFPO-DA	13252-13-6	ND	0.717	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 23:20	1
PFHpA	375-85-9	ND	0.717	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 23:20	1
ADONA	919005-14-4	ND	0.717	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 23:20	1
PFHxS	355-46-4	ND	0.717	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 23:20	1
PFOA	335-67-1	ND	0.717	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 23:20	1
PFNA	375-95-1	ND	0.717	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 23:20	1
PFOS	1763-23-1	ND	0.717	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 23:20	1
9CI-PF3ONS	756426-58-1	ND	0.717	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 23:20	1
PFDA	335-76-2	ND	0.717	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 23:20	1
MeFOSAA	2355-31-9	ND	0.717	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 23:20	1
EtFOSAA	2991-50-6	ND	0.717	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 23:20	1
PFUnA	2058-94-3	ND	0.717	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 23:20	1
PFDoA	307-55-1	ND	0.717	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 23:20	1
PFTTrDA	72629-94-8	ND	0.717	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 23:20	1
11CI-PF3OUdS	763051-92-9	ND	0.717	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 23:20	1
PFTeDA	376-06-7	ND	0.717	1.43	1.91		B1D0136	21-Apr-21	0.262 L	22-Apr-21 23:20	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	94.1	70 - 130			B1D0136	21-Apr-21	0.262 L	22-Apr-21 23:20	1	
13C2-PFDA	SURR	112	70 - 130			B1D0136	21-Apr-21	0.262 L	22-Apr-21 23:20	1	
d5-EtFOSAA	SURR	90.9	70 - 130			B1D0136	21-Apr-21	0.262 L	22-Apr-21 23:20	1	
13C3-HFPO-DA	SURR	78.7	70 - 130			B1D0136	21-Apr-21	0.262 L	22-Apr-21 23:20	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 5/26/21

Sample ID: WI-CV-1FB27-0421						EPA Method 537.1					
Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2104164-18	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	14-Apr-21 08:18		Date Received:	16-Apr-21 09:58					
Location:	Drinking Water										
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 23:31	1
PFHxA	307-24-4	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 23:31	1
HFPO-DA	13252-13-6	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 23:31	1
PFHpA	375-85-9	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 23:31	1
ADONA	919005-14-4	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 23:31	1
PFHxS	355-46-4	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 23:31	1
PFOA	335-67-1	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 23:31	1
PFNA	375-95-1	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 23:31	1
PFOS	1763-23-1	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 23:31	1
9CI-PF3ONS	756426-58-1	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 23:31	1
PFDA	335-76-2	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 23:31	1
MeFOSAA	2355-31-9	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 23:31	1
EtFOSAA	2991-50-6	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 23:31	1
PFUnA	2058-94-8	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 23:31	1
PFDoA	307-55-1	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 23:31	1
PFTTrDA	72629-94-8	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 23:31	1
11Cl-PF3OUdS	763051-92-9	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 23:31	1
PFTeDA	376-06-7	ND	0.741	1.48	1.98		B1D0136	21-Apr-21	0.253 L	22-Apr-21 23:31	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	97.5	70 - 130			B1D0136	21-Apr-21	0.253 L	22-Apr-21 23:31	1	
13C2-PFDA	SURR	121	70 - 130			B1D0136	21-Apr-21	0.253 L	22-Apr-21 23:31	1	
d5-EtFOSAA	SURR	100	70 - 130			B1D0136	21-Apr-21	0.253 L	22-Apr-21 23:31	1	
13C3-HFPO-DA	SURR	83.9	70 - 130			B1D0136	21-Apr-21	0.253 L	22-Apr-21 23:31	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW 5/26/21

**DATA VALIDATION SUMMARY REPORT
NAS WHIDBEY ISLAND, WASHINGTON**

Client: CH2M HILL, Inc., Corvallis, Oregon
 SDG: 2104165
 Laboratory: Vista Analytical Laboratory, El Dorado Hills, California
 Site: NAS Whidbey Island, Residential Wells, CTO-4384, Washington
 Date: May 26, 2021

PFAS			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	WI-CV-1RW25-0421	2104165-01	Water
2	WI-CV-1FB25-0421	2104165-02	Water
3	WI-CV-1RW26-0421	2104165-03	Water
4	WI-CV-1RW26P-0421	2104165-04	Water
5	WI-CV-1FB26-0421	2104165-05	Water
6	WI-CV-1RW23-0421	2104165-06	Water
7	WI-CV-1FB23-0421	2104165-07	Water
8	WI-CV-1RW22-0421	2104165-08	Water
9	WI-CV-1FB22-0421	2104165-09	Water
10	WI-CV-1RW67-0421	2104165-10	Water
10MS	WI-CV-1RW67-0421MS	2104165-10MS	Water
10MSD	WI-CV-1RW67-0421MSD	2104165-10MSD	Water
11	WI-CV-1FB67-0421	2104165-11	Water
12	WI-CV-1RW40-0421	2104165-12	Water
13	WI-CV-1FB40-0421	2104165-13	Water
14	WI-CV-3RW10-0421	2104165-14	Water
15	WI-CV-3FB10-0421	2104165-15	Water

A Stage 2B/4 data validation was performed on the analytical data for eight water samples and seven aqueous field blank samples collected on April 14, 2021 by CH2M Hill at the NAS Whidbey Island site in Washington. The samples were analyzed under the EPA Method “Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (I.C./MS/MS)”.

Specific method references are as follows:

Analysis
PFAS

Method References
USEPA Method 537.1

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, the Final Sampling and Analysis Plan Investigation of Per- and Polyfluoroalkyl Substances in Off-Base Drinking Water Ault Field, Area 6, and Outlying Landing Field Coupeville, Naval Air Station Whidbey Island, April, 2020, Field Change Request (FCR) No. 1,

September 2020, FCR No. 2, November 2020, and the DoD Final General Data Validation Guidelines, November 2019, and the USEPA Data Review and Validation Guidelines as follows:

- The USEPA “Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537,” November 2018;
- and the reviewer's professional judgment.

The following data quality indicators were reviewed for this report:

Organics

- Date Completeness, Case Narrative & Custody Documentation
- Holding times
- Liquid Chromatography/Mass Spectrometry (LC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field QC blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

A Stage 2B/4 data validation was performed with this review including a recalculation of 100% of the detected results in the samples.

Data Usability Assessment

There were no serious deficiencies of data.

The data are acceptable for the intended purposes. There were no qualifications.

Perfluorinated Alkyl Substances (PFAS)

Data Completeness, Case Narrative & Custody Documentation

- The case narrative and chain-of-custody documentation were included in the data package as required. All criteria were met.

Holding Times

- All samples were extracted within 14 days for water samples and analyzed within 28 days.

LC/MS Tuning

- All criteria were met.

Initial Calibration

- All relative standard deviation (%RSD) and/or correlation coefficients criteria were met.

Continuing Calibration

- All percent difference (%D) and RRF criteria were met.

Method Blank

- The method blanks were free of contamination.

Field QC Blank

- Field QC sample results are summarized in the table below.

Blank ID	Compound	Conc. ng/L	Qualifier	Affected Samples
WI-CV-1FB25-0421	None - ND	-	-	-
WI-CV-1FB26-0421	None - ND	-	-	-
WI-CV-1FB23-0421	None - ND	-	-	-
WI-CV-1FB22-0421	None - ND	-	-	-
WI-CV-1FB67-0421	None - ND	-	-	-
WI-CV-1FB40-0421	None - ND	-	-	-
WI-CV-3FB10-0421	None - ND	-	-	-

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- The MS/MSD samples exhibited acceptable percent recoveries (%R) and RPD values.

Laboratory Control Samples (LCS)

- The LCS samples exhibited acceptable percent recoveries (%R).

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- All criteria were met.

Field Duplicate Sample Precision

- Field duplicate samples are summarized below. The precision was acceptable.

Compound	WI-CV-1RW26-0421 ng/L	WI-CV-1RW26P-0421 ng/L	RPD	Qualifier
None	ND	ND	-	-

Please contact the undersigned at (561) 475-2000 if you have any questions or need further information.

Signed: Nancy Weaver Dated: 5/28/21
Nancy Weaver
Senior Chemist

Qualifier	Definition
U	The analyte was not detected and was reported as less than the LOD or as defined by the customer. The LOD has been adjusted for any dilution or concentration of the sample.
J	The reported result was an estimated value with an unknown bias.
J+	The result was an estimated quantity, but the result may be biased high.
J-	The result was an estimated quantity, but the result may be biased low.
N	The analysis indicates the presence of an analyte for which there was presumptive evidence to make a "tentative identification."
NJ	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value was the estimated concentration in the sample.
UJ	The analyte was not detected and was reported as less than the LOD or as defined by the customer. However, the associated numerical value is approximate.
X	<p>The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided.</p> <p>Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.</p>

Sample ID: WI-CV-1RW25-0421						EPA Method 537.1					
Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2104165-01	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	14-Apr-21 08:31		Date Received:	16-Apr-21 09:58					
Location:	Drinking Water										
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.732	1.46	1.95		B1D0138	24-Apr-21	0.256 L	26-Apr-21 12:41	1
PFHxA	307-24-4	ND	0.732	1.46	1.95		B1D0138	24-Apr-21	0.256 L	26-Apr-21 12:41	1
HFPO-DA	13252-13-6	ND	0.732	1.46	1.95		B1D0138	24-Apr-21	0.256 L	26-Apr-21 12:41	1
PFHpA	375-85-9	ND	0.732	1.46	1.95		B1D0138	24-Apr-21	0.256 L	26-Apr-21 12:41	1
ADONA	919005-14-4	ND	0.732	1.46	1.95		B1D0138	24-Apr-21	0.256 L	26-Apr-21 12:41	1
PFHxS	355-46-4	ND	0.732	1.46	1.95		B1D0138	24-Apr-21	0.256 L	26-Apr-21 12:41	1
PFOA	335-67-1	ND	0.732	1.46	1.95		B1D0138	24-Apr-21	0.256 L	26-Apr-21 12:41	1
PFNA	375-95-1	ND	0.732	1.46	1.95		B1D0138	24-Apr-21	0.256 L	26-Apr-21 12:41	1
PFOS	1763-23-1	ND	0.732	1.46	1.95		B1D0138	24-Apr-21	0.256 L	26-Apr-21 12:41	1
9CI-PF3ONS	756426-58-1	ND	0.732	1.46	1.95		B1D0138	24-Apr-21	0.256 L	26-Apr-21 12:41	1
PFDA	335-76-2	ND	0.732	1.46	1.95		B1D0138	24-Apr-21	0.256 L	26-Apr-21 12:41	1
MeFOSAA	2355-31-9	ND	0.732	1.46	1.95		B1D0138	24-Apr-21	0.256 L	26-Apr-21 12:41	1
EtFOSAA	2991-50-6	ND	0.732	1.46	1.95		B1D0138	24-Apr-21	0.256 L	26-Apr-21 12:41	1
PFUnA	2058-94-8	ND	0.732	1.46	1.95		B1D0138	24-Apr-21	0.256 L	26-Apr-21 12:41	1
PFDoA	307-55-1	ND	0.732	1.46	1.95		B1D0138	24-Apr-21	0.256 L	26-Apr-21 12:41	1
PFTTrDA	72629-94-8	ND	0.732	1.46	1.95		B1D0138	24-Apr-21	0.256 L	26-Apr-21 12:41	1
11CI-PF3OUdS	763051-92-9	ND	0.732	1.46	1.95		B1D0138	24-Apr-21	0.256 L	26-Apr-21 12:41	1
PFTeDA	376-06-7	ND	0.732	1.46	1.95		B1D0138	24-Apr-21	0.256 L	26-Apr-21 12:41	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	98.5	70 - 130			B1D0138	24-Apr-21	0.256 L	26-Apr-21 12:41	1	
13C2-PFDA	SURR	91.9	70 - 130			B1D0138	24-Apr-21	0.256 L	26-Apr-21 12:41	1	
d5-EtFOSAA	SURR	75.2	70 - 130			B1D0138	24-Apr-21	0.256 L	26-Apr-21 12:41	1	
13C3-HFPO-DA	SURR	102	70 - 130			B1D0138	24-Apr-21	0.256 L	26-Apr-21 12:41	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW 5/26/21

Sample ID: WI-CV-1FB25-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104165-02	Column:	BEH C18
Project:	9000NVT8	Date Collected:	14-Apr-21 08:32	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 12:52	1
PFHxA	307-24-4	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 12:52	1
HFPO-DA	13252-13-6	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 12:52	1
PFHpA	375-85-9	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 12:52	1
ADONA	919005-14-4	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 12:52	1
PFHxS	355-46-4	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 12:52	1
PFOA	335-67-1	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 12:52	1
PFNA	375-95-1	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 12:52	1
PFOS	1763-23-1	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 12:52	1
9CI-PF3ONS	756426-58-1	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 12:52	1
PFDA	335-76-2	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 12:52	1
MeFOSAA	2355-31-9	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 12:52	1
EtFOSAA	2991-50-6	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 12:52	1
PFUnA	2058-94-8	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 12:52	1
PFDoA	307-55-1	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 12:52	1
PFTTrDA	72629-94-8	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 12:52	1
11CI-PF3OUdS	763051-92-9	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 12:52	1
PFTeDA	376-06-7	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 12:52	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	106	70 - 130			B1D0138	24-Apr-21	0.254 L	26-Apr-21 12:52	1	
13C2-PFDA	SURR	102	70 - 130			B1D0138	24-Apr-21	0.254 L	26-Apr-21 12:52	1	
d5-EtFOSAA	SURR	87.1	70 - 130			B1D0138	24-Apr-21	0.254 L	26-Apr-21 12:52	1	
13C3-HFPO-DA	SURR	110	70 - 130			B1D0138	24-Apr-21	0.254 L	26-Apr-21 12:52	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

new 5/26/21

Sample ID: WI-CV-1RW26-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104165-03	Column:	BEH C18
Project:	9000NVT8	Date Collected:	14-Apr-21 08:45	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 13:03	1
PFHxA	307-24-4	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 13:03	1
HFPO-DA	13252-13-6	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 13:03	1
PFHpA	375-85-9	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 13:03	1
ADONA	919005-14-4	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 13:03	1
PFHxS	355-46-4	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 13:03	1
PFOA	335-67-i	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 13:03	1
PFNA	375-95-1	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 13:03	1
PFOS	1763-23-1	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 13:03	1
9CI-PF3ONS	756426-58-1	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 13:03	1
PFDA	335-76-2	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 13:03	1
MeFOSAA	2355-31-9	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 13:03	1
EtFOSAA	2991-50-6	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 13:03	1
PFUnA	2058-94-8	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 13:03	1
PFDoA	307-55-1	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 13:03	1
PFTTrDA	72629-94-8	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 13:03	1
11CI-PF3OUdS	763051-92-9	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 13:03	1
PFTeDA	376-06-7	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 13:03	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	103	70 - 130			B1D0138	24-Apr-21	0.257 L	26-Apr-21 13:03	1	
13C2-PFDA	SURR	94.9	70 - 130			B1D0138	24-Apr-21	0.257 L	26-Apr-21 13:03	1	
d5-EtFOSAA	SURR	80.7	70 - 130			B1D0138	24-Apr-21	0.257 L	26-Apr-21 13:03	1	
13C3-HFPO-DA	SURR	108	70 - 130			B1D0138	24-Apr-21	0.257 L	26-Apr-21 13:03	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

mw 5/26/21

Sample ID: WI-CV-1RW26P-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104165-04	Column:	BEH C18
Project:	9000NVT8	Date Collected:	14-Apr-21 08:47	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.747	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:15	1
PFHxA	307-24-4	ND	0.747	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:15	1
HFPO-DA	13252-13-6	ND	0.747	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:15	1
PFHpA	375-85-9	ND	0.747	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:15	1
ADONA	919005-14-4	ND	0.747	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:15	1
PFHxS	355-46-4	ND	0.747	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:15	1
PFOA	335-67-1	ND	0.747	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:15	1
PFNA	375-95-1	ND	0.747	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:15	1
PFOS	1763-23-1	ND	0.747	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:15	1
9CI-PF3ONS	756426-58-1	ND	0.747	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:15	1
PFDA	335-76-2	ND	0.747	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:15	1
MeFOSAA	2355-31-9	ND	0.747	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:15	1
EtFOSAA	2991-50-6	ND	0.747	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:15	1
PFUnA	2058-94-8	ND	0.747	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:15	1
PFDoA	307-55-1	ND	0.747	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:15	1
PFTTrDA	72629-94-8	ND	0.747	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:15	1
11CI-PF3OUdS	763051-92-9	ND	0.747	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:15	1
PFTeDA	376-06-7	ND	0.747	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:15	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	97.1	70 - 130			B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:15	1	
13C2-PFDA	SURR	92.7	70 - 130			B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:15	1	
d5-EtFOSAA	SURR	74.7	70 - 130			B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:15	1	
13C3-HFPO-DA	SURR	102	70 - 130			B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:15	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 5/26/21

Sample ID: WI-CV-1FB26-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104165-05	Column:	BEH C18
Project:	9000NVT8	Date Collected:	14-Apr-21 08:49	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.752	1.51	2.01		B1D0138	24-Apr-21	0.249 L	26-Apr-21 13:26	1
PFHxA	307-24-4	ND	0.752	1.51	2.01		B1D0138	24-Apr-21	0.249 L	26-Apr-21 13:26	1
HFPO-DA	13252-13-6	ND	0.752	1.51	2.01		B1D0138	24-Apr-21	0.249 L	26-Apr-21 13:26	1
PFHpA	375-85-9	ND	0.752	1.51	2.01		B1D0138	24-Apr-21	0.249 L	26-Apr-21 13:26	1
ADONA	919005-14-4	ND	0.752	1.51	2.01		B1D0138	24-Apr-21	0.249 L	26-Apr-21 13:26	1
PFHxS	355-46-4	ND	0.752	1.51	2.01		B1D0138	24-Apr-21	0.249 L	26-Apr-21 13:26	1
PFOA	335-67-1	ND	0.752	1.51	2.01		B1D0138	24-Apr-21	0.249 L	26-Apr-21 13:26	1
PFNA	375-95-1	ND	0.752	1.51	2.01		B1D0138	24-Apr-21	0.249 L	26-Apr-21 13:26	1
PFOS	1763-23-1	ND	0.752	1.51	2.01		B1D0138	24-Apr-21	0.249 L	26-Apr-21 13:26	1
9CI-PF3ONS	756426-58-1	ND	0.752	1.51	2.01		B1D0138	24-Apr-21	0.249 L	26-Apr-21 13:26	1
PFDA	335-76-2	ND	0.752	1.51	2.01		B1D0138	24-Apr-21	0.249 L	26-Apr-21 13:26	1
MeFOSAA	2355-31-9	ND	0.752	1.51	2.01		B1D0138	24-Apr-21	0.249 L	26-Apr-21 13:26	1
EtFOSAA	2991-50-6	ND	0.752	1.51	2.01		B1D0138	24-Apr-21	0.249 L	26-Apr-21 13:26	1
PFUnA	2058-94-8	ND	0.752	1.51	2.01		B1D0138	24-Apr-21	0.249 L	26-Apr-21 13:26	1
PFDoA	307-55-1	ND	0.752	1.51	2.01		B1D0138	24-Apr-21	0.249 L	26-Apr-21 13:26	1
PFTTrDA	72629-94-8	ND	0.752	1.51	2.01		B1D0138	24-Apr-21	0.249 L	26-Apr-21 13:26	1
11CI-PF3OUdS	763051-92-9	ND	0.752	1.51	2.01		B1D0138	24-Apr-21	0.249 L	26-Apr-21 13:26	1
PFTeDA	376-06-7	ND	0.752	1.51	2.01		B1D0138	24-Apr-21	0.249 L	26-Apr-21 13:26	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	98.3	70 - 130			B1D0138	24-Apr-21	0.249 L	26-Apr-21 13:26	1	
13C2-PFDA	SURR	97.7	70 - 130			B1D0138	24-Apr-21	0.249 L	26-Apr-21 13:26	1	
d5-EtFOSAA	SURR	90.2	70 - 130			B1D0138	24-Apr-21	0.249 L	26-Apr-21 13:26	1	
13C3-HFPO-DA	SURR	103	70 - 130			B1D0138	24-Apr-21	0.249 L	26-Apr-21 13:26	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

mw 5/26/21

Sample ID: WI-CV-1RW23-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104165-06	Column:	BEH C18
Project:	9000NVT8	Date Collected:	14-Apr-21 09:09	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	20.6	0.725	1.45	1.93		B1D0138	24-Apr-21	0.259 L	26-Apr-21 13:37	1
PFHxA	307-24-4	39.6	0.725	1.45	1.93		B1D0138	24-Apr-21	0.259 L	26-Apr-21 13:37	1
HFPO-DA	13252-13-6	ND	0.725	1.45	1.93		B1D0138	24-Apr-21	0.259 L	26-Apr-21 13:37	1
PFHpA	375-85-9	9.96	0.725	1.45	1.93		B1D0138	24-Apr-21	0.259 L	26-Apr-21 13:37	1
ADONA	919005-14-4	ND	0.725	1.45	1.93		B1D0138	24-Apr-21	0.259 L	26-Apr-21 13:37	1
PFHxS	355-46-4	69.7	0.725	1.45	1.93		B1D0138	24-Apr-21	0.259 L	26-Apr-21 13:37	1
PFOA	335-67-1	66.3	0.725	1.45	1.93		B1D0138	24-Apr-21	0.259 L	26-Apr-21 13:37	1
PFNA	375-95-1	ND	0.725	1.45	1.93		B1D0138	24-Apr-21	0.259 L	26-Apr-21 13:37	1
PFOS	1763-23-1	1.44	0.725	1.45	1.93	J	B1D0138	24-Apr-21	0.259 L	26-Apr-21 13:37	1
9Cl-PF3ONS	756426-58-1	ND	0.725	1.45	1.93		B1D0138	24-Apr-21	0.259 L	26-Apr-21 13:37	1
PFDA	335-76-2	ND	0.725	1.45	1.93		B1D0138	24-Apr-21	0.259 L	26-Apr-21 13:37	1
MeFOSAA	2355-31-9	ND	0.725	1.45	1.93		B1D0138	24-Apr-21	0.259 L	26-Apr-21 13:37	1
EtFOSAA	2991-50-6	ND	0.725	1.45	1.93		B1D0138	24-Apr-21	0.259 L	26-Apr-21 13:37	1
PFUnA	2058-94-3	ND	0.725	1.45	1.93		B1D0138	24-Apr-21	0.259 L	26-Apr-21 13:37	1
PFDoA	307-55-1	ND	0.725	1.45	1.93		B1D0138	24-Apr-21	0.259 L	26-Apr-21 13:37	1
PFTTrDA	72629-94-8	ND	0.725	1.45	1.93		B1D0138	24-Apr-21	0.259 L	26-Apr-21 13:37	1
11Cl-PF3OUdS	763051-92-9	ND	0.725	1.45	1.93		B1D0138	24-Apr-21	0.259 L	26-Apr-21 13:37	1
PFTeDA	376-06-7	ND	0.725	1.45	1.93		B1D0138	24-Apr-21	0.259 L	26-Apr-21 13:37	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	106	70 - 130			B1D0138	24-Apr-21	0.259 L	26-Apr-21 13:37	1	
13C2-PFDA	SURR	98.9	70 - 130			B1D0138	24-Apr-21	0.259 L	26-Apr-21 13:37	1	
d5-EtFOSAA	SURR	87.9	70 - 130			B1D0138	24-Apr-21	0.259 L	26-Apr-21 13:37	1	
13C3-HFPO-DA	SURR	111	70 - 130			B1D0138	24-Apr-21	0.259 L	26-Apr-21 13:37	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 5/26/21

Sample ID: WI-CV-1FB23-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104165-07	Column:	BEH C18
Project:	9000NVT8	Date Collected:	14-Apr-21 09:10	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.746	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:48	1
PFHxA	307-24-4	ND	0.746	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:48	1
HFPO-DA	13252-13-6	ND	0.746	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:48	1
PFHpA	375-85-9	ND	0.746	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:48	1
ADONA	919005-14-4	ND	0.746	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:48	1
PFHxS	355-46-4	ND	0.746	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:48	1
PFOA	335-67-1	ND	0.746	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:48	1
PFNA	375-95-1	ND	0.746	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:48	1
PFOS	1763-23-1	ND	0.746	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:48	1
9CI-PF3ONS	756426-58-1	ND	0.746	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:48	1
PFDA	335-76-2	ND	0.746	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:48	1
MeFOSAA	2355-31-9	ND	0.746	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:48	1
EtFOSAA	2991-50-6	ND	0.746	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:48	1
PFUnA	2058-94-8	ND	0.746	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:48	1
PFDoA	307-55-1	ND	0.746	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:48	1
PFTrDA	72629-94-8	ND	0.746	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:48	1
11CI-PF3OUdS	763051-92-9	ND	0.746	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:48	1
PFTeDA	376-06-7	ND	0.746	1.49	1.99		B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:48	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	102	70 - 130			B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:48	1	
13C2-PFDA	SURR	93.0	70 - 130			B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:48	1	
d5-EtFOSAA	SURR	81.0	70 - 130			B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:48	1	
13C3-HFPO-DA	SURR	107	70 - 130			B1D0138	24-Apr-21	0.251 L	26-Apr-21 13:48	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 5/26/21

Sample ID: WI-CV-1RW22-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104165-08	Column:	BEH C18
Project:	9000NVT8	Date Collected:	14-Apr-21 10:25	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 13:59	1
PFHxA	307-24-4	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 13:59	1
HFPO-DA	13252-13-6	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 13:59	1
PFHpA	375-85-9	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 13:59	1
ADONA	919005-14-4	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 13:59	1
PFHxS	355-46-4	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 13:59	1
PFOA	335-67-1	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 13:59	1
PFNA	375-95-1	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 13:59	1
PFOS	1763-23-1	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 13:59	1
9CI-PF3ONS	756426-58-1	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 13:59	1
PFDA	335-76-2	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 13:59	1
MeFOSAA	2355-31-9	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 13:59	1
EtFOSAA	2991-50-6	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 13:59	1
PFUnA	2058-94-8	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 13:59	1
PFDoA	307-55-1	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 13:59	1
PFTrDA	72629-94-8	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 13:59	1
11CI-PF3OUdS	763051-92-9	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 13:59	1
PFTeDA	376-06-7	ND	0.739	1.48	1.97		B1D0138	24-Apr-21	0.254 L	26-Apr-21 13:59	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	104	70 - 130			B1D0138	24-Apr-21	0.254 L	26-Apr-21 13:59	1	
13C2-PFDA	SURR	98.1	70 - 130			B1D0138	24-Apr-21	0.254 L	26-Apr-21 13:59	1	
d5-EtFOSAA	SURR	82.6	70 - 130			B1D0138	24-Apr-21	0.254 L	26-Apr-21 13:59	1	
13C3-HFPO-DA	SURR	109	70 - 130			B1D0138	24-Apr-21	0.254 L	26-Apr-21 13:59	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

new 5/26/21

Sample ID: WI-CV-1FB22-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104165-09	Column:	BEH C18
Project:	9000NVT8	Date Collected:	14-Apr-21 10:27	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.721	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 14:10	1
PFHxA	307-24-4	ND	0.721	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 14:10	1
HFPO-DA	13252-13-6	ND	0.721	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 14:10	1
PFHpA	375-85-9	ND	0.721	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 14:10	1
ADONA	919005-14-4	ND	0.721	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 14:10	1
PFHxS	355-46-4	ND	0.721	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 14:10	1
PFOA	335-67-1	ND	0.721	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 14:10	1
PFNA	375-95-1	ND	0.721	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 14:10	1
PFOS	1763-23-1	ND	0.721	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 14:10	1
9CI-PF3ONS	756426-58-1	ND	0.721	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 14:10	1
PFDA	335-76-2	ND	0.721	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 14:10	1
MeFOSAA	2355-31-9	ND	0.721	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 14:10	1
EtFOSAA	2991-50-6	ND	0.721	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 14:10	1
PFUnA	2058-94-8	ND	0.721	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 14:10	1
PFDoA	307-55-1	ND	0.721	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 14:10	1
PFTTrDA	72629-94-8	ND	0.721	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 14:10	1
11CI-PF3OUdS	763051-92-9	ND	0.721	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 14:10	1
PFTeDA	376-06-7	ND	0.721	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 14:10	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	97.7	70 - 130			B1D0138	24-Apr-21	0.260 L	26-Apr-21 14:10	1	
13C2-PFDA	SURR	92.0	70 - 130			B1D0138	24-Apr-21	0.260 L	26-Apr-21 14:10	1	
d5-EtFOSAA	SURR	78.2	70 - 130			B1D0138	24-Apr-21	0.260 L	26-Apr-21 14:10	1	
13C3-HFPO-DA	SURR	104	70 - 130			B1D0138	24-Apr-21	0.260 L	26-Apr-21 14:10	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

new 5/26/21

Sample ID: WI-CV-1RW67-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104165-10	Column:	BEH C18
Project:	9000NVT8	Date Collected:	14-Apr-21 11:42	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 14:21	1
PFHxA	307-24-4	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 14:21	1
HFPO-DA	13252-13-6	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 14:21	1
PFHpA	375-85-9	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 14:21	1
ADONA	919005-14-4	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 14:21	1
PFHxS	355-46-4	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 14:21	1
PFOA	335-67-1	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 14:21	1
PFNA	375-95-1	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 14:21	1
PFOS	1763-23-1	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 14:21	1
9CI-PF3ONS	756426-58-1	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 14:21	1
PFDA	335-76-2	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 14:21	1
MeFOSAA	2355-31-9	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 14:21	1
EtFOSAA	2991-50-6	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 14:21	1
PFUnA	2058-94-8	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 14:21	1
PFDoA	307-55-1	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 14:21	1
PFTTrDA	72629-94-8	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 14:21	1
11CI-PF3OUdS	763051-92-9	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 14:21	1
PFTeDA	376-06-7	ND	0.729	1.46	1.94		B1D0138	24-Apr-21	0.257 L	26-Apr-21 14:21	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	102	70 - 130			B1D0138	24-Apr-21	0.257 L	26-Apr-21 14:21	1	
13C2-PFDA	SURR	95.9	70 - 130			B1D0138	24-Apr-21	0.257 L	26-Apr-21 14:21	1	
d5-EtFOSAA	SURR	85.6	70 - 130			B1D0138	24-Apr-21	0.257 L	26-Apr-21 14:21	1	
13C3-HFPO-DA	SURR	106	70 - 130			B1D0138	24-Apr-21	0.257 L	26-Apr-21 14:21	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

rw 5/26/21

Sample ID: WI-CV-1FB67-0421						EPA Method 537.1					
Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2104165-11	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	14-Apr-21 11:44		Date Received:	16-Apr-21 09:58					
Location:	Drinking Water										
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.714	1.43	1.90		B1D0138	24-Apr-21	0.263 L	26-Apr-21 14:32	1
PFHxA	307-24-4	ND	0.714	1.43	1.90		B1D0138	24-Apr-21	0.263 L	26-Apr-21 14:32	1
HFPO-DA	13252-13-6	ND	0.714	1.43	1.90		B1D0138	24-Apr-21	0.263 L	26-Apr-21 14:32	1
PFHpA	375-85-9	ND	0.714	1.43	1.90		B1D0138	24-Apr-21	0.263 L	26-Apr-21 14:32	1
ADONA	919005-14-4	ND	0.714	1.43	1.90		B1D0138	24-Apr-21	0.263 L	26-Apr-21 14:32	1
PFHxS	355-46-4	ND	0.714	1.43	1.90		B1D0138	24-Apr-21	0.263 L	26-Apr-21 14:32	1
PFOA	335-67-1	ND	0.714	1.43	1.90		B1D0138	24-Apr-21	0.263 L	26-Apr-21 14:32	1
PFNA	375-95-1	ND	0.714	1.43	1.90		B1D0138	24-Apr-21	0.263 L	26-Apr-21 14:32	1
PFOS	1763-23-1	ND	0.714	1.43	1.90		B1D0138	24-Apr-21	0.263 L	26-Apr-21 14:32	1
9CI-PF3ONS	756426-58-1	ND	0.714	1.43	1.90		B1D0138	24-Apr-21	0.263 L	26-Apr-21 14:32	1
PFDA	335-76-2	ND	0.714	1.43	1.90		B1D0138	24-Apr-21	0.263 L	26-Apr-21 14:32	1
MeFOSAA	2355-31-9	ND	0.714	1.43	1.90		B1D0138	24-Apr-21	0.263 L	26-Apr-21 14:32	1
EtFOSAA	2991-50-6	ND	0.714	1.43	1.90		B1D0138	24-Apr-21	0.263 L	26-Apr-21 14:32	1
PFUnA	2058-94-3	ND	0.714	1.43	1.90		B1D0138	24-Apr-21	0.263 L	26-Apr-21 14:32	1
PFDoA	307-55-1	ND	0.714	1.43	1.90		B1D0138	24-Apr-21	0.263 L	26-Apr-21 14:32	1
PFTTrDA	72629-94-8	ND	0.714	1.43	1.90		B1D0138	24-Apr-21	0.263 L	26-Apr-21 14:32	1
11CI-PF3OUdS	763051-92-9	ND	0.714	1.43	1.90		B1D0138	24-Apr-21	0.263 L	26-Apr-21 14:32	1
PFTeDA	376-06-7	ND	0.714	1.43	1.90		B1D0138	24-Apr-21	0.263 L	26-Apr-21 14:32	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	99.3	70 - 130			B1D0138	24-Apr-21	0.263 L	26-Apr-21 14:32	1	
13C2-PFDA	SURR	91.8	70 - 130			B1D0138	24-Apr-21	0.263 L	26-Apr-21 14:32	1	
d5-EtFOSAA	SURR	70.5	70 - 130			B1D0138	24-Apr-21	0.263 L	26-Apr-21 14:32	1	
13C3-HFPO-DA	SURR	101	70 - 130			B1D0138	24-Apr-21	0.263 L	26-Apr-21 14:32	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

new 5/26/21

Sample ID: WI-CV-1RW40-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104165-12	Column:	BEH C18
Project:	9000NVT8	Date Collected:	14-Apr-21 13:11	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.707	1.42	1.88		B1D0138	24-Apr-21	0.265 L	26-Apr-21 14:43	1
PFHxA	307-24-4	ND	0.707	1.42	1.88		B1D0138	24-Apr-21	0.265 L	26-Apr-21 14:43	1
HFPO-DA	13252-13-6	ND	0.707	1.42	1.88		B1D0138	24-Apr-21	0.265 L	26-Apr-21 14:43	1
PFHpA	375-85-9	ND	0.707	1.42	1.88		B1D0138	24-Apr-21	0.265 L	26-Apr-21 14:43	1
ADONA	919005-14-4	ND	0.707	1.42	1.88		B1D0138	24-Apr-21	0.265 L	26-Apr-21 14:43	1
PFHxS	355-46-4	ND	0.707	1.42	1.88		B1D0138	24-Apr-21	0.265 L	26-Apr-21 14:43	1
PFOA	335-67-1	ND	0.707	1.42	1.88		B1D0138	24-Apr-21	0.265 L	26-Apr-21 14:43	1
PFNA	375-95-1	ND	0.707	1.42	1.88		B1D0138	24-Apr-21	0.265 L	26-Apr-21 14:43	1
PFOS	1763-23-1	ND	0.707	1.42	1.88		B1D0138	24-Apr-21	0.265 L	26-Apr-21 14:43	1
9CI-PF3ONS	756426-58-1	ND	0.707	1.42	1.88		B1D0138	24-Apr-21	0.265 L	26-Apr-21 14:43	1
PFDA	335-76-2	ND	0.707	1.42	1.88		B1D0138	24-Apr-21	0.265 L	26-Apr-21 14:43	1
MeFOSAA	2355-31-9	ND	0.707	1.42	1.88		B1D0138	24-Apr-21	0.265 L	26-Apr-21 14:43	1
EtFOSAA	2991-50-6	ND	0.707	1.42	1.88		B1D0138	24-Apr-21	0.265 L	26-Apr-21 14:43	1
PFUnA	2058-94-8	ND	0.707	1.42	1.88		B1D0138	24-Apr-21	0.265 L	26-Apr-21 14:43	1
PFDoA	307-55-1	ND	0.707	1.42	1.88		B1D0138	24-Apr-21	0.265 L	26-Apr-21 14:43	1
PFTTrDA	72629-94-8	ND	0.707	1.42	1.88		B1D0138	24-Apr-21	0.265 L	26-Apr-21 14:43	1
11CI-PF3OUdS	763051-92-9	ND	0.707	1.42	1.88		B1D0138	24-Apr-21	0.265 L	26-Apr-21 14:43	1
PFTeDA	376-06-7	ND	0.707	1.42	1.88		B1D0138	24-Apr-21	0.265 L	26-Apr-21 14:43	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	104	70 - 130			B1D0138	24-Apr-21	0.265 L	26-Apr-21 14:43	1	
13C2-PFDA	SURR	101	70 - 130			B1D0138	24-Apr-21	0.265 L	26-Apr-21 14:43	1	
d5-EtFOSAA	SURR	91.9	70 - 130			B1D0138	24-Apr-21	0.265 L	26-Apr-21 14:43	1	
13C3-HFPO-DA	SURR	109	70 - 130			B1D0138	24-Apr-21	0.265 L	26-Apr-21 14:43	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

mw 5/26/21

Sample ID: WI-CV-1FB40-0421						EPA Method 537.1					
Client Data				Laboratory Data							
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104165-13	Column:	BEH C18				
Project:	9000NVT8	Date Collected:	14-Apr-21 13:13	Date Received:	16-Apr-21 09:58						
Location:	Drinking Water										
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.737	1.48	1.96		B1D0206	28-Apr-21	0.254 L	30-Apr-21 21:15	1
PFHxA	307-24-4	ND	0.737	1.48	1.96		B1D0206	28-Apr-21	0.254 L	30-Apr-21 21:15	1
HFPO-DA	13252-13-6	ND	0.737	1.48	1.96		B1D0206	28-Apr-21	0.254 L	30-Apr-21 21:15	1
PFHpA	375-85-9	ND	0.737	1.48	1.96		B1D0206	28-Apr-21	0.254 L	30-Apr-21 21:15	1
ADONA	919005-14-4	ND	0.737	1.48	1.96		B1D0206	28-Apr-21	0.254 L	30-Apr-21 21:15	1
PFHxS	355-46-4	ND	0.737	1.48	1.96		B1D0206	28-Apr-21	0.254 L	30-Apr-21 21:15	1
PFOA	335-67-1	ND	0.737	1.48	1.96		B1D0206	28-Apr-21	0.254 L	30-Apr-21 21:15	1
PFNA	375-95-1	ND	0.737	1.48	1.96		B1D0206	28-Apr-21	0.254 L	30-Apr-21 21:15	1
PFOS	1763-23-1	ND	0.737	1.48	1.96		B1D0206	28-Apr-21	0.254 L	30-Apr-21 21:15	1
9Cl-PF3ONS	756426-58-1	ND	0.737	1.48	1.96		B1D0206	28-Apr-21	0.254 L	30-Apr-21 21:15	1
PFDA	335-76-2	ND	0.737	1.48	1.96		B1D0206	28-Apr-21	0.254 L	30-Apr-21 21:15	1
MeFOSAA	2355-31-9	ND	0.737	1.48	1.96		B1D0206	28-Apr-21	0.254 L	30-Apr-21 21:15	1
EtFOSAA	2991-50-6	ND	0.737	1.48	1.96		B1D0206	28-Apr-21	0.254 L	30-Apr-21 21:15	1
PFUnA	2058-94-8	ND	0.737	1.48	1.96		B1D0206	28-Apr-21	0.254 L	30-Apr-21 21:15	1
PFDoA	307-55-1	ND	0.737	1.48	1.96		B1D0206	28-Apr-21	0.254 L	30-Apr-21 21:15	1
PFTTrDA	72629-94-8	ND	0.737	1.48	1.96		B1D0206	28-Apr-21	0.254 L	30-Apr-21 21:15	1
11Cl-PF3OUdS	763051-92-9	ND	0.737	1.48	1.96		B1D0206	28-Apr-21	0.254 L	30-Apr-21 21:15	1
PFTeDA	376-06-7	ND	0.737	1.48	1.96		B1D0206	28-Apr-21	0.254 L	30-Apr-21 21:15	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	109	70 - 130			B1D0206	28-Apr-21	0.254 L	30-Apr-21 21:15	1	
13C2-PFDA	SURR	114	70 - 130			B1D0206	28-Apr-21	0.254 L	30-Apr-21 21:15	1	
d5-EtFOSAA	SURR	97.2	70 - 130			B1D0206	28-Apr-21	0.254 L	30-Apr-21 21:15	1	
13C3-HFPO-DA	SURR	113	70 - 130			B1D0206	28-Apr-21	0.254 L	30-Apr-21 21:15	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW 5/26/21

Sample ID: WI-CV-3RW10-0421						EPA Method 537.1					
Client Data				Laboratory Data							
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104165-14	Column:	BEH C18				
Project:	9000NVT8	Date Collected:	14-Apr-21 14:00	Date Received:	16-Apr-21 09:58						
Location:	Drinking Water										
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	229	0.720	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 15:05	1
PFHxA	307-24-4	237	0.720	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 15:05	1
HFPO-DA	13252-13-6	ND	0.720	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 15:05	1
PFHpA	375-85-9	22.9	0.720	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 15:05	1
ADONA	919005-14-4	ND	0.720	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 15:05	1
PFHxS	355-46-4	117	0.720	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 15:05	1
PFOA	335-67-1	133	0.720	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 15:05	1
PFNA	375-95-1	ND	0.720	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 15:05	1
PFOS	1763-23-1	2.41	0.720	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 15:05	1
9CI-PF3ONS	756426-58-1	ND	0.720	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 15:05	1
PFDA	335-76-2	ND	0.720	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 15:05	1
MeFOSAA	2355-31-9	ND	0.720	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 15:05	1
EtFOSAA	2991-50-6	ND	0.720	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 15:05	1
PFUnA	2058-94-3	ND	0.720	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 15:05	1
PFDoA	307-55-1	ND	0.720	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 15:05	1
PFTTrDA	72629-94-8	ND	0.720	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 15:05	1
11CI-PF3OUdS	763051-92-9	ND	0.720	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 15:05	1
PFTeDA	376-06-7	ND	0.720	1.44	1.92		B1D0138	24-Apr-21	0.260 L	26-Apr-21 15:05	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	96.0	70 - 130			B1D0138	24-Apr-21	0.260 L	26-Apr-21 15:05	1	
13C2-PFDA	SURR	93.9	70 - 130			B1D0138	24-Apr-21	0.260 L	26-Apr-21 15:05	1	
d5-EtFOSAA	SURR	78.7	70 - 130			B1D0138	24-Apr-21	0.260 L	26-Apr-21 15:05	1	
13C3-HFPO-DA	SURR	99.5	70 - 130			B1D0138	24-Apr-21	0.260 L	26-Apr-21 15:05	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

rw 5/26/21

Sample ID: WI-CV-3FB10-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104165-15	Column:	BEH C18
Project:	9000NVT8	Date Collected:	14-Apr-21 14:02	Date Received:	16-Apr-21 09:58		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.727	1.45	1.94		B1D0138	24-Apr-21	0.258 L	26-Apr-21 15:16	1
PFHxA	307-24-4	ND	0.727	1.45	1.94		B1D0138	24-Apr-21	0.258 L	26-Apr-21 15:16	1
HFPO-DA	13252-13-6	ND	0.727	1.45	1.94		B1D0138	24-Apr-21	0.258 L	26-Apr-21 15:16	1
PFHpA	375-85-9	ND	0.727	1.45	1.94		B1D0138	24-Apr-21	0.258 L	26-Apr-21 15:16	1
ADONA	919005-14-4	ND	0.727	1.45	1.94		B1D0138	24-Apr-21	0.258 L	26-Apr-21 15:16	1
PFHxS	355-46-4	ND	0.727	1.45	1.94		B1D0138	24-Apr-21	0.258 L	26-Apr-21 15:16	1
PFOA	335-67-1	ND	0.727	1.45	1.94		B1D0138	24-Apr-21	0.258 L	26-Apr-21 15:16	1
PFNA	375-95-1	ND	0.727	1.45	1.94		B1D0138	24-Apr-21	0.258 L	26-Apr-21 15:16	1
PFOS	1763-23-1	ND	0.727	1.45	1.94		B1D0138	24-Apr-21	0.258 L	26-Apr-21 15:16	1
9Cl-PF3ONS	756426-58-1	ND	0.727	1.45	1.94		B1D0138	24-Apr-21	0.258 L	26-Apr-21 15:16	1
PFDA	335-76-2	ND	0.727	1.45	1.94		B1D0138	24-Apr-21	0.258 L	26-Apr-21 15:16	1
MeFOSAA	2355-31-9	ND	0.727	1.45	1.94		B1D0138	24-Apr-21	0.258 L	26-Apr-21 15:16	1
EtFOSAA	2991-50-6	ND	0.727	1.45	1.94		B1D0138	24-Apr-21	0.258 L	26-Apr-21 15:16	1
PFUnA	2058-94-8	ND	0.727	1.45	1.94		B1D0138	24-Apr-21	0.258 L	26-Apr-21 15:16	1
PFDoA	307-55-1	ND	0.727	1.45	1.94		B1D0138	24-Apr-21	0.258 L	26-Apr-21 15:16	1
PFTTrDA	72629-94-8	ND	0.727	1.45	1.94		B1D0138	24-Apr-21	0.258 L	26-Apr-21 15:16	1
11Cl-PF3OUdS	763051-92-9	ND	0.727	1.45	1.94		B1D0138	24-Apr-21	0.258 L	26-Apr-21 15:16	1
PFTeDA	376-06-7	ND	0.727	1.45	1.94		B1D0138	24-Apr-21	0.258 L	26-Apr-21 15:16	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	95.3	70 - 130			B1D0138	24-Apr-21	0.258 L	26-Apr-21 15:16	1	
13C2-PFDA	SURR	88.2	70 - 130			B1D0138	24-Apr-21	0.258 L	26-Apr-21 15:16	1	
d5-EtFOSAA	SURR	74.9	70 - 130			B1D0138	24-Apr-21	0.258 L	26-Apr-21 15:16	1	
13C3-HFPO-DA	SURR	101	70 - 130			B1D0138	24-Apr-21	0.258 L	26-Apr-21 15:16	1	

DL - Detection Limit

LOD - Limit of Detection

LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

ms/26/21

**DATA VALIDATION SUMMARY REPORT
NAS WHIDBEY ISLAND, WASHINGTON**

Client: CH2M HILL, Inc., Corvallis, Oregon
 SDG: 2104195
 Laboratory: Vista Analytical Laboratory, El Dorado Hills, California
 Site: NAS Whidbey Island, Residential Wells, CTO-4384, Washington
 Date: May 26, 2021

PFAS			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	WI-CV-3RW11-0421	2104195-01	Water
2	WI-CV-3RW11P-0421	2104195-02	Water
3	WI-CV-3FB11-0421	2104195-03	Water
4	WI-CV-3RW18-0421	2104195-04	Water
5	WI-CV-3FB18-0421	2104195-05	Water
6	WI-CV-1RW37-0421	2104195-06	Water
7	WI-CV-1FB37-0421	2104195-07	Water
8	WI-A06-RW19-0421	2104195-08	Water
9	WI-A06-FB19-0421	2104195-09	Water
10	WI-AF-1RW32-0421	2104195-10	Water
11	WI-AF-1FB32-0421	2104195-11	Water
12	WI-AF-1RW51-0421	2104195-12	Water
13	WI-AF-1FB51-0421	2104195-13	Water
14	WI-A06-RW08-0421	2104195-14	Water
15	WI-A06-FB08-0421	2104195-15	Water
16	WI-AF-1RW32PP-0421	2104195-16	Water
17	WI-AF-1FB32PP-0421	2104195-17	Water

A Stage 2B/4 data validation was performed on the analytical data for nine water samples and eight aqueous field blank samples collected on April 16, 2021 by CH2M Hill at the NAS Whidbey Island site in Washington. The samples were analyzed under the EPA Method “Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)”.

Specific method references are as follows:

Analysis
PFAS

Method References
USEPA Method 537.1

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, the Final Sampling and Analysis Plan Investigation of Per- and Polyfluoroalkyl Substances in Off-Base Drinking Water Ault Field, Area 6, and Outlying Landing Field Coupeville, Naval Air Station Whidbey Island, April, 2020, Field Change Request (FCR) No. 1,

September 2020, FCR No. 2, November 2020, and the DoD Final General Data Validation Guidelines, November 2019, and the USEPA Data Review and Validation Guidelines as follows:

- The USEPA “Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537,” November 2018;
- and the reviewer's professional judgment.

The following data quality indicators were reviewed for this report:

Organics

- Date Completeness, Case Narrative & Custody Documentation
- Holding times
- Liquid Chromatography/Mass Spectrometry (LC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field QC blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

A Stage 2B/4 data validation was performed with this review including a recalculation of 100% of the detected results in the samples.

Data Usability Assessment

There were no serious deficiencies of data.

The data are acceptable for the intended purposes. There were no qualifications.

Perfluorinated Alkyl Substances (PFAS)

Data Completeness, Case Narrative & Custody Documentation

- The case narrative and chain-of-custody documentation were included in the data package as required. All criteria were met.

Holding Times

- All samples were extracted within 14 days for water samples and analyzed within 28 days.

LC/MS Tuning

- All criteria were met.

Initial Calibration

- All relative standard deviation (%RSD) and/or correlation coefficients criteria were met.

Continuing Calibration

- All percent difference (%D) and RRF criteria were met.

Method Blank

- The method blanks were free of contamination.

Field QC Blank

- Field QC sample results are summarized in the table below.

Blank ID	Compound	Conc. ng/L	Qualifier	Affected Samples
WI-CV-3FB11-0421	None - ND	-	-	-
WI-CV-3FB18-0421	None - ND	-	-	-
WI-CV-1FB37-0421	None - ND	-	-	-
WI-A06-FB19-0421	None - ND	-	-	-
WI-AF-1FB32-0421	None - ND	-	-	-
WI-AF-1FB51-0421	None - ND	-	-	-
WI-A06-FB08-0421	None - ND	-	-	-
WI-AF-1FB32PP-0421	None - ND	-	-	-

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- MS/MSD samples were not analyzed.

Laboratory Control Samples (LCS)

- The LCS samples exhibited acceptable percent recoveries (%R).

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- EDS Sample 10 had several compounds analyzed at various dilutions due to high concentrations of target compounds. The reporting limits were adjusted accordingly. No action was required.

Field Duplicate Sample Precision

- Field duplicate samples are summarized below. The precision was acceptable.

Compound	WI-CV-3RW11-0421 ng/L	WI-CV-3RW11P-0421 ng/L	RPD	Qualifier
PFBS	33.5	33.0	2%	None
PFHxA	69.6	70.8	2%	
PFHpA	12.5	12.6	1%	
PFHxS	91.1	87.6	4%	
PFOA	346	375	8%	
PFOS	1.66	1.85	11%	

Please contact the undersigned at (561) 475-2000 if you have any questions or need further information.

Signed:

Nancy Weaver
Nancy Weaver
Senior Chemist

Dated: 5/28/21

Qualifier	Definition
U	The analyte was not detected and was reported as less than the LOD or as defined by the customer. The LOD has been adjusted for any dilution or concentration of the sample.
J	The reported result was an estimated value with an unknown bias.
J+	The result was an estimated quantity, but the result may be biased high.
J-	The result was an estimated quantity, but the result may be biased low.
N	The analysis indicates the presence of an analyte for which there was presumptive evidence to make a "tentative identification."
NJ	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value was the estimated concentration in the sample.
UJ	The analyte was not detected and was reported as less than the LOD or as defined by the customer. However, the associated numerical value is approximate.
X	<p>The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided.</p> <p>Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.</p>

Sample ID: WI-CV-3RW11-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104195-01	Column:	BEH C18
Project:	9000NVT8	Date Collected:	16-Apr-21 09:09	Date Received:	20-Apr-21 09:32		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	33.5	0.767	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 00:09	1
PFHxA	307-24-4	69.6	0.767	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 00:09	1
HFPO-DA	13252-13-6	ND	0.767	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 00:09	1
PFHpA	375-85-9	12.5	0.767	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 00:09	1
ADONA	919005-14-4	ND	0.767	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 00:09	1
PFHxS	355-46-4	91.1	0.767	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 00:09	1
PFOA	335-67-1	346	0.767	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 00:09	1
PFNA	375-95-1	ND	0.767	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 00:09	1
PFOS	1763-23-1	1.66	0.767	1.54	2.05	J	B1D0157	25-Apr-21	0.244 L	27-Apr-21 00:09	1
9CI-PF3ONS	756426-58-1	ND	0.767	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 00:09	1
PFDA	335-76-2	ND	0.767	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 00:09	1
MeFOSAA	2355-31-9	ND	0.767	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 00:09	1
EtFOSAA	2991-50-6	ND	0.767	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 00:09	1
PFUnA	2058-94-8	ND	0.767	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 00:09	1
PFDoA	307-55-1	ND	0.767	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 00:09	1
PFTrDA	72629-94-8	ND	0.767	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 00:09	1
11CI-PF3OUdS	763051-92-9	ND	0.767	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 00:09	1
PFTeDA	376-06-7	ND	0.767	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 00:09	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	100	70 - 130			B1D0157	25-Apr-21	0.244 L	27-Apr-21 00:09	1	
13C2-PFDA	SURR	91.8	70 - 130			B1D0157	25-Apr-21	0.244 L	27-Apr-21 00:09	1	
d5-EtFOSAA	SURR	88.2	70 - 130			B1D0157	25-Apr-21	0.244 L	27-Apr-21 00:09	1	
13C3-HFPO-DA	SURR	104	70 - 130			B1D0157	25-Apr-21	0.244 L	27-Apr-21 00:09	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW 5/26/21

Sample ID: WI-CV-3RW11P-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104195-02	Column:	BEH C18
Project:	9000NVT8	Date Collected:	16-Apr-21 09:11	Date Received:	20-Apr-21 09:32		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	33.0	0.766	1.53	2.04		B1D0157	25-Apr-21	0.245 L	27-Apr-21 00:20	1
PFHxA	307-24-4	70.8	0.766	1.53	2.04		B1D0157	25-Apr-21	0.245 L	27-Apr-21 00:20	1
HFPO-DA	13252-13-6	ND	0.766	1.53	2.04		B1D0157	25-Apr-21	0.245 L	27-Apr-21 00:20	1
PFHpA	375-85-9	12.6	0.766	1.53	2.04		B1D0157	25-Apr-21	0.245 L	27-Apr-21 00:20	1
ADONA	919005-14-4	ND	0.766	1.53	2.04		B1D0157	25-Apr-21	0.245 L	27-Apr-21 00:20	1
PFHxS	355-46-4	87.6	0.766	1.53	2.04		B1D0157	25-Apr-21	0.245 L	27-Apr-21 00:20	1
PFOA	335-67-1	375	0.766	1.53	2.04		B1D0157	25-Apr-21	0.245 L	27-Apr-21 00:20	1
PFNA	375-95-1	ND	0.766	1.53	2.04		B1D0157	25-Apr-21	0.245 L	27-Apr-21 00:20	1
PFOS	1763-23-1	1.85	0.766	1.53	2.04	J	B1D0157	25-Apr-21	0.245 L	27-Apr-21 00:20	1
9CI-PF3ONS	756426-58-1	ND	0.766	1.53	2.04		B1D0157	25-Apr-21	0.245 L	27-Apr-21 00:20	1
PFDA	335-76-2	ND	0.766	1.53	2.04		B1D0157	25-Apr-21	0.245 L	27-Apr-21 00:20	1
MeFOSAA	2355-31-9	ND	0.766	1.53	2.04		B1D0157	25-Apr-21	0.245 L	27-Apr-21 00:20	1
EtFOSAA	2991-50-6	ND	0.766	1.53	2.04		B1D0157	25-Apr-21	0.245 L	27-Apr-21 00:20	1
PFUnA	2058-94-8	ND	0.766	1.53	2.04		B1D0157	25-Apr-21	0.245 L	27-Apr-21 00:20	1
PFDoA	307-55-1	ND	0.766	1.53	2.04		B1D0157	25-Apr-21	0.245 L	27-Apr-21 00:20	1
PFTrDA	72629-94-8	ND	0.766	1.53	2.04		B1D0157	25-Apr-21	0.245 L	27-Apr-21 00:20	1
11CI-PF3OUdS	763051-92-9	ND	0.766	1.53	2.04		B1D0157	25-Apr-21	0.245 L	27-Apr-21 00:20	1
PFTeDA	376-06-7	ND	0.766	1.53	2.04		B1D0157	25-Apr-21	0.245 L	27-Apr-21 00:20	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	98.0	70 - 130			B1D0157	25-Apr-21	0.245 L	27-Apr-21 00:20	1	
13C2-PFDA	SURR	91.2	70 - 130			B1D0157	25-Apr-21	0.245 L	27-Apr-21 00:20	1	
d5-EtFOSAA	SURR	81.7	70 - 130			B1D0157	25-Apr-21	0.245 L	27-Apr-21 00:20	1	
13C3-HFPO-DA	SURR	104	70 - 130			B1D0157	25-Apr-21	0.245 L	27-Apr-21 00:20	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 5/26/21

Sample ID: WI-CV-3FB11-0421						EPA Method 537.1					
Client Data				Laboratory Data							
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104195-03	Column:	BEH C18				
Project:	9000NVT8	Date Collected:	16-Apr-21 09:13	Date Received:	20-Apr-21 09:32						
Location:	Drinking Water										
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.742	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:31	1
PFHxA	307-24-4	ND	0.742	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:31	1
HFPO-DA	13252-13-6	ND	0.742	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:31	1
PFHpA	375-85-9	ND	0.742	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:31	1
ADONA	919005-14-4	ND	0.742	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:31	1
PFHxS	355-46-4	ND	0.742	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:31	1
PFOA	335-67-1	ND	0.742	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:31	1
PFNA	375-95-1	ND	0.742	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:31	1
PFOS	1763-23-1	ND	0.742	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:31	1
9CI-PF3ONS	756426-58-1	ND	0.742	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:31	1
PFDA	335-76-2	ND	0.742	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:31	1
MeFOSAA	2355-31-9	ND	0.742	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:31	1
EtFOSAA	2991-50-6	ND	0.742	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:31	1
PFUnA	2058-94-8	ND	0.742	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:31	1
PFDoA	307-55-1	ND	0.742	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:31	1
PFTTrDA	72629-94-8	ND	0.742	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:31	1
11CI-PF3OUdS	763051-92-9	ND	0.742	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:31	1
PFTeDA	376-06-7	ND	0.742	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:31	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	99.2	70 - 130			B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:31	1	
13C2-PFDA	SURR	91.8	70 - 130			B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:31	1	
d5-EtFOSAA	SURR	90.2	70 - 130			B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:31	1	
13C3-HFPO-DA	SURR	105	70 - 130			B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:31	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

mw 5/26/21

Sample ID: WI-CV-3RW18-0421						EPA Method 537.1					
Client Data				Laboratory Data							
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104195-04	Column:	BEH C18				
Project:	9000NVT8	Date Collected:	16-Apr-21 10:19	Date Received:	20-Apr-21 09:32						
Location:	Drinking Water										
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.720	1.44	1.92		B1D0157	25-Apr-21	0.260 L	27-Apr-21 00:42	1
PFHxA	307-24-4	ND	0.720	1.44	1.92		B1D0157	25-Apr-21	0.260 L	27-Apr-21 00:42	1
HFPO-DA	13252-13-6	ND	0.720	1.44	1.92		B1D0157	25-Apr-21	0.260 L	27-Apr-21 00:42	1
PFHpA	375-85-9	ND	0.720	1.44	1.92		B1D0157	25-Apr-21	0.260 L	27-Apr-21 00:42	1
ADONA	919005-14-4	ND	0.720	1.44	1.92		B1D0157	25-Apr-21	0.260 L	27-Apr-21 00:42	1
PFHxS	355-46-4	ND	0.720	1.44	1.92		B1D0157	25-Apr-21	0.260 L	27-Apr-21 00:42	1
PFOA	335-67-1	ND	0.720	1.44	1.92		B1D0157	25-Apr-21	0.260 L	27-Apr-21 00:42	1
PFNA	375-95-1	ND	0.720	1.44	1.92		B1D0157	25-Apr-21	0.260 L	27-Apr-21 00:42	1
PFOS	1763-23-1	ND	0.720	1.44	1.92		B1D0157	25-Apr-21	0.260 L	27-Apr-21 00:42	1
9CI-PF3ONS	756426-58-1	ND	0.720	1.44	1.92		B1D0157	25-Apr-21	0.260 L	27-Apr-21 00:42	1
PFDA	335-76-2	ND	0.720	1.44	1.92		B1D0157	25-Apr-21	0.260 L	27-Apr-21 00:42	1
MeFOSAA	2355-31-9	ND	0.720	1.44	1.92		B1D0157	25-Apr-21	0.260 L	27-Apr-21 00:42	1
EtFOSAA	2991-50-6	ND	0.720	1.44	1.92		B1D0157	25-Apr-21	0.260 L	27-Apr-21 00:42	1
PFUnA	2058-94-8	ND	0.720	1.44	1.92		B1D0157	25-Apr-21	0.260 L	27-Apr-21 00:42	1
PFDoA	307-55-1	ND	0.720	1.44	1.92		B1D0157	25-Apr-21	0.260 L	27-Apr-21 00:42	1
PFTTrDA	72629-94-8	ND	0.720	1.44	1.92		B1D0157	25-Apr-21	0.260 L	27-Apr-21 00:42	1
11CI-PF3OUdS	763051-92-9	ND	0.720	1.44	1.92		B1D0157	25-Apr-21	0.260 L	27-Apr-21 00:42	1
PFTeDA	376-06-7	ND	0.720	1.44	1.92		B1D0157	25-Apr-21	0.260 L	27-Apr-21 00:42	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	96.3	70 - 130			B1D0157	25-Apr-21	0.260 L	27-Apr-21 00:42	1	
13C2-PFDA	SURR	88.8	70 - 130			B1D0157	25-Apr-21	0.260 L	27-Apr-21 00:42	1	
d5-EtFOSAA	SURR	89.4	70 - 130			B1D0157	25-Apr-21	0.260 L	27-Apr-21 00:42	1	
13C3-HFPO-DA	SURR	102	70 - 130			B1D0157	25-Apr-21	0.260 L	27-Apr-21 00:42	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

mw 5/26/21

Sample ID: WI-CV-3FB18-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104195-05	Column:	BEH C18
Project:	9000NVT8	Date Collected:	16-Apr-21 10:21	Date Received:	20-Apr-21 09:32		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:53	1
PFHxA	307-24-4	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:53	1
HFPO-DA	13252-13-6	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:53	1
PFHpA	375-85-9	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:53	1
ADONA	919005-14-4	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:53	1
PFHxS	355-46-4	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:53	1
PFOA	335-67-1	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:53	1
PFNA	375-95-1	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:53	1
PFOS	1763-23-1	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:53	1
9CI-PF3ONS	756426-58-1	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:53	1
PFDA	335-76-2	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:53	1
MeFOSAA	2355-31-9	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:53	1
EtFOSAA	2991-50-6	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:53	1
PFUnA	2058-94-8	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:53	1
PFDoA	307-55-1	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:53	1
PFTTrDA	72629-94-8	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:53	1
11CI-PF3OUdS	763051-92-9	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:53	1
PFTeDA	376-06-7	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:53	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	96.9	70 - 130			B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:53	1	
13C2-PFDA	SURR	87.6	70 - 130			B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:53	1	
d5-EtFOSAA	SURR	85.8	70 - 130			B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:53	1	
13C3-HFPO-DA	SURR	103	70 - 130			B1D0157	25-Apr-21	0.253 L	27-Apr-21 00:53	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nr 5/26/21

Sample ID: WI-CV-1RW37-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104195-06	Column:	BEH C18
Project:	9000NVT8	Date Collected:	16-Apr-21 10:41	Date Received:	20-Apr-21 09:32		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.735	1.47	1.96		B1D0157	25-Apr-21	0.255 L	27-Apr-21 01:04	1
PFHxA	307-24-4	ND	0.735	1.47	1.96		B1D0157	25-Apr-21	0.255 L	27-Apr-21 01:04	1
HFPO-DA	13252-13-6	ND	0.735	1.47	1.96		B1D0157	25-Apr-21	0.255 L	27-Apr-21 01:04	1
PFHpA	375-85-9	ND	0.735	1.47	1.96		B1D0157	25-Apr-21	0.255 L	27-Apr-21 01:04	1
ADONA	919005-14-4	ND	0.735	1.47	1.96		B1D0157	25-Apr-21	0.255 L	27-Apr-21 01:04	1
PFHxS	355-46-4	ND	0.735	1.47	1.96		B1D0157	25-Apr-21	0.255 L	27-Apr-21 01:04	1
PFOA	335-67-1	ND	0.735	1.47	1.96		B1D0157	25-Apr-21	0.255 L	27-Apr-21 01:04	1
PFNA	375-95-1	ND	0.735	1.47	1.96		B1D0157	25-Apr-21	0.255 L	27-Apr-21 01:04	1
PFOS	1763-23-1	ND	0.735	1.47	1.96		B1D0157	25-Apr-21	0.255 L	27-Apr-21 01:04	1
9CI-PF3ONS	756426-58-1	ND	0.735	1.47	1.96		B1D0157	25-Apr-21	0.255 L	27-Apr-21 01:04	1
PFDA	335-76-2	ND	0.735	1.47	1.96		B1D0157	25-Apr-21	0.255 L	27-Apr-21 01:04	1
MeFOSAA	2355-31-9	ND	0.735	1.47	1.96		B1D0157	25-Apr-21	0.255 L	27-Apr-21 01:04	1
EtFOSAA	2991-50-6	ND	0.735	1.47	1.96		B1D0157	25-Apr-21	0.255 L	27-Apr-21 01:04	1
PFUnA	2058-94-8	ND	0.735	1.47	1.96		B1D0157	25-Apr-21	0.255 L	27-Apr-21 01:04	1
PFDoA	307-55-1	ND	0.735	1.47	1.96		B1D0157	25-Apr-21	0.255 L	27-Apr-21 01:04	1
PFTTrDA	72629-94-8	ND	0.735	1.47	1.96		B1D0157	25-Apr-21	0.255 L	27-Apr-21 01:04	1
11CI-PF3OUdS	763051-92-9	ND	0.735	1.47	1.96		B1D0157	25-Apr-21	0.255 L	27-Apr-21 01:04	1
PFTeDA	376-06-7	ND	0.735	1.47	1.96		B1D0157	25-Apr-21	0.255 L	27-Apr-21 01:04	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	98.0	70 - 130			B1D0157	25-Apr-21	0.255 L	27-Apr-21 01:04	1	
13C2-PFDA	SURR	94.1	70 - 130			B1D0157	25-Apr-21	0.255 L	27-Apr-21 01:04	1	
d5-EtFOSAA	SURR	89.9	70 - 130			B1D0157	25-Apr-21	0.255 L	27-Apr-21 01:04	1	
13C3-HFPO-DA	SURR	104	70 - 130			B1D0157	25-Apr-21	0.255 L	27-Apr-21 01:04	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

MW 5/26/21

Sample ID: WI-CV-1FB37-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104195-07	Column:	BEH C18
Project:	9000NVT8	Date Collected:	16-Apr-21 10:43	Date Received:	20-Apr-21 09:32		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.738	1.48	1.97		B1D0157	25-Apr-21	0.254 L	27-Apr-21 01:15	1
PFHxA	307-24-4	ND	0.738	1.48	1.97		B1D0157	25-Apr-21	0.254 L	27-Apr-21 01:15	1
HFPO-DA	13252-13-6	ND	0.738	1.48	1.97		B1D0157	25-Apr-21	0.254 L	27-Apr-21 01:15	1
PFHpA	375-85-9	ND	0.738	1.48	1.97		B1D0157	25-Apr-21	0.254 L	27-Apr-21 01:15	1
ADONA	919005-14-4	ND	0.738	1.48	1.97		B1D0157	25-Apr-21	0.254 L	27-Apr-21 01:15	1
PFHxS	355-46-4	ND	0.738	1.48	1.97		B1D0157	25-Apr-21	0.254 L	27-Apr-21 01:15	1
PFOA	335-67-1	ND	0.738	1.48	1.97		B1D0157	25-Apr-21	0.254 L	27-Apr-21 01:15	1
PFNA	375-95-1	ND	0.738	1.48	1.97		B1D0157	25-Apr-21	0.254 L	27-Apr-21 01:15	1
PFOS	1763-23-1	ND	0.738	1.48	1.97		B1D0157	25-Apr-21	0.254 L	27-Apr-21 01:15	1
9Cl-PF3ONS	756426-58-1	ND	0.738	1.48	1.97		B1D0157	25-Apr-21	0.254 L	27-Apr-21 01:15	1
PFDA	335-76-2	ND	0.738	1.48	1.97		B1D0157	25-Apr-21	0.254 L	27-Apr-21 01:15	1
MeFOSAA	2355-31-9	ND	0.738	1.48	1.97		B1D0157	25-Apr-21	0.254 L	27-Apr-21 01:15	1
EtFOSAA	2991-50-6	ND	0.738	1.48	1.97		B1D0157	25-Apr-21	0.254 L	27-Apr-21 01:15	1
PFUnA	2058-94-8	ND	0.738	1.48	1.97		B1D0157	25-Apr-21	0.254 L	27-Apr-21 01:15	1
PFDoA	307-55-1	ND	0.738	1.48	1.97		B1D0157	25-Apr-21	0.254 L	27-Apr-21 01:15	1
PFTrDA	72629-94-8	ND	0.738	1.48	1.97		B1D0157	25-Apr-21	0.254 L	27-Apr-21 01:15	1
11Cl-PF3OUdS	763051-92-9	ND	0.738	1.48	1.97		B1D0157	25-Apr-21	0.254 L	27-Apr-21 01:15	1
PFTeDA	376-06-7	ND	0.738	1.48	1.97		B1D0157	25-Apr-21	0.254 L	27-Apr-21 01:15	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	98.1	70 - 130			B1D0157	25-Apr-21	0.254 L	27-Apr-21 01:15	1	
13C2-PFDA	SURR	89.1	70 - 130			B1D0157	25-Apr-21	0.254 L	27-Apr-21 01:15	1	
d5-EtFOSAA	SURR	86.8	70 - 130			B1D0157	25-Apr-21	0.254 L	27-Apr-21 01:15	1	
13C3-HFPO-DA	SURR	102	70 - 130			B1D0157	25-Apr-21	0.254 L	27-Apr-21 01:15	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

2104195

Sample ID: WI-A06-RW19-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104195-08	Column:	BEH C18
Project:	9000NVT8	Date Collected:	16-Apr-21 13:25	Date Received:	20-Apr-21 09:32		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	65.6	0.727	1.45	1.94		B1D0157	25-Apr-21	0.258 L	27-Apr-21 01:26	1
PFHxA	307-24-4	61.7	0.727	1.45	1.94		B1D0157	25-Apr-21	0.258 L	27-Apr-21 01:26	1
HFPO-DA	13252-13-6	ND	0.727	1.45	1.94		B1D0157	25-Apr-21	0.258 L	27-Apr-21 01:26	1
PFHpA	375-85-9	30.9	0.727	1.45	1.94		B1D0157	25-Apr-21	0.258 L	27-Apr-21 01:26	1
ADONA	919005-14-4	ND	0.727	1.45	1.94		B1D0157	25-Apr-21	0.258 L	27-Apr-21 01:26	1
PFHxS	355-46-4	299	0.727	1.45	1.94		B1D0157	25-Apr-21	0.258 L	27-Apr-21 01:26	1
PFOA	335-67-1	48.6	0.727	1.45	1.94		B1D0157	25-Apr-21	0.258 L	27-Apr-21 01:26	1
PFNA	375-95-1	2.87	0.727	1.45	1.94		B1D0157	25-Apr-21	0.258 L	27-Apr-21 01:26	1
PFOS	1763-23-1	99.0	0.727	1.45	1.94		B1D0157	25-Apr-21	0.258 L	27-Apr-21 01:26	1
9CI-PF3ONS	756426-58-1	ND	0.727	1.45	1.94		B1D0157	25-Apr-21	0.258 L	27-Apr-21 01:26	1
PFDA	335-76-2	ND	0.727	1.45	1.94		B1D0157	25-Apr-21	0.258 L	27-Apr-21 01:26	1
MeFOSAA	2355-31-9	ND	0.727	1.45	1.94		B1D0157	25-Apr-21	0.258 L	27-Apr-21 01:26	1
EtFOSAA	2991-50-6	ND	0.727	1.45	1.94		B1D0157	25-Apr-21	0.258 L	27-Apr-21 01:26	1
PFUnA	2058-94-8	ND	0.727	1.45	1.94		B1D0157	25-Apr-21	0.258 L	27-Apr-21 01:26	1
PFDoA	307-55-1	ND	0.727	1.45	1.94		B1D0157	25-Apr-21	0.258 L	27-Apr-21 01:26	1
PFTTrDA	72629-94-8	ND	0.727	1.45	1.94		B1D0157	25-Apr-21	0.258 L	27-Apr-21 01:26	1
11CI-PF3OUdS	763051-92-9	ND	0.727	1.45	1.94		B1D0157	25-Apr-21	0.258 L	27-Apr-21 01:26	1
PFTeDA	376-06-7	ND	0.727	1.45	1.94		B1D0157	25-Apr-21	0.258 L	27-Apr-21 01:26	1
Labeled Standards	Type	% Recovery		Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	96.3		70 - 130			B1D0157	25-Apr-21	0.258 L	27-Apr-21 01:26	1
13C2-PFDA	SURR	89.1		70 - 130			B1D0157	25-Apr-21	0.258 L	27-Apr-21 01:26	1
d5-EtFOSAA	SURR	81.7		70 - 130			B1D0157	25-Apr-21	0.258 L	27-Apr-21 01:26	1
13C3-HFPO-DA	SURR	99.8		70 - 130			B1D0157	25-Apr-21	0.258 L	27-Apr-21 01:26	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

W 5/26/21

Sample ID: WI-A06-FB19-0421						EPA Method 537.1					
Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2104195-09	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	16-Apr-21 13:27		Date Received:	20-Apr-21 09:32					
Location:	Drinking Water										
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.765	1.53	2.04		B1D0206	28-Apr-21	0.245 L	30-Apr-21 01:06	1
PFHxA	307-24-4	ND	0.765	1.53	2.04		B1D0206	28-Apr-21	0.245 L	30-Apr-21 01:06	1
HFPO-DA	13252-13-6	ND	0.765	1.53	2.04		B1D0206	28-Apr-21	0.245 L	30-Apr-21 01:06	1
PFHpA	375-85-9	ND	0.765	1.53	2.04		B1D0206	28-Apr-21	0.245 L	30-Apr-21 01:06	1
ADONA	919005-14-4	ND	0.765	1.53	2.04		B1D0206	28-Apr-21	0.245 L	30-Apr-21 01:06	1
PFHxS	355-46-4	ND	0.765	1.53	2.04		B1D0206	28-Apr-21	0.245 L	30-Apr-21 01:06	1
PFOA	335-67-1	ND	0.765	1.53	2.04		B1D0206	28-Apr-21	0.245 L	30-Apr-21 01:06	1
PFNA	375-95-1	ND	0.765	1.53	2.04		B1D0206	28-Apr-21	0.245 L	30-Apr-21 01:06	1
PFOS	1763-23-1	ND	0.765	1.53	2.04		B1D0206	28-Apr-21	0.245 L	30-Apr-21 01:06	1
9CI-PF3ONS	756426-58-1	ND	0.765	1.53	2.04		B1D0206	28-Apr-21	0.245 L	30-Apr-21 01:06	1
PFDA	335-76-2	ND	0.765	1.53	2.04		B1D0206	28-Apr-21	0.245 L	30-Apr-21 01:06	1
MeFOSAA	2355-31-9	ND	0.765	1.53	2.04		B1D0206	28-Apr-21	0.245 L	30-Apr-21 01:06	1
EtFOSAA	2991-50-6	ND	0.765	1.53	2.04		B1D0206	28-Apr-21	0.245 L	30-Apr-21 01:06	1
PFUnA	2058-94-8	ND	0.765	1.53	2.04		B1D0206	28-Apr-21	0.245 L	30-Apr-21 01:06	1
PFDoA	307-55-1	ND	0.765	1.53	2.04		B1D0206	28-Apr-21	0.245 L	30-Apr-21 01:06	1
PFTTrDA	72629-94-8	ND	0.765	1.53	2.04		B1D0206	28-Apr-21	0.245 L	30-Apr-21 01:06	1
11CI-PF3OUdS	763051-92-9	ND	0.765	1.53	2.04		B1D0206	28-Apr-21	0.245 L	30-Apr-21 01:06	1
PFTeDA	376-06-7	ND	0.765	1.53	2.04		B1D0206	28-Apr-21	0.245 L	30-Apr-21 01:06	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	110	70 - 130			B1D0206	28-Apr-21	0.245 L	30-Apr-21 01:06	1	
13C2-PFDA	SURR	108	70 - 130			B1D0206	28-Apr-21	0.245 L	30-Apr-21 01:06	1	
d5-EtFOSAA	SURR	91.4	70 - 130			B1D0206	28-Apr-21	0.245 L	30-Apr-21 01:06	1	
13C3-HFPO-DA	SURR	121	70 - 130			B1D0206	28-Apr-21	0.245 L	30-Apr-21 01:06	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW 5/26/21

Sample ID: WI-AF-1RW32-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104195-10	Column:	BEH C18
Project:	9000NVT8	Date Collected:	16-Apr-21 12:39	Date Received:	20-Apr-21 09:32		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	1170	75.9	152	202	☒	B1D0157	25-Apr-21	0.247 L	28-Apr-21 15:28	100
PFHxA	307-24-4	863	75.9	152	202	☒	B1D0157	25-Apr-21	0.247 L	28-Apr-21 15:28	100
HFPO-DA	13252-13-6	ND	0.759	1.52	2.02		B1D0157	25-Apr-21	0.247 L	27-Apr-21 01:48	1
PFHpA	375-85-9	99.6	0.759	1.52	2.02		B1D0157	25-Apr-21	0.247 L	27-Apr-21 01:48	1
ADONA	919005-14-4	ND	0.759	1.52	2.02		B1D0157	25-Apr-21	0.247 L	27-Apr-21 01:48	1
PFHxS	355-46-4	10800	75.9	152	202	☒	B1D0157	25-Apr-21	0.247 L	28-Apr-21 15:28	100
PFOA	335-67-1	306	0.759	1.52	2.02		B1D0157	25-Apr-21	0.247 L	27-Apr-21 01:48	1
PFNA	375-95-1	3.24	0.759	1.52	2.02		B1D0157	25-Apr-21	0.247 L	27-Apr-21 01:48	1
PFOS	1763-23-1	46800	152	303	405	☒	B1D0157	25-Apr-21	0.247 L	28-Apr-21 15:39	200
9CI-PF3ONS	756426-58-1	ND	0.759	1.52	2.02		B1D0157	25-Apr-21	0.247 L	27-Apr-21 01:48	1
PFDA	335-76-2	0.948	0.759	1.52	2.02	J	B1D0157	25-Apr-21	0.247 L	27-Apr-21 01:48	1
MeFOSAA	2355-31-9	ND	0.759	1.52	2.02		B1D0157	25-Apr-21	0.247 L	27-Apr-21 01:48	1
EtFOSAA	2991-50-6	ND	0.759	1.52	2.02		B1D0157	25-Apr-21	0.247 L	27-Apr-21 01:48	1
PFUnA	2058-94-8	ND	0.759	1.52	2.02		B1D0157	25-Apr-21	0.247 L	27-Apr-21 01:48	1
PFDoA	307-55-1	ND	0.759	1.52	2.02		B1D0157	25-Apr-21	0.247 L	27-Apr-21 01:48	1
PFTTrDA	72629-94-8	ND	0.759	1.52	2.02		B1D0157	25-Apr-21	0.247 L	27-Apr-21 01:48	1
11CI-PF3OUdS	763051-92-9	ND	0.759	1.52	2.02		B1D0157	25-Apr-21	0.247 L	27-Apr-21 01:48	1
PFTeDA	376-06-7	ND	0.759	1.52	2.02		B1D0157	25-Apr-21	0.247 L	27-Apr-21 01:48	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	95.1	70 - 130			B1D0157	25-Apr-21	0.247 L	27-Apr-21 01:48	1	
13C2-PFDA	SURR	83.9	70 - 130			B1D0157	25-Apr-21	0.247 L	27-Apr-21 01:48	1	
d5-EtFOSAA	SURR	79.3	70 - 130			B1D0157	25-Apr-21	0.247 L	27-Apr-21 01:48	1	
13C3-HFPO-DA	SURR	95.4	70 - 130			B1D0157	25-Apr-21	0.247 L	27-Apr-21 01:48	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

mw 5/26/21

Sample ID: WI-AF-1FB32-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104195-11	Column:	BEH C18
Project:	9000NVT8	Date Collected:	16-Apr-21 12:41	Date Received:	20-Apr-21 09:32		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.740	1.48	1.97		B1D0206	28-Apr-21	0.253 L	30-Apr-21 21:26	1
PFHxA	307-24-4	ND	0.740	1.48	1.97		B1D0206	28-Apr-21	0.253 L	30-Apr-21 21:26	1
HFPO-DA	13252-13-6	ND	0.740	1.48	1.97		B1D0206	28-Apr-21	0.253 L	30-Apr-21 21:26	1
PFHpA	375-85-9	ND	0.740	1.48	1.97		B1D0206	28-Apr-21	0.253 L	30-Apr-21 21:26	1
ADONA	919005-14-4	ND	0.740	1.48	1.97		B1D0206	28-Apr-21	0.253 L	30-Apr-21 21:26	1
PFHxS	355-46-4	ND	0.740	1.48	1.97		B1D0206	28-Apr-21	0.253 L	30-Apr-21 21:26	1
PFOA	335-67-1	ND	0.740	1.48	1.97		B1D0206	28-Apr-21	0.253 L	30-Apr-21 21:26	1
PFNA	375-95-1	ND	0.740	1.48	1.97		B1D0206	28-Apr-21	0.253 L	30-Apr-21 21:26	1
PFOS	1763-23-1	ND	0.740	1.48	1.97		B1D0206	28-Apr-21	0.253 L	30-Apr-21 21:26	1
9CI-PF3ONS	756426-58-1	ND	0.740	1.48	1.97		B1D0206	28-Apr-21	0.253 L	30-Apr-21 21:26	1
PFDA	335-76-2	ND	0.740	1.48	1.97		B1D0206	28-Apr-21	0.253 L	30-Apr-21 21:26	1
MeFOSAA	2355-31-9	ND	0.740	1.48	1.97		B1D0206	28-Apr-21	0.253 L	30-Apr-21 21:26	1
EtFOSAA	2991-50-6	ND	0.740	1.48	1.97		B1D0206	28-Apr-21	0.253 L	30-Apr-21 21:26	1
PFOA	2058-94-8	ND	0.740	1.48	1.97		B1D0206	28-Apr-21	0.253 L	30-Apr-21 21:26	1
PFDoA	307-55-1	ND	0.740	1.48	1.97		B1D0206	28-Apr-21	0.253 L	30-Apr-21 21:26	1
PFTTrDA	72629-94-8	ND	0.740	1.48	1.97		B1D0206	28-Apr-21	0.253 L	30-Apr-21 21:26	1
11CI-PF3OUdS	763051-92-9	ND	0.740	1.48	1.97		B1D0206	28-Apr-21	0.253 L	30-Apr-21 21:26	1
PFTeDA	376-06-7	ND	0.740	1.48	1.97		B1D0206	28-Apr-21	0.253 L	30-Apr-21 21:26	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	103	70 - 130			B1D0206	28-Apr-21	0.253 L	30-Apr-21 21:26	1	
13C2-PFDA	SURR	109	70 - 130			B1D0206	28-Apr-21	0.253 L	30-Apr-21 21:26	1	
d5-EtFOSAA	SURR	94.4	70 - 130			B1D0206	28-Apr-21	0.253 L	30-Apr-21 21:26	1	
13C3-HFPO-DA	SURR	107	70 - 130			B1D0206	28-Apr-21	0.253 L	30-Apr-21 21:26	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

new 5/26/21

Sample ID: WI-AF-1RW51-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104195-12	Column:	BEH C18
Project:	9000NVT8	Date Collected:	16-Apr-21 14:15	Date Received:	20-Apr-21 09:32		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.714	1.43	1.90		B1D0157	25-Apr-21	0.262 L	27-Apr-21 02:10	1
PFHxA	307-24-4	ND	0.714	1.43	1.90		B1D0157	25-Apr-21	0.262 L	27-Apr-21 02:10	1
HFPO-DA	13252-13-6	ND	0.714	1.43	1.90		B1D0157	25-Apr-21	0.262 L	27-Apr-21 02:10	1
PFHpA	375-85-9	ND	0.714	1.43	1.90		B1D0157	25-Apr-21	0.262 L	27-Apr-21 02:10	1
ADONA	919005-14-4	ND	0.714	1.43	1.90		B1D0157	25-Apr-21	0.262 L	27-Apr-21 02:10	1
PFHxS	355-46-4	0.922	0.714	1.43	1.90	J	B1D0157	25-Apr-21	0.262 L	27-Apr-21 02:10	1
PFOA	335-67-1	ND	0.714	1.43	1.90		B1D0157	25-Apr-21	0.262 L	27-Apr-21 02:10	1
PFNA	375-95-1	ND	0.714	1.43	1.90		B1D0157	25-Apr-21	0.262 L	27-Apr-21 02:10	1
PFOS	1763-23-1	ND	0.714	1.43	1.90		B1D0157	25-Apr-21	0.262 L	27-Apr-21 02:10	1
9CI-PF3ONS	756426-58-1	ND	0.714	1.43	1.90		B1D0157	25-Apr-21	0.262 L	27-Apr-21 02:10	1
PFDA	335-76-2	ND	0.714	1.43	1.90		B1D0157	25-Apr-21	0.262 L	27-Apr-21 02:10	1
MeFOSAA	2355-31-9	ND	0.714	1.43	1.90		B1D0157	25-Apr-21	0.262 L	27-Apr-21 02:10	1
EtFOSAA	2991-50-6	ND	0.714	1.43	1.90		B1D0157	25-Apr-21	0.262 L	27-Apr-21 02:10	1
PFUnA	2058-94-8	ND	0.714	1.43	1.90		B1D0157	25-Apr-21	0.262 L	27-Apr-21 02:10	1
PFDoA	307-55-1	ND	0.714	1.43	1.90		B1D0157	25-Apr-21	0.262 L	27-Apr-21 02:10	1
PFTTrDA	72629-94-8	ND	0.714	1.43	1.90		B1D0157	25-Apr-21	0.262 L	27-Apr-21 02:10	1
11CI-PF3OUdS	763051-92-9	ND	0.714	1.43	1.90		B1D0157	25-Apr-21	0.262 L	27-Apr-21 02:10	1
PFTeDA	376-06-7	ND	0.714	1.43	1.90		B1D0157	25-Apr-21	0.262 L	27-Apr-21 02:10	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	98.2	70 - 130			B1D0157	25-Apr-21	0.262 L	27-Apr-21 02:10	1	
13C2-PFDA	SURR	90.2	70 - 130			B1D0157	25-Apr-21	0.262 L	27-Apr-21 02:10	1	
d5-EtFOSAA	SURR	92.9	70 - 130			B1D0157	25-Apr-21	0.262 L	27-Apr-21 02:10	1	
13C3-HFPO-DA	SURR	103	70 - 130			B1D0157	25-Apr-21	0.262 L	27-Apr-21 02:10	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

mw 5/26/21

Sample ID: WI-AF-1FB51-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104195-13	Column:	BEH C18
Project:	9000NVT8	Date Collected:	16-Apr-21 14:17	Date Received:	20-Apr-21 09:32		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 02:22	1
PFHxA	307-24-4	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 02:22	1
HFPO-DA	13252-13-6	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 02:22	1
PFHpA	375-85-9	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 02:22	1
ADONA	919005-14-4	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 02:22	1
PFHxS	355-46-4	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 02:22	1
PFOA	335-67-1	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 02:22	1
PFNA	375-95-1	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 02:22	1
PFOS	1763-23-1	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 02:22	1
9CI-PF3ONS	756426-58-1	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 02:22	1
PFDA	335-76-2	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 02:22	1
MeFOSAA	2355-31-9	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 02:22	1
EtFOSAA	2991-50-6	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 02:22	1
PFUnA	2058-94-8	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 02:22	1
PFDoA	307-55-1	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 02:22	1
PFTTrDA	72629-94-8	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 02:22	1
11CI-PF3OUdS	763051-92-9	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 02:22	1
PFTeDA	376-06-7	ND	0.741	1.48	1.98		B1D0157	25-Apr-21	0.253 L	27-Apr-21 02:22	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	99.9	70 - 130			B1D0157	25-Apr-21	0.253 L	27-Apr-21 02:22	1	
13C2-PFDA	SURR	89.9	70 - 130			B1D0157	25-Apr-21	0.253 L	27-Apr-21 02:22	1	
d5-EtFOSAA	SURR	91.8	70 - 130			B1D0157	25-Apr-21	0.253 L	27-Apr-21 02:22	1	
13C3-HFPO-DA	SURR	106	70 - 130			B1D0157	25-Apr-21	0.253 L	27-Apr-21 02:22	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 5/26/21

Sample ID: WI-A06-RW08-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104195-14	Column:	BEH C18
Project:	9000NVT8	Date Collected:	16-Apr-21 13:46	Date Received:	20-Apr-21 09:32		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	22.0	0.707	1.42	1.89		B1D0157	25-Apr-21	0.265 L	27-Apr-21 02:33	1
PFHxA	307-24-4	13.9	0.707	1.42	1.89		B1D0157	25-Apr-21	0.265 L	27-Apr-21 02:33	1
HFPO-DA	13252-13-6	ND	0.707	1.42	1.89		B1D0157	25-Apr-21	0.265 L	27-Apr-21 02:33	1
PFHpA	375-85-9	7.58	0.707	1.42	1.89		B1D0157	25-Apr-21	0.265 L	27-Apr-21 02:33	1
ADONA	919005-14-4	ND	0.707	1.42	1.89		B1D0157	25-Apr-21	0.265 L	27-Apr-21 02:33	1
PFHxS	355-46-4	112	0.707	1.42	1.89		B1D0157	25-Apr-21	0.265 L	27-Apr-21 02:33	1
PFOA	335-67-1	25.1	0.707	1.42	1.89		B1D0157	25-Apr-21	0.265 L	27-Apr-21 02:33	1
PFNA	375-95-1	2.91	0.707	1.42	1.89		B1D0157	25-Apr-21	0.265 L	27-Apr-21 02:33	1
PFOS	1763-23-1	82.1	0.707	1.42	1.89		B1D0157	25-Apr-21	0.265 L	27-Apr-21 02:33	1
9CI-PF3ONS	756426-58-1	ND	0.707	1.42	1.89		B1D0157	25-Apr-21	0.265 L	27-Apr-21 02:33	1
PFDA	335-76-2	ND	0.707	1.42	1.89		B1D0157	25-Apr-21	0.265 L	27-Apr-21 02:33	1
MeFOSAA	2355-31-9	ND	0.707	1.42	1.89		B1D0157	25-Apr-21	0.265 L	27-Apr-21 02:33	1
EtFOSAA	2991-50-6	ND	0.707	1.42	1.89		B1D0157	25-Apr-21	0.265 L	27-Apr-21 02:33	1
PFUnA	2058-94-8	ND	0.707	1.42	1.89		B1D0157	25-Apr-21	0.265 L	27-Apr-21 02:33	1
PFDoA	307-55-1	ND	0.707	1.42	1.89		B1D0157	25-Apr-21	0.265 L	27-Apr-21 02:33	1
PFTTrDA	72629-94-8	ND	0.707	1.42	1.89		B1D0157	25-Apr-21	0.265 L	27-Apr-21 02:33	1
11CI-PF3OUdS	763051-92-9	ND	0.707	1.42	1.89		B1D0157	25-Apr-21	0.265 L	27-Apr-21 02:33	1
PFTeDA	376-06-7	ND	0.707	1.42	1.89		B1D0157	25-Apr-21	0.265 L	27-Apr-21 02:33	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	98.8	70 - 130			B1D0157	25-Apr-21	0.265 L	27-Apr-21 02:33	1	
13C2-PFDA	SURR	93.9	70 - 130			B1D0157	25-Apr-21	0.265 L	27-Apr-21 02:33	1	
d5-EtFOSAA	SURR	89.7	70 - 130			B1D0157	25-Apr-21	0.265 L	27-Apr-21 02:33	1	
13C3-HFPO-DA	SURR	105	70 - 130			B1D0157	25-Apr-21	0.265 L	27-Apr-21 02:33	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW 5/26/21

Sample ID: WI-A06-FB08-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104195-15	Column:	BEH C18
Project:	9000NVT8	Date Collected:	16-Apr-21 13:48	Date Received:	20-Apr-21 09:32		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.743	1.49	1.98		B1D0157	25-Apr-21	0.252 L	27-Apr-21 02:44	1
PFHxA	307-24-4	ND	0.743	1.49	1.98		B1D0157	25-Apr-21	0.252 L	27-Apr-21 02:44	1
HFPO-DA	13252-13-6	ND	0.743	1.49	1.98		B1D0157	25-Apr-21	0.252 L	27-Apr-21 02:44	1
PFHpA	375-85-9	ND	0.743	1.49	1.98		B1D0157	25-Apr-21	0.252 L	27-Apr-21 02:44	1
ADONA	919005-14-4	ND	0.743	1.49	1.98		B1D0157	25-Apr-21	0.252 L	27-Apr-21 02:44	1
PFHxS	355-46-4	ND	0.743	1.49	1.98		B1D0157	25-Apr-21	0.252 L	27-Apr-21 02:44	1
PFOA	335-67-1	ND	0.743	1.49	1.98		B1D0157	25-Apr-21	0.252 L	27-Apr-21 02:44	1
PFNA	375-95-1	ND	0.743	1.49	1.98		B1D0157	25-Apr-21	0.252 L	27-Apr-21 02:44	1
PFOS	1763-23-1	ND	0.743	1.49	1.98		B1D0157	25-Apr-21	0.252 L	27-Apr-21 02:44	1
9Cl-PF3ONS	756426-58-1	ND	0.743	1.49	1.98		B1D0157	25-Apr-21	0.252 L	27-Apr-21 02:44	1
PFDA	335-76-2	ND	0.743	1.49	1.98		B1D0157	25-Apr-21	0.252 L	27-Apr-21 02:44	1
MeFOSAA	2355-31-9	ND	0.743	1.49	1.98		B1D0157	25-Apr-21	0.252 L	27-Apr-21 02:44	1
EtFOSAA	2991-50-6	ND	0.743	1.49	1.98		B1D0157	25-Apr-21	0.252 L	27-Apr-21 02:44	1
PFUnA	2058-94-3	ND	0.743	1.49	1.98		B1D0157	25-Apr-21	0.252 L	27-Apr-21 02:44	1
PFDoA	307-55-i	ND	0.743	1.49	1.98		B1D0157	25-Apr-21	0.252 L	27-Apr-21 02:44	1
PFTTrDA	72629-94-8	ND	0.743	1.49	1.98		B1D0157	25-Apr-21	0.252 L	27-Apr-21 02:44	1
11Cl-PF3OUdS	763051-92-9	ND	0.743	1.49	1.98		B1D0157	25-Apr-21	0.252 L	27-Apr-21 02:44	1
PFTeDA	376-06-7	ND	0.743	1.49	1.98		B1D0157	25-Apr-21	0.252 L	27-Apr-21 02:44	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	97.1	70 - 130			B1D0157	25-Apr-21	0.252 L	27-Apr-21 02:44	1	
13C2-PFDA	SURR	91.4	70 - 130			B1D0157	25-Apr-21	0.252 L	27-Apr-21 02:44	1	
d5-EtFOSAA	SURR	79.5	70 - 130			B1D0157	25-Apr-21	0.252 L	27-Apr-21 02:44	1	
13C3-HFPO-DA	SURR	100	70 - 130			B1D0157	25-Apr-21	0.252 L	27-Apr-21 02:44	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 5/26/21

Sample ID: WI-AF-1RW32PP-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104195-16	Column:	BEH C18
Project:	9000NVT8	Date Collected:	16-Apr-21 12:43	Date Received:	20-Apr-21 09:32		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	38.4	0.769	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 02:55	1
PFHxA	307-24-4	ND	0.769	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 02:55	1
HFPO-DA	13252-13-6	ND	0.769	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 02:55	1
PFHpA	375-85-9	ND	0.769	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 02:55	1
ADONA	919005-14-4	ND	0.769	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 02:55	1
PFHxS	355-46-4	ND	0.769	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 02:55	1
PFOA	335-67-1	43.4	0.769	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 02:55	1
PFNA	375-95-1	ND	0.769	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 02:55	1
PFOS	1763-23-1	78.6	0.769	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 02:55	1
9Cl-PF3ONS	756426-58-1	ND	0.769	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 02:55	1
PFDA	335-76-2	ND	0.769	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 02:55	1
MeFOSAA	2355-31-9	ND	0.769	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 02:55	1
EtFOSAA	2991-50-6	ND	0.769	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 02:55	1
PFUnA	2058-94-8	ND	0.769	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 02:55	1
PFDoA	307-55-1	ND	0.769	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 02:55	1
PFTTrDA	72629-94-8	ND	0.769	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 02:55	1
11Cl-PF3OUdS	763051-92-9	ND	0.769	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 02:55	1
PFTeDA	376-06-7	ND	0.769	1.54	2.05		B1D0157	25-Apr-21	0.244 L	27-Apr-21 02:55	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	97.4	70 - 130			B1D0157	25-Apr-21	0.244 L	27-Apr-21 02:55	1	
13C2-PFDA	SURR	86.7	70 - 130			B1D0157	25-Apr-21	0.244 L	27-Apr-21 02:55	1	
d5-EtFOSAA	SURR	88.2	70 - 130			B1D0157	25-Apr-21	0.244 L	27-Apr-21 02:55	1	
13C3-HFPO-DA	SURR	105	70 - 130			B1D0157	25-Apr-21	0.244 L	27-Apr-21 02:55	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

mw 5/26/21

Sample ID: WI-AF-1FB32PP-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104195-17	Column:	BEH C18
Project:	9000NVT8	Date Collected:	16-Apr-21 12:45	Date Received:	20-Apr-21 09:32		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.776	1.55	2.07		B1D0157	25-Apr-21	0.242 L	27-Apr-21 03:06	1
PFHxA	307-24-4	ND	0.776	1.55	2.07		B1D0157	25-Apr-21	0.242 L	27-Apr-21 03:06	1
HFPO-DA	13252-13-6	ND	0.776	1.55	2.07		B1D0157	25-Apr-21	0.242 L	27-Apr-21 03:06	1
PFHpA	375-85-9	ND	0.776	1.55	2.07		B1D0157	25-Apr-21	0.242 L	27-Apr-21 03:06	1
ADONA	919005-14-4	ND	0.776	1.55	2.07		B1D0157	25-Apr-21	0.242 L	27-Apr-21 03:06	1
PFHxS	355-46-4	ND	0.776	1.55	2.07		B1D0157	25-Apr-21	0.242 L	27-Apr-21 03:06	1
PFOA	335-67-1	ND	0.776	1.55	2.07		B1D0157	25-Apr-21	0.242 L	27-Apr-21 03:06	1
PFNA	375-95-1	ND	0.776	1.55	2.07		B1D0157	25-Apr-21	0.242 L	27-Apr-21 03:06	1
PFOS	1763-23-1	ND	0.776	1.55	2.07		B1D0157	25-Apr-21	0.242 L	27-Apr-21 03:06	1
9Cl-PF3ONS	756426-58-1	ND	0.776	1.55	2.07		B1D0157	25-Apr-21	0.242 L	27-Apr-21 03:06	1
PFDA	335-76-2	ND	0.776	1.55	2.07		B1D0157	25-Apr-21	0.242 L	27-Apr-21 03:06	1
MeFOSAA	2355-31-9	ND	0.776	1.55	2.07		B1D0157	25-Apr-21	0.242 L	27-Apr-21 03:06	1
EtFOSAA	2991-50-6	ND	0.776	1.55	2.07		B1D0157	25-Apr-21	0.242 L	27-Apr-21 03:06	1
PFUnA	2058-94-8	ND	0.776	1.55	2.07		B1D0157	25-Apr-21	0.242 L	27-Apr-21 03:06	1
PFDoA	307-55-1	ND	0.776	1.55	2.07		B1D0157	25-Apr-21	0.242 L	27-Apr-21 03:06	1
PFTtDA	72629-94-8	ND	0.776	1.55	2.07		B1D0157	25-Apr-21	0.242 L	27-Apr-21 03:06	1
11Cl-PF3OUdS	763051-92-9	ND	0.776	1.55	2.07		B1D0157	25-Apr-21	0.242 L	27-Apr-21 03:06	1
PFTeDA	376-06-7	ND	0.776	1.55	2.07		B1D0157	25-Apr-21	0.242 L	27-Apr-21 03:06	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	100	70 - 130			B1D0157	25-Apr-21	0.242 L	27-Apr-21 03:06	1	
13C2-PFDA	SURR	91.5	70 - 130			B1D0157	25-Apr-21	0.242 L	27-Apr-21 03:06	1	
d5-EtFOSAA	SURR	86.4	70 - 130			B1D0157	25-Apr-21	0.242 L	27-Apr-21 03:06	1	
13C3-HFPO-DA	SURR	106	70 - 130			B1D0157	25-Apr-21	0.242 L	27-Apr-21 03:06	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

new 5/26/21

**DATA VALIDATION SUMMARY REPORT
NAS WHIDBEY ISLAND, WASHINGTON**

Client: CH2M HILL, Inc., Corvallis, Oregon
SDG: 2104240
Laboratory: Vista Analytical Laboratory, El Dorado Hills, California
Site: NAS Whidbey Island, Residential Wells, CTO-4384, Washington
Date: May 26, 2021

PFAS			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	WI-CV-1RW90-0421	2104240-01	Water
2	WI-CV-1FB90-0421	2104240-02	Water

A Stage 2B/4 data validation was performed on the analytical data for one water sample and one aqueous field blank sample collected on April 21, 2021 by CH2M Hill at the NAS Whidbey Island site in Washington. The samples were analyzed under the EPA Method "Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)".

Specific method references are as follows:

Analysis
PFAS

Method References
USEPA Method 537.1

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, the Final Sampling and Analysis Plan Investigation of Per- and Polyfluoroalkyl Substances in Off-Base Drinking Water Ault Field, Area 6, and Outlying Landing Field Coupeville, Naval Air Station Whidbey Island, April, 2020, Field Change Request (FCR) No. 1, September 2020, FCR No. 2, November 2020, and the DoD Final General Data Validation Guidelines, November 2019, and the USEPA Data Review and Validation Guidelines as follows:

- The USEPA "Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537," November 2018;
- and the reviewer's professional judgment.

The following data quality indicators were reviewed for this report:

Organics

- Date Completeness, Case Narrative & Custody Documentation
- Holding times
- Liquid Chromatography/Mass Spectrometry (LC/MS) Tuning

- Initial and continuing calibration summaries
- Method blank and field QC blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

A Stage 2B/4 data validation was performed with this review including a recalculation of 100% of the detected results in the samples.

Data Usability Assessment

There were no serious deficiencies of data.

The data are acceptable for the intended purposes. There were no qualifications.

Perfluorinated Alkyl Substances (PFAS)

Data Completeness, Case Narrative & Custody Documentation

- The case narrative and chain-of-custody documentation were included in the data package as required. All criteria were met.

Holding Times

- All samples were extracted within 14 days for water samples and analyzed within 28 days.

LC/MS Tuning

- All criteria were met.

Initial Calibration

- All relative standard deviation (%RSD) and/or correlation coefficients criteria were met.

Continuing Calibration

- All percent difference (%D) and RRF criteria were met.

Method Blank

- The method blanks were free of contamination.

Field QC Blank

- Field QC sample results are summarized in the table below.

Blank ID	Compound	Conc. ng/L	Qualifier	Affected Samples
WI-CV-1FB90-0421	None - ND	-	-	-

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- MS/MSD samples were not analyzed.

Laboratory Control Samples (LCS)

- The LCS samples exhibited acceptable percent recoveries (%R).

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- All criteria were met.

Field Duplicate Sample Precision

- Field duplicate samples were not collected.

Please contact the undersigned at (561) 475-2000 if you have any questions or need further information.

Signed:

Nancy Weaver
Nancy Weaver
Senior Chemist

Dated: 5/28/21

Qualifier	Definition
U	The analyte was not detected and was reported as less than the LOD or as defined by the customer. The LOD has been adjusted for any dilution or concentration of the sample.
J	The reported result was an estimated value with an unknown bias.
J ⁺	The result was an estimated quantity, but the result may be biased high.
J ⁻	The result was an estimated quantity, but the result may be biased low.
N	The analysis indicates the presence of an analyte for which there was presumptive evidence to make a "tentative identification."
NJ	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value was the estimated concentration in the sample.
UJ	The analyte was not detected and was reported as less than the LOD or as defined by the customer. However, the associated numerical value is approximate.
X	<p>The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided.</p> <p>Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.</p>

Sample ID: WI-CV-1RW90-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104240-01	Column:	BEH C18
Project:	9000NVT8	Date Collected:	21-Apr-21 15:50	Date Received:	23-Apr-21 09:43		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	41.3	0.726	1.45	1.94		B1D0206	28-Apr-21	0.258 L	30-Apr-21 21:37	1
PFHxA	307-24-4	58.0	0.726	1.45	1.94		B1D0206	28-Apr-21	0.258 L	30-Apr-21 21:37	1
HFPO-DA	13252-13-6	ND	0.726	1.45	1.94		B1D0206	28-Apr-21	0.258 L	30-Apr-21 21:37	1
PFHpA	375-85-9	18.2	0.726	1.45	1.94		B1D0206	28-Apr-21	0.258 L	30-Apr-21 21:37	1
ADONA	919005-14-4	ND	0.726	1.45	1.94		B1D0206	28-Apr-21	0.258 L	30-Apr-21 21:37	1
PFHxS	355-46-4	174	0.726	1.45	1.94		B1D0206	28-Apr-21	0.258 L	30-Apr-21 21:37	1
PFOA	335-67-1	161	0.726	1.45	1.94		B1D0206	28-Apr-21	0.258 L	30-Apr-21 21:37	1
PFNA	375-95-1	ND	0.726	1.45	1.94		B1D0206	28-Apr-21	0.258 L	30-Apr-21 21:37	1
PFOS	1763-23-1	9.28	0.726	1.45	1.94		B1D0206	28-Apr-21	0.258 L	30-Apr-21 21:37	1
9CI-PF3ONS	756426-58-1	ND	0.726	1.45	1.94		B1D0206	28-Apr-21	0.258 L	30-Apr-21 21:37	1
PFDA	335-76-2	ND	0.726	1.45	1.94		B1D0206	28-Apr-21	0.258 L	30-Apr-21 21:37	1
MeFOSAA	2355-31-9	ND	0.726	1.45	1.94		B1D0206	28-Apr-21	0.258 L	30-Apr-21 21:37	1
EtFOSAA	2991-50-6	ND	0.726	1.45	1.94		B1D0206	28-Apr-21	0.258 L	30-Apr-21 21:37	1
PFUnA	2058-94-8	ND	0.726	1.45	1.94		B1D0206	28-Apr-21	0.258 L	30-Apr-21 21:37	1
PFDoA	307-55-1	ND	0.726	1.45	1.94		B1D0206	28-Apr-21	0.258 L	30-Apr-21 21:37	1
PFTTrDA	72629-94-8	ND	0.726	1.45	1.94		B1D0206	28-Apr-21	0.258 L	30-Apr-21 21:37	1
11CI-PF3OUdS	763051-92-9	ND	0.726	1.45	1.94		B1D0206	28-Apr-21	0.258 L	30-Apr-21 21:37	1
PFTeDA	376-06-7	ND	0.726	1.45	1.94		B1D0206	28-Apr-21	0.258 L	30-Apr-21 21:37	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	105	70 - 130			B1D0206	28-Apr-21	0.258 L	30-Apr-21 21:37	1	
13C2-PFDA	SURR	105	70 - 130			B1D0206	28-Apr-21	0.258 L	30-Apr-21 21:37	1	
d5-EtFOSAA	SURR	93.2	70 - 130			B1D0206	28-Apr-21	0.258 L	30-Apr-21 21:37	1	
13C3-HFPO-DA	SURR	110	70 - 130			B1D0206	28-Apr-21	0.258 L	30-Apr-21 21:37	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

MW 5/26/21

Sample ID: WI-CV-1FB90-0421

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2104240-02	Column:	BEH C18
Project:	9000NVT8	Date Collected:	21-Apr-21 15:55	Date Received:	23-Apr-21 09:43		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.757	1.51	2.02		B1D0206	28-Apr-21	0.248 L	30-Apr-21 01:39	1
PFHxA	307-24-4	ND	0.757	1.51	2.02		B1D0206	28-Apr-21	0.248 L	30-Apr-21 01:39	1
HFPO-DA	13252-13-6	ND	0.757	1.51	2.02		B1D0206	28-Apr-21	0.248 L	30-Apr-21 01:39	1
PFHpA	375-85-9	ND	0.757	1.51	2.02		B1D0206	28-Apr-21	0.248 L	30-Apr-21 01:39	1
ADONA	919005-14-4	ND	0.757	1.51	2.02		B1D0206	28-Apr-21	0.248 L	30-Apr-21 01:39	1
PFHxS	355-46-4	ND	0.757	1.51	2.02		B1D0206	28-Apr-21	0.248 L	30-Apr-21 01:39	1
PFOA	335-67-1	ND	0.757	1.51	2.02		B1D0206	28-Apr-21	0.248 L	30-Apr-21 01:39	1
PFNA	375-95-1	ND	0.757	1.51	2.02		B1D0206	28-Apr-21	0.248 L	30-Apr-21 01:39	1
PFOS	1763-23-1	ND	0.757	1.51	2.02		B1D0206	28-Apr-21	0.248 L	30-Apr-21 01:39	1
9CI-PF3ONS	756426-58-1	ND	0.757	1.51	2.02		B1D0206	28-Apr-21	0.248 L	30-Apr-21 01:39	1
PFDA	335-76-2	ND	0.757	1.51	2.02		B1D0206	28-Apr-21	0.248 L	30-Apr-21 01:39	1
MeFOSAA	2355-31-9	ND	0.757	1.51	2.02		B1D0206	28-Apr-21	0.248 L	30-Apr-21 01:39	1
EtFOSAA	2991-50-6	ND	0.757	1.51	2.02		B1D0206	28-Apr-21	0.248 L	30-Apr-21 01:39	1
PFUnA	2058-94-8	ND	0.757	1.51	2.02		B1D0206	28-Apr-21	0.248 L	30-Apr-21 01:39	1
PFDoA	307-55-1	ND	0.757	1.51	2.02		B1D0206	28-Apr-21	0.248 L	30-Apr-21 01:39	1
PFTTrDA	72629-94-8	ND	0.757	1.51	2.02		B1D0206	28-Apr-21	0.248 L	30-Apr-21 01:39	1
11CI-PF3OUdS	763051-92-9	ND	0.757	1.51	2.02		B1D0206	28-Apr-21	0.248 L	30-Apr-21 01:39	1
PFTeDA	376-06-7	ND	0.757	1.51	2.02		B1D0206	28-Apr-21	0.248 L	30-Apr-21 01:39	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	117	70 - 130			B1D0206	28-Apr-21	0.248 L	30-Apr-21 01:39	1	
13C2-PFDA	SURR	111	70 - 130			B1D0206	28-Apr-21	0.248 L	30-Apr-21 01:39	1	
d5-EtFOSAA	SURR	87.1	70 - 130			B1D0206	28-Apr-21	0.248 L	30-Apr-21 01:39	1	
13C3-HFPO-DA	SURR	130	70 - 130			B1D0206	28-Apr-21	0.248 L	30-Apr-21 01:39	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

mw 5/26/21

**DATA VALIDATION SUMMARY REPORT
NAS WHIDBEY ISLAND, WASHINGTON**

Client: CH2M HILL, Inc., Corvallis, Oregon
 SDG: 2002511
 Laboratory: Vista Analytical Laboratory, El Dorado Hills, California
 Site: NAS Whidbey Island, Residential Wells, CTO-4384, Washington
 Date: December 18, 2020

PFAS			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	WI-CV-3RW10-1120	2002511-01	Water
2	WI-CV-3FB10-1120	2002511-02	Water
3	WI-CV-1RW34-1120	2002511-03	Water
3MS	WI-CV-1RW34-1120MS	2002511-03MS	Water
3MSD	WI-CV-1RW34-1120MSD	2002511-03MSD	Water
4	WI-CV-1FB34-1120	2002511-04	Water
5	WI-CV-1RW01-1120	2002511-05	Water
6	WI-CV-1FB01-1120	2002511-06	Water
7	WI-CV-1RW07-1120	2002511-07	Water
8	WI-CV-1RW07P-1120	2002511-08	Water
9	WI-CV-1FB07-1120	2002511-09	Water
10	WI-CV-3RW17-1120	2002511-10	Water
11	WI-CV-3FB17-1120	2002511-11	Water
12	WI-AF-1RW12-1120	2002511-12	Water
13	WI-AF-1RW12P-1120	2002511-13	Water
14	WI-AF-1FB12-1120	2002511-14	Water

A full data validation was performed on the analytical data for eight water samples and six aqueous field blank samples collected on November 9-10, 2020 by CH2M Hill at the NAS Whidbey Island site in Washington. The samples were analyzed under the EPA Method “Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)”.

Specific method references are as follows:

Analysis
PFAS

Method References
USEPA Method 537.1

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, DoD Final General Data Validation Guidelines, November 2019, and the USEPA Data Review and Validation Guidelines as follows:

- The USEPA “Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537,” November 2018;
- and the reviewer's professional judgment.

The following data quality indicators were reviewed for this report:

Organics

- Date Completeness, Case Narrative & Custody Documentation
- Holding times
- Liquid Chromatography/Mass Spectrometry (LC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field QC blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

A full (Stage 2B/4) data validation was performed with this review including a recalculation of 100% of the detected results in the samples.

Data Usability Assessment

There were no serious deficiencies of data.

The data are acceptable for the intended purposes. There were no qualifications.

Perfluorinated Alkyl Substances (PFAS)

Data Completeness, Case Narrative & Custody Documentation

- The case narrative and chain-of-custody documentation were included in the data package as required. All criteria were met.

Holding Times

- All samples were extracted within 14 days for water samples and analyzed within 28 days.

LC/MS Tuning

- All criteria were met.

Initial Calibration

- All relative standard deviation (%RSD) and/or correlation coefficients criteria were met.

Continuing Calibration

- All percent difference (%D) and RRF criteria were met.

Method Blank

- The method blanks were free of contamination.

Field QC Blank

- Field QC sample results are summarized in the table below.

Blank ID	Compound	Conc. ng/L	Qualifier	Affected Samples
WI-CV-3FB10-1120	None - ND	-	-	-
WI-CV-1FB34-1120	None - ND	-	-	-
WI-CV-1FB01-1120	None - ND	-	-	-
WI-CV-1FB07-1120	None - ND	-	-	-
WI-CV-3FB17-1120	None - ND	-	-	-
WI-AF-1FB12-1120	None - ND	-	-	-

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- The MS/MSD samples exhibited acceptable percent recoveries (%R) and RPD values.

Laboratory Control Samples (LCS)

- The LCS samples exhibited acceptable percent recoveries (%R).

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- All criteria were met.

Field Duplicate Sample Precision

- Field duplicate samples are summarized below. The precision was acceptable.

Compound	WI-CV-1RW07-1120 ng/L	WI-CV-1RW07P-1120 ng/L	RPD	Qualifier
PFBS	32.7	30.6	7%	None
PFHxA	83.7	77.9	7%	
PFHpA	15.6	14.9	5%	
PFHxS	75.1	71.1	5%	
PFOA	231	219	5%	
PFOS	2.20	1.95	12%	

Compound	WI-AF-1RW12-1120 ng/L	WI-AF-1RW12P-1120 ng/L	RPD	Qualifier
PFBS	1.58	1.49	6%	None
PFHxA	0.959	0.832	14%	
PFOA	2.24	2.35	5%	
PFOS	1.63	1.72	5%	

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed:

Nancy Weaver

Nancy Weaver
Senior Chemist

Dated: 12/21/20

Qualifier	Definition
U	The analyte was not detected and was reported as less than the LOD or as defined by the customer. The LOD has been adjusted for any dilution or concentration of the sample.
J	The reported result was an estimated value with an unknown bias.
J+	The result was an estimated quantity, but the result may be biased high.
J-	The result was an estimated quantity, but the result may be biased low.
N	The analysis indicates the presence of an analyte for which there was presumptive evidence to make a "tentative identification."
NJ	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value was the estimated concentration in the sample.
UJ	The analyte was not detected and was reported as less than the LOD or as defined by the customer. However, the associated numerical value is approximate.
X	<p>The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided.</p> <p>Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.</p>

Sample ID: WI-CV-3RW10-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002511-01	Column:	BEH C18
Project:	9000NVT8	Date Collected:	09-Nov-20 10:10	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	190	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:15	1
PFHxA	307-24-4	250	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:15	1
HFPO-DA	13252-13-6	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:15	1
PFHpA	375-85-9	19.9	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:15	1
ADONA	919005-14-4	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:15	1
PFHxS	355-46-4	80.9	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:15	1
PFOA	335-67-1	106	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:15	1
PFNA	375-95-1	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:15	1
PFOS	1763-23-1	2.12	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:15	1
9CI-PF3ONS	756426-58-1	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:15	1
PFDA	335-76-2	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:15	1
MeFOSAA	2355-31-9	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:15	1
EtFOSAA	2991-50-6	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:15	1
PFUnA	2058-94-8	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:15	1
PFDoA	307-55-1	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:15	1
PFTTrDA	72629-94-8	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:15	1
11CI-PF3OUdS	763051-92-9	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:15	1
PFTeDA	376-06-7	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:15	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	100	70 - 130		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:15	1
13C2-PFDA	SURR	93.1	70 - 130		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:15	1
d5-EtFOSAA	SURR	78.5	70 - 130		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:15	1
13C3-HFPO-DA	SURR	108	70 - 130		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:15	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

WI218120

Sample ID: WI-CV-3FB10-1120							EPA Method 537.1				
Client Data					Laboratory Data						
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	2002511-02		Column:	BEH C18	
Project:	9000NVT8		Date Collected:	09-Nov-20 10:10		Date Received:	16-Nov-20 10:02				
Location:	Drinking Water										
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:26	1
PFHxA	307-24-4	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:26	1
HFPO-DA	13252-13-6	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:26	1
PFHpA	375-85-9	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:26	1
ADONA	919005-14-4	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:26	1
PFHxS	355-46-4	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:26	1
PFOA	335-67-1	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:26	1
PFNA	375-95-1	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:26	1
PFOS	1763-23-1	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:26	1
9CI-PF3ONS	756426-58-1	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:26	1
PFDA	335-76-2	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:26	1
MeFOSAA	2355-31-9	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:26	1
EtFOSAA	2991-50-6	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:26	1
PFUnA	2058-94-8	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:26	1
PFDoA	307-55-1	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:26	1
PFTTrDA	72629-94-8	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:26	1
11CI-PF3OUdS	763051-92-9	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:26	1
PFTeDA	376-06-7	ND	0.753	1.51	2.01		B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:26	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	110	70 - 130			B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:26	1	
13C2-PFDA	SURR	107	70 - 130			B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:26	1	
d5-EtFOSAA	SURR	88.0	70 - 130			B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:26	1	
13C3-HFPO-DA	SURR	117	70 - 130			B0K0142	17-Nov-20	0.249 L	18-Nov-20 20:26	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

new 12/18/20

Sample ID: WI-CV-1RW34-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002511-03	Column:	BEH C18
Project:	9000NVT8	Date Collected:	09-Nov-20 12:40	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	112	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:48	1
PFHxA	307-24-4	337	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:48	1
HFPO-DA	13252-13-6	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:48	1
PFHpA	375-85-9	37.7	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:48	1
ADONA	919005-14-4	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:48	1
PFHxS	355-46-4	98.2	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:48	1
PFOA	335-67-1	332	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:48	1
PFNA	375-95-1	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:48	1
PFOS	1763-23-1	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:48	1
9CI-PF3ONS	756426-58-1	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:48	1
PFDA	335-76-2	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:48	1
MeFOSAA	2355-31-9	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:48	1
EtFOSAA	2991-50-6	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:48	1
PFUnA	2058-94-8	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:48	1
PFDoA	307-55-1	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:48	1
PFTTrDA	72629-94-8	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:48	1
11CI-PF3OUdS	763051-92-9	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:48	1
PFTeDA	376-06-7	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:48	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	109	70 - 130		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:48	1
13C2-PFDA	SURR	101	70 - 130		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:48	1
d5-EtFOSAA	SURR	79.8	70 - 130		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:48	1
13C3-HFPO-DA	SURR	116	70 - 130		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:48	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 12/18/20

Sample ID: WI-CV-1FB34-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002511-04	Column:	BEH C18
Project:	9000NVT8	Date Collected:	09-Nov-20 12:40	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 20:37	1
PFHxA	307-24-4	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 20:37	1
HFPO-DA	13252-13-6	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 20:37	1
PFHpA	375-85-9	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 20:37	1
ADONA	919005-14-4	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 20:37	1
PFHxS	355-46-4	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 20:37	1
PFOA	335-67-1	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 20:37	1
PFNA	375-95-1	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 20:37	1
PFOS	1763-23-1	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 20:37	1
9CI-PF3ONS	756426-58-1	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 20:37	1
PFDA	335-76-2	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 20:37	1
MeFOSAA	2355-31-9	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 20:37	1
EtFOSAA	2991-50-6	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 20:37	1
PFUnA	2058-94-8	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 20:37	1
PFDoA	307-55-1	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 20:37	1
PFTTrDA	72629-94-8	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 20:37	1
11CI-PF3OUdS	763051-92-9	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 20:37	1
PFTeDA	376-06-7	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 20:37	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	108	70 - 130		B0K0142	17-Nov-20	0.254 L	18-Nov-20 20:37	1
13C2-PFDA	SURR	103	70 - 130		B0K0142	17-Nov-20	0.254 L	18-Nov-20 20:37	1
d5-EtFOSAA	SURR	80.0	70 - 130		B0K0142	17-Nov-20	0.254 L	18-Nov-20 20:37	1
13C3-HFPO-DA	SURR	115	70 - 130		B0K0142	17-Nov-20	0.254 L	18-Nov-20 20:37	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW 12/18/20

Sample ID: WI-CV-1RW01-1120

EPA Method 537.1

Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2002511-05	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	09-Nov-20 12:55		Date Received:	16-Nov-20 10:02					
Location:	Drinking Water										

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	24.1	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:59	1
PFHxA	307-24-4	79.5	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:59	1
HFPO-DA	13252-13-6	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:59	1
PFHpA	375-85-9	20.2	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:59	1
ADONA	919005-14-4	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:59	1
PFHxS	355-46-4	287	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:59	1
PFOA	335-67-1	271	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:59	1
PFNA	375-95-1	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:59	1
PFOS	1763-23-1	2.75	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:59	1
9CI-PF3ONS	756426-58-1	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:59	1
PFDA	335-76-2	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:59	1
MeFOSAA	2355-31-9	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:59	1
EtFOSAA	2991-50-6	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:59	1
PFUnA	2058-94-8	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:59	1
PFDoA	307-55-1	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:59	1
PFTTrDA	72629-94-8	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:59	1
11CI-PF3OUdS	763051-92-9	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:59	1
PFTeDA	376-06-7	ND	0.768	1.54	2.05		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:59	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	113	70 - 130		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:59	1
13C2-PFDA	SURR	103	70 - 130		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:59	1
d5-EtFOSAA	SURR	89.0	70 - 130		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:59	1
13C3-HFPO-DA	SURR	120	70 - 130		B0K0142	17-Nov-20	0.244 L	18-Nov-20 20:59	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

11/12/18/20

Sample ID: WI-CV-1FB01-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002511-06	Column:	BEH C18
Project:	9000NVT8	Date Collected:	09-Nov-20 12:55	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 21:10	1
PFHxA	307-24-4	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 21:10	1
HFPO-DA	13252-13-6	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 21:10	1
PFHpA	375-85-9	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 21:10	1
ADONA	919005-14-4	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 21:10	1
PFHxS	355-46-4	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 21:10	1
PFOA	335-67-1	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 21:10	1
PFNA	375-95-1	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 21:10	1
PFOS	1763-23-1	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 21:10	1
9Cl-PF3ONS	756426-58-1	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 21:10	1
PFDA	335-76-2	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 21:10	1
MeFOSAA	2355-31-9	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 21:10	1
EtFOSAA	2991-50-6	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 21:10	1
PFUnA	2058-94-8	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 21:10	1
PFDoA	307-55-1	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 21:10	1
PFTTrDA	72629-94-8	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 21:10	1
11Cl-PF3OUdS	763051-92-9	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 21:10	1
PFTeDA	376-06-7	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 21:10	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	112	70 - 130		B0K0142	17-Nov-20	0.254 L	18-Nov-20 21:10	1
13C2-PFDA	SURR	104	70 - 130		B0K0142	17-Nov-20	0.254 L	18-Nov-20 21:10	1
d5-EtFOSAA	SURR	88.6	70 - 130		B0K0142	17-Nov-20	0.254 L	18-Nov-20 21:10	1
13C3-HFPO-DA	SURR	117	70 - 130		B0K0142	17-Nov-20	0.254 L	18-Nov-20 21:10	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Nov 21, 2020

Sample ID: WI-CV-1RW07-1120
EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002511-07	Column:	BEH C18
Project:	9000NVT8	Date Collected:	09-Nov-20 13:40	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	32.7	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:21	1
PFHxA	307-24-4	83.7	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:21	1
HFPO-DA	13252-13-6	ND	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:21	1
PFHpA	375-85-9	15.6	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:21	1
ADONA	919005-14-4	ND	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:21	1
PFHxS	355-46-4	75.1	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:21	1
PFOA	335-67-1	231	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:21	1
PFNA	375-95-1	ND	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:21	1
PFOS	1763-23-1	2.20	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:21	1
9CI-PF3ONS	756426-58-1	ND	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:21	1
PFDA	335-76-2	ND	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:21	1
MeFOSAA	2355-31-9	ND	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:21	1
EtFOSAA	2991-50-6	ND	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:21	1
PFUnA	2058-94-8	ND	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:21	1
PFDaA	307-55-1	ND	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:21	1
PFTTrDA	72629-94-8	ND	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:21	1
11CI-PF3OUdS	763051-92-9	ND	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:21	1
PFTeDA	376-06-7	ND	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:21	1
Labeled Standards	Type	% Recovery		Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	113		70 - 130			B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:21	1
13C2-PFDA	SURR	103		70 - 130			B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:21	1
d5-EtFOSAA	SURR	86.5		70 - 130			B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:21	1
13C3-HFPO-DA	SURR	118		70 - 130			B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:21	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 12/8/20

Sample ID: WI-CV-1RW07P-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002511-08	Column:	BEH C18
Project:	9000NVT8	Date Collected:	09-Nov-20 13:45	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	30.6	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:32	1
PFHxA	307-24-4	77.9	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:32	1
HFPO-DA	13252-13-6	ND	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:32	1
PFHpA	375-85-9	14.9	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:32	1
ADONA	919005-14-4	ND	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:32	1
PFHxS	355-46-4	71.1	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:32	1
PFOA	335-67-1	219	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:32	1
PFNA	375-95-1	ND	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:32	1
PFOS	1763-23-1	1.95	0.756	1.51	2.02	J	B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:32	1
9CI-PF3ONS	756426-58-1	ND	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:32	1
PFDA	335-76-2	ND	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:32	1
MeFOSAA	2355-31-9	ND	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:32	1
EtFOSAA	2991-50-6	ND	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:32	1
PFUnA	2058-94-8	ND	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:32	1
PFDoA	307-55-1	ND	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:32	1
PFTTrDA	72629-94-8	ND	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:32	1
11CI-PF3OUdS	763051-92-9	ND	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:32	1
PFTeDA	376-06-7	ND	0.756	1.51	2.02		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:32	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	113	70 - 130		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:32	1
13C2-PFDA	SURR	103	70 - 130		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:32	1
d5-EtFOSAA	SURR	84.7	70 - 130		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:32	1
13C3-HFPO-DA	SURR	121	70 - 130		B0K0142	17-Nov-20	0.248 L	18-Nov-20 21:32	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

new 12/18/20

Sample ID: WI-CV-1FB07-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002511-09	Column:	BEH C18
Project:	9000NVT8	Date Collected:	09-Nov-20 13:40	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.743	1.49	1.98		B0K0142	17-Nov-20	0.252 L	18-Nov-20 21:44	1
PFHxA	307-24-4	ND	0.743	1.49	1.98		B0K0142	17-Nov-20	0.252 L	18-Nov-20 21:44	1
HFPO-DA	13252-13-6	ND	0.743	1.49	1.98		B0K0142	17-Nov-20	0.252 L	18-Nov-20 21:44	1
PFHpA	375-85-9	ND	0.743	1.49	1.98		B0K0142	17-Nov-20	0.252 L	18-Nov-20 21:44	1
ADONA	919005-14-4	ND	0.743	1.49	1.98		B0K0142	17-Nov-20	0.252 L	18-Nov-20 21:44	1
PFHxS	355-46-4	ND	0.743	1.49	1.98		B0K0142	17-Nov-20	0.252 L	18-Nov-20 21:44	1
PFOA	335-67-1	ND	0.743	1.49	1.98		B0K0142	17-Nov-20	0.252 L	18-Nov-20 21:44	1
PFNA	375-95-1	ND	0.743	1.49	1.98		B0K0142	17-Nov-20	0.252 L	18-Nov-20 21:44	1
PFOS	1763-23-1	ND	0.743	1.49	1.98		B0K0142	17-Nov-20	0.252 L	18-Nov-20 21:44	1
9CI-PF3ONS	756426-58-1	ND	0.743	1.49	1.98		B0K0142	17-Nov-20	0.252 L	18-Nov-20 21:44	1
PFDA	335-76-2	ND	0.743	1.49	1.98		B0K0142	17-Nov-20	0.252 L	18-Nov-20 21:44	1
MeFOSAA	2355-31-9	ND	0.743	1.49	1.98		B0K0142	17-Nov-20	0.252 L	18-Nov-20 21:44	1
EtFOSAA	2991-50-6	ND	0.743	1.49	1.98		B0K0142	17-Nov-20	0.252 L	18-Nov-20 21:44	1
PFUnA	2058-94-8	ND	0.743	1.49	1.98		B0K0142	17-Nov-20	0.252 L	18-Nov-20 21:44	1
PFDoA	307-55-1	ND	0.743	1.49	1.98		B0K0142	17-Nov-20	0.252 L	18-Nov-20 21:44	1
PFTTrDA	72629-94-8	ND	0.743	1.49	1.98		B0K0142	17-Nov-20	0.252 L	18-Nov-20 21:44	1
11CI-PF3OUdS	763051-92-9	ND	0.743	1.49	1.98		B0K0142	17-Nov-20	0.252 L	18-Nov-20 21:44	1
PFTeDA	376-06-7	ND	0.743	1.49	1.98		B0K0142	17-Nov-20	0.252 L	18-Nov-20 21:44	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	105	70 - 130		B0K0142	17-Nov-20	0.252 L	18-Nov-20 21:44	1
13C2-PFDA	SURR	98.7	70 - 130		B0K0142	17-Nov-20	0.252 L	18-Nov-20 21:44	1
d5-EtFOSAA	SURR	82.7	70 - 130		B0K0142	17-Nov-20	0.252 L	18-Nov-20 21:44	1
13C3-HFPO-DA	SURR	114	70 - 130		B0K0142	17-Nov-20	0.252 L	18-Nov-20 21:44	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

mw 12/18/20

Sample ID: WI-CV-3RW17-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002511-10	Column:	BEH C18
Project:	9000NVT8	Date Collected:	09-Nov-20 13:55	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.775	1.55	2.07		B0K0142	17-Nov-20	0.242 L	18-Nov-20 21:55	1
PFHxA	307-24-4	ND	0.775	1.55	2.07		B0K0142	17-Nov-20	0.242 L	18-Nov-20 21:55	1
HFPO-DA	13252-13-6	ND	0.775	1.55	2.07		B0K0142	17-Nov-20	0.242 L	18-Nov-20 21:55	1
PFHpA	375-85-9	ND	0.775	1.55	2.07		B0K0142	17-Nov-20	0.242 L	18-Nov-20 21:55	1
ADONA	919005-14-4	ND	0.775	1.55	2.07		B0K0142	17-Nov-20	0.242 L	18-Nov-20 21:55	1
PFHxS	355-46-4	ND	0.775	1.55	2.07		B0K0142	17-Nov-20	0.242 L	18-Nov-20 21:55	1
PFOA	335-67-1	ND	0.775	1.55	2.07		B0K0142	17-Nov-20	0.242 L	18-Nov-20 21:55	1
PFNA	375-95-1	ND	0.775	1.55	2.07		B0K0142	17-Nov-20	0.242 L	18-Nov-20 21:55	1
PFOS	1763-23-1	ND	0.775	1.55	2.07		B0K0142	17-Nov-20	0.242 L	18-Nov-20 21:55	1
9CI-PF3ONS	756426-58-1	ND	0.775	1.55	2.07		B0K0142	17-Nov-20	0.242 L	18-Nov-20 21:55	1
PFDA	335-76-2	ND	0.775	1.55	2.07		B0K0142	17-Nov-20	0.242 L	18-Nov-20 21:55	1
MeFOSAA	2355-31-9	ND	0.775	1.55	2.07		B0K0142	17-Nov-20	0.242 L	18-Nov-20 21:55	1
EtFOSAA	2991-50-6	ND	0.775	1.55	2.07		B0K0142	17-Nov-20	0.242 L	18-Nov-20 21:55	1
PFOA	2058-94-8	ND	0.775	1.55	2.07		B0K0142	17-Nov-20	0.242 L	18-Nov-20 21:55	1
PFDoA	307-55-1	ND	0.775	1.55	2.07		B0K0142	17-Nov-20	0.242 L	18-Nov-20 21:55	1
PFTTrDA	72629-94-8	ND	0.775	1.55	2.07		B0K0142	17-Nov-20	0.242 L	18-Nov-20 21:55	1
11CI-PF3OUdS	763051-92-9	ND	0.775	1.55	2.07		B0K0142	17-Nov-20	0.242 L	18-Nov-20 21:55	1
PFTeDA	376-06-7	ND	0.775	1.55	2.07		B0K0142	17-Nov-20	0.242 L	18-Nov-20 21:55	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	107	70 - 130		B0K0142	17-Nov-20	0.242 L	18-Nov-20 21:55	1
13C2-PFDA	SURR	93.4	70 - 130		B0K0142	17-Nov-20	0.242 L	18-Nov-20 21:55	1
d5-EtFOSAA	SURR	79.7	70 - 130		B0K0142	17-Nov-20	0.242 L	18-Nov-20 21:55	1
13C3-HFPO-DA	SURR	112	70 - 130		B0K0142	17-Nov-20	0.242 L	18-Nov-20 21:55	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Nov 12/18/20

Sample ID: WI-CV-3FB17-1120

EPA Method 537.1

Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2002511-11	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	09-Nov-20 13:55		Date Received:	16-Nov-20 10:02					
Location:	Drinking Water										

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.758	1.52	2.02		B0K0142	17-Nov-20	0.247 L	18-Nov-20 22:06	1
PFHxA	307-24-4	ND	0.758	1.52	2.02		B0K0142	17-Nov-20	0.247 L	18-Nov-20 22:06	1
HFPO-DA	13252-13-6	ND	0.758	1.52	2.02		B0K0142	17-Nov-20	0.247 L	18-Nov-20 22:06	1
PFHpA	375-85-9	ND	0.758	1.52	2.02		B0K0142	17-Nov-20	0.247 L	18-Nov-20 22:06	1
ADONA	919005-14-4	ND	0.758	1.52	2.02		B0K0142	17-Nov-20	0.247 L	18-Nov-20 22:06	1
PFHxS	355-46-4	ND	0.758	1.52	2.02		B0K0142	17-Nov-20	0.247 L	18-Nov-20 22:06	1
PFOA	335-67-1	ND	0.758	1.52	2.02		B0K0142	17-Nov-20	0.247 L	18-Nov-20 22:06	1
PFNA	375-95-1	ND	0.758	1.52	2.02		B0K0142	17-Nov-20	0.247 L	18-Nov-20 22:06	1
PFOS	1763-23-1	ND	0.758	1.52	2.02		B0K0142	17-Nov-20	0.247 L	18-Nov-20 22:06	1
9CI-PF3ONS	756426-58-1	ND	0.758	1.52	2.02		B0K0142	17-Nov-20	0.247 L	18-Nov-20 22:06	1
PFDA	335-76-2	ND	0.758	1.52	2.02		B0K0142	17-Nov-20	0.247 L	18-Nov-20 22:06	1
MeFOSAA	2355-31-9	ND	0.758	1.52	2.02		B0K0142	17-Nov-20	0.247 L	18-Nov-20 22:06	1
EtFOSAA	2991-50-6	ND	0.758	1.52	2.02		B0K0142	17-Nov-20	0.247 L	18-Nov-20 22:06	1
PFUnA	2058-94-8	ND	0.758	1.52	2.02		B0K0142	17-Nov-20	0.247 L	18-Nov-20 22:06	1
PFDoA	307-55-1	ND	0.758	1.52	2.02		B0K0142	17-Nov-20	0.247 L	18-Nov-20 22:06	1
PFTTrDA	72629-94-8	ND	0.758	1.52	2.02		B0K0142	17-Nov-20	0.247 L	18-Nov-20 22:06	1
11CI-PF3OUdS	763051-92-9	ND	0.758	1.52	2.02		B0K0142	17-Nov-20	0.247 L	18-Nov-20 22:06	1
PFTeDA	376-06-7	ND	0.758	1.52	2.02		B0K0142	17-Nov-20	0.247 L	18-Nov-20 22:06	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	110	70 - 130		B0K0142	17-Nov-20	0.247 L	18-Nov-20 22:06	1
13C2-PFDA	SURR	101	70 - 130		B0K0142	17-Nov-20	0.247 L	18-Nov-20 22:06	1
d5-EtFOSAA	SURR	86.8	70 - 130		B0K0142	17-Nov-20	0.247 L	18-Nov-20 22:06	1
13C3-HFPO-DA	SURR	117	70 - 130		B0K0142	17-Nov-20	0.247 L	18-Nov-20 22:06	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 12/18/20

Sample ID: WI-AF-1RW12-1120 **EPA Method 537.1**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002511-12	Column:	BEH C18
Project:	9000NVT8	Date Collected:	10-Nov-20 16:10	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	1.58	0.737	1.48	1.97	J	B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:17	1
PFHxA	307-24-4	0.959	0.737	1.48	1.97	J	B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:17	1
HFPO-DA	13252-13-6	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:17	1
PFHpA	375-85-9	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:17	1
ADONA	919005-14-4	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:17	1
PFHxS	355-46-4	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:17	1
PFOA	335-67-1	2.24	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:17	1
PFNA	375-95-1	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:17	1
PFOS	1763-23-1	1.63	0.737	1.48	1.97	J	B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:17	1
9Cl-PF3ONS	756426-58-1	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:17	1
PFDA	335-76-2	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:17	1
MeFOSAA	2355-31-9	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:17	1
EtFOSAA	2991-50-6	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:17	1
PFUnA	2058-94-8	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:17	1
PFDoA	307-55-1	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:17	1
PFTTrDA	72629-94-8	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:17	1
11Cl-PF3OUdS	763051-92-9	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:17	1
PFTeDA	376-06-7	ND	0.737	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:17	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	110	70 - 130		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:17	1
13C2-PFDA	SURR	103	70 - 130		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:17	1
d5-EtFOSAA	SURR	81.0	70 - 130		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:17	1
13C3-HFPO-DA	SURR	117	70 - 130		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:17	1

DL - Detection Limit

LOD - Limit of Detection

LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 12/18/20

Sample ID: WI-AF-1RW12P-1120											EPA Method 537.1	
Client Data						Laboratory Data						
Name:	CH2M Hill			Matrix:	Drinking Water		Lab Sample:	2002511-13		Column:	BEH C18	
Project:	9000NVT8			Date Collected:	10-Nov-20 16:15		Date Received:	16-Nov-20 10:02				
Location:	Drinking Water											
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
PFBS	375-73-5	1.49	0.766	1.53	2.04	J	B0K0142	17-Nov-20	0.245 L	18-Nov-20 22:28	1	
PFHxA	307-24-4	0.832	0.766	1.53	2.04	J	B0K0142	17-Nov-20	0.245 L	18-Nov-20 22:28	1	
HFPO-DA	13252-13-6	ND	0.766	1.53	2.04		B0K0142	17-Nov-20	0.245 L	18-Nov-20 22:28	1	
PFHpA	375-85-9	ND	0.766	1.53	2.04		B0K0142	17-Nov-20	0.245 L	18-Nov-20 22:28	1	
ADONA	919005-14-4	ND	0.766	1.53	2.04		B0K0142	17-Nov-20	0.245 L	18-Nov-20 22:28	1	
PFHxS	355-46-4	ND	0.766	1.53	2.04		B0K0142	17-Nov-20	0.245 L	18-Nov-20 22:28	1	
PFOA	335-67-1	2.35	0.766	1.53	2.04		B0K0142	17-Nov-20	0.245 L	18-Nov-20 22:28	1	
PFNA	375-95-1	ND	0.766	1.53	2.04		B0K0142	17-Nov-20	0.245 L	18-Nov-20 22:28	1	
PFOS	1763-23-1	1.72	0.766	1.53	2.04	J	B0K0142	17-Nov-20	0.245 L	18-Nov-20 22:28	1	
9CI-PF3ONS	756426-58-1	ND	0.766	1.53	2.04		B0K0142	17-Nov-20	0.245 L	18-Nov-20 22:28	1	
PFDA	335-76-2	ND	0.766	1.53	2.04		B0K0142	17-Nov-20	0.245 L	18-Nov-20 22:28	1	
MeFOSAA	2355-31-9	ND	0.766	1.53	2.04		B0K0142	17-Nov-20	0.245 L	18-Nov-20 22:28	1	
EtFOSAA	2991-50-6	ND	0.766	1.53	2.04		B0K0142	17-Nov-20	0.245 L	18-Nov-20 22:28	1	
PFUnA	2058-94-8	ND	0.766	1.53	2.04		B0K0142	17-Nov-20	0.245 L	18-Nov-20 22:28	1	
PFDoA	307-55-1	ND	0.766	1.53	2.04		B0K0142	17-Nov-20	0.245 L	18-Nov-20 22:28	1	
PFTTrDA	72629-94-8	ND	0.766	1.53	2.04		B0K0142	17-Nov-20	0.245 L	18-Nov-20 22:28	1	
11CI-PF3OUdS	763051-92-9	ND	0.766	1.53	2.04		B0K0142	17-Nov-20	0.245 L	18-Nov-20 22:28	1	
PFTeDA	376-06-7	ND	0.766	1.53	2.04		B0K0142	17-Nov-20	0.245 L	18-Nov-20 22:28	1	
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution		
13C2-PFHxA	SURR	113	70 - 130			B0K0142	17-Nov-20	0.245 L	18-Nov-20 22:28	1		
13C2-PFDA	SURR	103	70 - 130			B0K0142	17-Nov-20	0.245 L	18-Nov-20 22:28	1		
d5-EtFOSAA	SURR	90.0	70 - 130			B0K0142	17-Nov-20	0.245 L	18-Nov-20 22:28	1		
13C3-HFPO-DA	SURR	119	70 - 130			B0K0142	17-Nov-20	0.245 L	18-Nov-20 22:28	1		

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW 12/18/20

Sample ID: WI-AF-1FB12-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002511-14	Column:	BEH C18
Project:	9000NVT8	Date Collected:	10-Nov-20 16:10	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:39	1
PFHxA	307-24-4	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:39	1
HFPO-DA	13252-13-6	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:39	1
PFHpA	375-85-9	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:39	1
ADONA	919005-14-4	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:39	1
PFHxS	355-46-4	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:39	1
PFOA	335-67-1	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:39	1
PFNA	375-95-1	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:39	1
PFOS	1763-23-1	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:39	1
9CI-PF3ONS	756426-58-1	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:39	1
PFDA	335-76-2	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:39	1
MeFOSAA	2355-31-9	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:39	1
EtFOSAA	2991-50-6	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:39	1
PFUnA	2058-94-8	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:39	1
PFDoA	307-55-1	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:39	1
PFTrDA	72629-94-8	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:39	1
11CI-PF3OUdS	763051-92-9	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:39	1
PFTeDA	376-06-7	ND	0.739	1.48	1.97		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:39	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	108	70 - 130		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:39	1
13C2-PFDA	SURR	101	70 - 130		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:39	1
d5-EtFOSAA	SURR	87.3	70 - 130		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:39	1
13C3-HFPO-DA	SURR	114	70 - 130		B0K0142	17-Nov-20	0.254 L	18-Nov-20 22:39	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Nov 12/18/20

**DATA VALIDATION SUMMARY REPORT
NAS WHIDBEY ISLAND, WASHINGTON**

Client: CH2M HILL, Inc., Corvallis, Oregon
 SDG: 2002512
 Laboratory: Vista Analytical Laboratory, El Dorado Hills, California
 Site: NAS Whidbey Island, Residential Wells, CTO-4384, Washington
 Date: December 18, 2020

PFAS			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	WI-AF-1RW32-1120	2002512-01	Water
2	WI-AF-1FB32-1120	2002512-02	Water
3	WI-AF-1RW40-1120	2002512-03	Water
4	WI-AF-1FB40-1120	2002512-04	Water
5	WI-AF-1RW33-1120	2002512-05	Water
6	WI-AF-1FB33-1120	2002512-06	Water
7	WI-A06-RW19-1120	2002512-07	Water
8	WI-A06-FB19-1120	2002512-08	Water
9	WI-AF-3RW41-1120	2002512-09	Water
10	WI-AF-3RW41P-1120	2002512-10	Water
11	WI-AF-3FB41-1120	2002512-11	Water
12	WI-AF-1RW68-1120	2002512-12	Water
13	WI-AF-1FB68-1120	2002512-13	Water
14	WI-A06-RW24-1120	2002512-14	Water
15	WI-A06-FB24-1120	2002512-15	Water

A full data validation was performed on the analytical data for eight water samples and seven aqueous field blank samples collected on November 10, 2020 by CH2M Hill at the NAS Whidbey Island site in Washington. The samples were analyzed under the EPA Method “Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)”.

Specific method references are as follows:

Analysis
PFAS

Method References
USEPA Method 537.1

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, DoD Final General Data Validation Guidelines, November 2019, and the USEPA Data Review and Validation Guidelines as follows:

- The USEPA “Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537,” November 2018;

- and the reviewer's professional judgment.

The following data quality indicators were reviewed for this report:

Organics

- Date Completeness, Case Narrative & Custody Documentation
- Holding times
- Liquid Chromatography/Mass Spectrometry (LC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field QC blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

A full (Stage 2B/4) data validation was performed with this review including a recalculation of 100% of the detected results in the samples.

Data Usability Assessment

There were no serious deficiencies of data.

The data are acceptable for the intended purposes as qualified for the deficiencies detailed in this report.

Please note that any results qualified (U) due to blank contamination may be then qualified (J) due to another action. Therefore, the results may be qualified (UJ) due to the culmination of the blank contaminations and actions from other exceedances of QC criteria.

Perfluorinated Alkyl Substances (PFAS)

Data Completeness, Case Narrative & Custody Documentation

- The case narrative and chain-of-custody documentation were included in the data package as required. All criteria were met.

Holding Times

- All samples were extracted within 14 days for water samples and analyzed within 28 days.

LC/MS Tuning

- All criteria were met.

Initial Calibration

- All relative standard deviation (%RSD) and/or correlation coefficients criteria were met.

Continuing Calibration

- All percent difference (%D) and RRF criteria were met.

Method Blank

- The method blanks were free of contamination.

Field QC Blank

- Field QC sample results are summarized in the table below.

Blank ID	Compound	Conc. ng/L	Qualifier	Affected Samples
WI-AF-1FB32-1120	None - ND	-	-	-
WI-AF-1FB40-1120	None - ND	-	-	-
WI-AF-1FB33-1120	None - ND	-	-	-
WI-A06-FB19-1120	None - ND	-	-	-
WI-AF-3FB41-1120	None - ND	-	-	-
WI-AF-1FB68-1120	None - ND	-	-	-
WI-A06-FB24-1120	None - ND	-	-	-

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- MS/MSD samples were not analyzed.

Laboratory Control Samples (LCS)

- The LCS samples exhibited acceptable percent recoveries (%R).

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- EDS Sample 1 exhibited a high concentration of PFOS over the calibration range of the instrument and was flagged (E) by the laboratory. Since the PFOS was already run at a 50X dilution, the sample was not further diluted because the internal standard would be compromised. The reviewer qualified the PFOS result as estimated (J) in this sample.

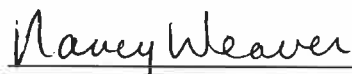
Field Duplicate Sample Precision

- Field duplicate samples are summarized below. The precision was acceptable.

Compound	WI-AF-3RW41-1120 ng/L	WI-AF-3RW41P-1120 ng/L	RPD	Qualifier
PFBS	50.5	49.4	2%	None
PFHxA	16.0	14.9	7%	
PFHpA	2.86	2.89	1%	
PFHxS	45.2	43.3	4%	
PFOA	4.39	3.91	12%	
PFOS	14.1	12.3	14%	

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed:



Nancy Weaver
Senior Chemist

Dated: 12/21/20

Qualifier	Definition
U	The analyte was not detected and was reported as less than the LOD or as defined by the customer. The LOD has been adjusted for any dilution or concentration of the sample.
J	The reported result was an estimated value with an unknown bias.
J+	The result was an estimated quantity, but the result may be biased high.
J-	The result was an estimated quantity, but the result may be biased low.
N	The analysis indicates the presence of an analyte for which there was presumptive evidence to make a "tentative identification."
NJ	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value was the estimated concentration in the sample.
UJ	The analyte was not detected and was reported as less than the LOD or as defined by the customer. However, the associated numerical value is approximate.
X	The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

Sample ID: WI-AF-1RW32-1120

EPA Method 537.1

Client Data					Laboratory Data				
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2002512-01	Column:	BEH C18	
Project:	9000NVT8	Date Collected:	10-Nov-20 07:55		Date Received:	16-Nov-20 10:02			
Location:	Drinking Water								

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
PFBS	375-73-5	1580	39.5	79.1	105	D	B0K0143	17-Nov-20	0.237 L	19-Nov-20 17:08	50	
PFHxA	307-24-4	1010	39.5	79.1	105	D	B0K0143	17-Nov-20	0.237 L	19-Nov-20 17:08	50	
HFPO-DA	13252-13-6	ND	0.790	1.58	2.11		B0K0143	17-Nov-20	0.237 L	18-Nov-20 16:08	1	
PFHpA	375-85-9	94.2	0.790	1.58	2.11		B0K0143	17-Nov-20	0.237 L	18-Nov-20 16:08	1	
ADONA	919005-14-4	ND	0.790	1.58	2.11		B0K0143	17-Nov-20	0.237 L	18-Nov-20 16:08	1	
PFHxS	355-46-4	13000	39.5	79.1	105	D	B0K0143	17-Nov-20	0.237 L	19-Nov-20 17:08	50	
PFOA	335-67-1	289	0.790	1.58	2.11		B0K0143	17-Nov-20	0.237 L	18-Nov-20 16:08	1	
PFNA	375-95-1	2.08	0.790	1.58	2.11	J	B0K0143	17-Nov-20	0.237 L	18-Nov-20 16:08	1	
PFOS	1763-23-1	43100	J	39.5	79.1	105	D, E	B0K0143	17-Nov-20	0.237 L	19-Nov-20 17:08	50
9CI-PF3ONS	756426-58-1	ND	0.790	1.58	2.11		B0K0143	17-Nov-20	0.237 L	18-Nov-20 16:08	1	
PFDA	335-76-2	1.01	0.790	1.58	2.11	J	B0K0143	17-Nov-20	0.237 L	18-Nov-20 16:08	1	
MeFOSAA	2355-31-9	ND	0.790	1.58	2.11		B0K0143	17-Nov-20	0.237 L	18-Nov-20 16:08	1	
EtFOSAA	2991-50-6	ND	0.790	1.58	2.11		B0K0143	17-Nov-20	0.237 L	18-Nov-20 16:08	1	
PFUnA	2058-94-8	ND	0.790	1.58	2.11		B0K0143	17-Nov-20	0.237 L	18-Nov-20 16:08	1	
PFDaA	307-55-1	ND	0.790	1.58	2.11		B0K0143	17-Nov-20	0.237 L	18-Nov-20 16:08	1	
PFTTrDA	72629-94-8	ND	0.790	1.58	2.11		B0K0143	17-Nov-20	0.237 L	18-Nov-20 16:08	1	
11CI-PF3OUdS	763051-92-9	ND	0.790	1.58	2.11		B0K0143	17-Nov-20	0.237 L	18-Nov-20 16:08	1	
PFTeDA	376-06-7	ND	0.790	1.58	2.11		B0K0143	17-Nov-20	0.237 L	18-Nov-20 16:08	1	

LR

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	113	70 - 130		B0K0143	17-Nov-20	0.237 L	18-Nov-20 16:08	1
13C2-PFDA	SURR	104	70 - 130		B0K0143	17-Nov-20	0.237 L	18-Nov-20 16:08	1
d5-EtFOSAA	SURR	84.6	70 - 130		B0K0143	17-Nov-20	0.237 L	18-Nov-20 16:08	1
13C3-HFPO-DA	SURR	122	70 - 130		B0K0143	17-Nov-20	0.237 L	18-Nov-20 16:08	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 12/8/20

Sample ID: WI-AF-1FB32-1120 **EPA Method 537.1**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002512-02	Column:	BEH C18
Project:	9000NVT8	Date Collected:	10-Nov-20 07:55	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.727	1.45	1.94		B0K0143	17-Nov-20	0.258 L	18-Nov-20 16:19	1
PFHxA	307-24-4	ND	0.727	1.45	1.94		B0K0143	17-Nov-20	0.258 L	18-Nov-20 16:19	1
HFPO-DA	13252-13-6	ND	0.727	1.45	1.94		B0K0143	17-Nov-20	0.258 L	18-Nov-20 16:19	1
PFHpA	375-85-9	ND	0.727	1.45	1.94		B0K0143	17-Nov-20	0.258 L	18-Nov-20 16:19	1
ADONA	919005-14-4	ND	0.727	1.45	1.94		B0K0143	17-Nov-20	0.258 L	18-Nov-20 16:19	1
PFHxS	355-46-4	ND	0.727	1.45	1.94		B0K0143	17-Nov-20	0.258 L	18-Nov-20 16:19	1
PFOA	335-67-1	ND	0.727	1.45	1.94		B0K0143	17-Nov-20	0.258 L	18-Nov-20 16:19	1
PFNA	375-95-1	ND	0.727	1.45	1.94		B0K0143	17-Nov-20	0.258 L	18-Nov-20 16:19	1
PFOS	1763-23-1	ND	0.727	1.45	1.94		B0K0143	17-Nov-20	0.258 L	18-Nov-20 16:19	1
9CI-PF3ONS	756426-58-1	ND	0.727	1.45	1.94		B0K0143	17-Nov-20	0.258 L	18-Nov-20 16:19	1
PFDA	335-76-2	ND	0.727	1.45	1.94		B0K0143	17-Nov-20	0.258 L	18-Nov-20 16:19	1
MeFOSAA	2355-31-9	ND	0.727	1.45	1.94		B0K0143	17-Nov-20	0.258 L	18-Nov-20 16:19	1
EtFOSAA	2991-50-6	ND	0.727	1.45	1.94		B0K0143	17-Nov-20	0.258 L	18-Nov-20 16:19	1
PFUnA	2058-94-8	ND	0.727	1.45	1.94		B0K0143	17-Nov-20	0.258 L	18-Nov-20 16:19	1
PFDoA	307-55-1	ND	0.727	1.45	1.94		B0K0143	17-Nov-20	0.258 L	18-Nov-20 16:19	1
PFTTrDA	72629-94-8	ND	0.727	1.45	1.94		B0K0143	17-Nov-20	0.258 L	18-Nov-20 16:19	1
11CI-PF3OUdS	763051-92-9	ND	0.727	1.45	1.94		B0K0143	17-Nov-20	0.258 L	18-Nov-20 16:19	1
PFTeDA	376-06-7	ND	0.727	1.45	1.94		B0K0143	17-Nov-20	0.258 L	18-Nov-20 16:19	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	116	70 - 130		B0K0143	17-Nov-20	0.258 L	18-Nov-20 16:19	1
13C2-PFDA	SURR	106	70 - 130		B0K0143	17-Nov-20	0.258 L	18-Nov-20 16:19	1
d5-EtFOSAA	SURR	92.2	70 - 130		B0K0143	17-Nov-20	0.258 L	18-Nov-20 16:19	1
13C3-HFPO-DA	SURR	125	70 - 130		B0K0143	17-Nov-20	0.258 L	18-Nov-20 16:19	1

DL - Detection Limit LOD - Limit of Detection Results reported to the DL. When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

LOQ - Limit of quantitation

nw 12/18/20

Sample ID: WI-AF-1RW40-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002512-03	Column:	BEH C18
Project:	9000NVT8	Date Collected:	10-Nov-20 09:10	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	1.60	0.757	1.51	2.02	J	B0K0143	17-Nov-20	0.248 L	18-Nov-20 16:30	1
PFHxA	307-24-4	2.23	0.757	1.51	2.02		B0K0143	17-Nov-20	0.248 L	18-Nov-20 16:30	1
HFPO-DA	13252-13-6	ND	0.757	1.51	2.02		B0K0143	17-Nov-20	0.248 L	18-Nov-20 16:30	1
PFHpA	375-85-9	0.758	0.757	1.51	2.02	J	B0K0143	17-Nov-20	0.248 L	18-Nov-20 16:30	1
ADONA	919005-14-4	ND	0.757	1.51	2.02		B0K0143	17-Nov-20	0.248 L	18-Nov-20 16:30	1
PFHxS	355-46-4	6.00	0.757	1.51	2.02		B0K0143	17-Nov-20	0.248 L	18-Nov-20 16:30	1
PFOA	335-67-1	5.57	0.757	1.51	2.02		B0K0143	17-Nov-20	0.248 L	18-Nov-20 16:30	1
PFNA	375-95-1	ND	0.757	1.51	2.02		B0K0143	17-Nov-20	0.248 L	18-Nov-20 16:30	1
PFOS	1763-23-1	3.78	0.757	1.51	2.02		B0K0143	17-Nov-20	0.248 L	18-Nov-20 16:30	1
9CI-PF3ONS	756426-58-1	ND	0.757	1.51	2.02		B0K0143	17-Nov-20	0.248 L	18-Nov-20 16:30	1
PFDA	335-76-2	ND	0.757	1.51	2.02		B0K0143	17-Nov-20	0.248 L	18-Nov-20 16:30	1
MeFOSAA	2355-31-9	ND	0.757	1.51	2.02		B0K0143	17-Nov-20	0.248 L	18-Nov-20 16:30	1
EtFOSAA	2991-50-6	ND	0.757	1.51	2.02		B0K0143	17-Nov-20	0.248 L	18-Nov-20 16:30	1
PFUnA	2058-94-8	ND	0.757	1.51	2.02		B0K0143	17-Nov-20	0.248 L	18-Nov-20 16:30	1
PFDoA	307-55-1	ND	0.757	1.51	2.02		B0K0143	17-Nov-20	0.248 L	18-Nov-20 16:30	1
PFTTrDA	72629-94-8	ND	0.757	1.51	2.02		B0K0143	17-Nov-20	0.248 L	18-Nov-20 16:30	1
11CI-PF3OUdS	763051-92-9	ND	0.757	1.51	2.02		B0K0143	17-Nov-20	0.248 L	18-Nov-20 16:30	1
PFTeDA	376-06-7	ND	0.757	1.51	2.02		B0K0143	17-Nov-20	0.248 L	18-Nov-20 16:30	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	117	70 - 130			B0K0143	17-Nov-20	0.248 L	18-Nov-20 16:30	1	
13C2-PFDA	SURR	106	70 - 130			B0K0143	17-Nov-20	0.248 L	18-Nov-20 16:30	1	
d5-EtFOSAA	SURR	85.2	70 - 130			B0K0143	17-Nov-20	0.248 L	18-Nov-20 16:30	1	
13C3-HFPO-DA	SURR	125	70 - 130			B0K0143	17-Nov-20	0.248 L	18-Nov-20 16:30	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

new 12/18/20

Sample ID: WI-AF-1FB40-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002512-04	Column:	BEH C18
Project:	9000NVT8	Date Collected:	10-Nov-20 09:10	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.748	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 16:41	1
PFHxA	307-24-4	ND	0.748	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 16:41	1
HFPO-DA	13252-13-6	ND	0.748	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 16:41	1
PFHpA	375-85-9	ND	0.748	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 16:41	1
ADONA	919005-14-4	ND	0.748	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 16:41	1
PFHxS	355-46-4	ND	0.748	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 16:41	1
PFOA	335-67-1	ND	0.748	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 16:41	1
PFNA	375-95-1	ND	0.748	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 16:41	1
PFOS	1763-23-1	ND	0.748	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 16:41	1
9CI-PF3ONS	756426-58-1	ND	0.748	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 16:41	1
PFDA	335-76-2	ND	0.748	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 16:41	1
MeFOSAA	2355-31-9	ND	0.748	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 16:41	1
EtFOSAA	2991-50-6	ND	0.748	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 16:41	1
PFUnA	2058-94-8	ND	0.748	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 16:41	1
PFDoA	307-55-1	ND	0.748	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 16:41	1
PFTTrDA	72629-94-8	ND	0.748	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 16:41	1
11CI-PF3OUdS	763051-92-9	ND	0.748	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 16:41	1
PFTeDA	376-06-7	ND	0.748	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 16:41	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	112	70 - 130		B0K0143	17-Nov-20	0.251 L	18-Nov-20 16:41	1
13C2-PFDA	SURR	104	70 - 130		B0K0143	17-Nov-20	0.251 L	18-Nov-20 16:41	1
d5-EtFOSAA	SURR	95.0	70 - 130		B0K0143	17-Nov-20	0.251 L	18-Nov-20 16:41	1
13C3-HFPO-DA	SURR	119	70 - 130		B0K0143	17-Nov-20	0.251 L	18-Nov-20 16:41	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

11/21/20

Sample ID: WI-AF-1RW33-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002512-05	Column:	BEH C18
Project:	9000NVT8	Date Collected:	10-Nov-20 10:10	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	63.7	0.732	1.46	1.95		B0K0143	17-Nov-20	0.256 L	18-Nov-20 16:52	1
PFHxA	307-24-4	81.4	0.732	1.46	1.95		B0K0143	17-Nov-20	0.256 L	18-Nov-20 16:52	1
HFPO-DA	13252-13-6	ND	0.732	1.46	1.95		B0K0143	17-Nov-20	0.256 L	18-Nov-20 16:52	1
PFHpA	375-85-9	1.72	0.732	1.46	1.95	J	B0K0143	17-Nov-20	0.256 L	18-Nov-20 16:52	1
ADONA	919005-14-4	ND	0.732	1.46	1.95		B0K0143	17-Nov-20	0.256 L	18-Nov-20 16:52	1
PFHxS	355-46-4	6.20	0.732	1.46	1.95		B0K0143	17-Nov-20	0.256 L	18-Nov-20 16:52	1
PFOA	335-67-1	ND	0.732	1.46	1.95		B0K0143	17-Nov-20	0.256 L	18-Nov-20 16:52	1
PFNA	375-95-1	ND	0.732	1.46	1.95		B0K0143	17-Nov-20	0.256 L	18-Nov-20 16:52	1
PFOS	1763-23-1	ND	0.732	1.46	1.95		B0K0143	17-Nov-20	0.256 L	18-Nov-20 16:52	1
9CI-PF3ONS	756426-58-1	ND	0.732	1.46	1.95		B0K0143	17-Nov-20	0.256 L	18-Nov-20 16:52	1
PFDA	335-76-2	ND	0.732	1.46	1.95		B0K0143	17-Nov-20	0.256 L	18-Nov-20 16:52	1
MeFOSAA	2355-31-9	ND	0.732	1.46	1.95		B0K0143	17-Nov-20	0.256 L	18-Nov-20 16:52	1
EtFOSAA	2991-50-6	ND	0.732	1.46	1.95		B0K0143	17-Nov-20	0.256 L	18-Nov-20 16:52	1
PFUnA	2058-94-8	ND	0.732	1.46	1.95		B0K0143	17-Nov-20	0.256 L	18-Nov-20 16:52	1
PFDoA	307-55-1	ND	0.732	1.46	1.95		B0K0143	17-Nov-20	0.256 L	18-Nov-20 16:52	1
PFTTrDA	72629-94-8	ND	0.732	1.46	1.95		B0K0143	17-Nov-20	0.256 L	18-Nov-20 16:52	1
11CI-PF3OUdS	763051-92-9	ND	0.732	1.46	1.95		B0K0143	17-Nov-20	0.256 L	18-Nov-20 16:52	1
PFTeDA	376-06-7	ND	0.732	1.46	1.95		B0K0143	17-Nov-20	0.256 L	18-Nov-20 16:52	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	116	70 - 130		B0K0143	17-Nov-20	0.256 L	18-Nov-20 16:52	1
13C2-PFDA	SURR	103	70 - 130		B0K0143	17-Nov-20	0.256 L	18-Nov-20 16:52	1
d5-EtFOSAA	SURR	84.4	70 - 130		B0K0143	17-Nov-20	0.256 L	18-Nov-20 16:52	1
13C3-HFPO-DA	SURR	125	70 - 130		B0K0143	17-Nov-20	0.256 L	18-Nov-20 16:52	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL,

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

11/12/18/20

Sample ID: WI-AF-1FB33-1120
EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002512-06	Column:	BEH C18
Project:	9000NVT8	Date Collected:	10-Nov-20 10:10	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.724	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 17:03	1
PFHxA	307-24-4	ND	0.724	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 17:03	1
HFPO-DA	13252-13-6	ND	0.724	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 17:03	1
PFHpA	375-85-9	ND	0.724	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 17:03	1
ADONA	919005-14-4	ND	0.724	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 17:03	1
PFHxS	355-46-4	ND	0.724	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 17:03	1
PFOA	335-67-1	ND	0.724	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 17:03	1
PFNA	375-95-1	ND	0.724	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 17:03	1
PFOS	1763-23-1	ND	0.724	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 17:03	1
9Cl-PF3ONS	756426-58-1	ND	0.724	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 17:03	1
PFDA	335-76-2	ND	0.724	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 17:03	1
MeFOSAA	2355-31-9	ND	0.724	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 17:03	1
EtFOSAA	2991-50-6	ND	0.724	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 17:03	1
PFUnA	2058-94-8	ND	0.724	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 17:03	1
PFDoA	307-55-1	ND	0.724	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 17:03	1
PFTTrDA	72629-94-8	ND	0.724	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 17:03	1
11Cl-PF3OUdS	763051-92-9	ND	0.724	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 17:03	1
PFTeDA	376-06-7	ND	0.724	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 17:03	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	115	70 - 130		B0K0143	17-Nov-20	0.259 L	18-Nov-20 17:03	1
13C2-PFDA	SURR	109	70 - 130		B0K0143	17-Nov-20	0.259 L	18-Nov-20 17:03	1
d5-EtFOSAA	SURR	90.4	70 - 130		B0K0143	17-Nov-20	0.259 L	18-Nov-20 17:03	1
13C3-HFPO-DA	SURR	122	70 - 130		B0K0143	17-Nov-20	0.259 L	18-Nov-20 17:03	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

WI 2/18/20

Sample ID: WI-A06-RW19-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002512-07	Column:	BEH C18
Project:	9000NVT8	Date Collected:	10-Nov-20 11:10	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	55.3	0.746	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:18	1
PFHxA	307-24-4	69.7	0.746	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:18	1
HFPO-DA	13252-13-6	ND	0.746	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:18	1
PFHpA	375-85-9	32.1	0.746	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:18	1
ADONA	919005-14-4	ND	0.746	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:18	1
PFHxS	355-46-4	211	0.746	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:18	1
PFOA	335-67-1	46.5	0.746	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:18	1
PFNA	375-95-1	2.76	0.746	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:18	1
PFOS	1763-23-1	89.3	0.746	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:18	1
9CI-PF3ONS	756426-58-1	ND	0.746	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:18	1
PFDA	335-76-2	ND	0.746	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:18	1
MeFOSAA	2355-31-9	ND	0.746	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:18	1
EtFOSAA	2991-50-6	ND	0.746	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:18	1
PFUnA	2058-94-8	ND	0.746	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:18	1
PFDaA	307-55-1	ND	0.746	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:18	1
PFTTrDA	72629-94-8	ND	0.746	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:18	1
11CI-PF3OUdS	763051-92-9	ND	0.746	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:18	1
PFTeDA	376-06-7	ND	0.746	1.49	1.99		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:18	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	114	70 - 130		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:18	1
13C2-PFDA	SURR	106	70 - 130		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:18	1
d5-EtFOSAA	SURR	90.0	70 - 130		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:18	1
13C3-HFPO-DA	SURR	116	70 - 130		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:18	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

RW. 2/18/20

Sample ID: WI-A06-FB19-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002512-08	Column:	BEH C18
Project:	9000NVT8	Date Collected:	10-Nov-20 11:10	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.748	1.49	2.00		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:29	1
PFHxA	307-24-4	ND	0.748	1.49	2.00		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:29	1
HFPO-DA	13252-13-6	ND	0.748	1.49	2.00		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:29	1
PFHpA	375-85-9	ND	0.748	1.49	2.00		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:29	1
ADONA	919005-14-4	ND	0.748	1.49	2.00		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:29	1
PFHxS	355-46-4	ND	0.748	1.49	2.00		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:29	1
PFOA	335-67-1	ND	0.748	1.49	2.00		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:29	1
PFNA	375-95-1	ND	0.748	1.49	2.00		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:29	1
PFOS	1763-23-1	ND	0.748	1.49	2.00		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:29	1
9CI-PF3ONS	756426-58-1	ND	0.748	1.49	2.00		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:29	1
PFDA	335-76-2	ND	0.748	1.49	2.00		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:29	1
MeFOSAA	2355-31-9	ND	0.748	1.49	2.00		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:29	1
EtFOSAA	2991-50-6	ND	0.748	1.49	2.00		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:29	1
PFUnA	2058-94-8	ND	0.748	1.49	2.00		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:29	1
PFDoA	307-55-1	ND	0.748	1.49	2.00		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:29	1
PFTTrDA	72629-94-8	ND	0.748	1.49	2.00		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:29	1
11CI-PF3OUdS	763051-92-9	ND	0.748	1.49	2.00		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:29	1
PFTeDA	376-06-7	ND	0.748	1.49	2.00		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:29	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	109	70 - 130		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:29	1
13C2-PFDA	SURR	101	70 - 130		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:29	1
d5-EtFOSAA	SURR	86.3	70 - 130		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:29	1
13C3-HFPO-DA	SURR	112	70 - 130		B0K0143	17-Nov-20	0.251 L	18-Nov-20 17:29	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

mw 12/18/20

Sample ID: WI-AF-3RW41-1120

EPA Method 537.1

Client Data					Laboratory Data				
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2002512-09	Column:	BEH C18	
Project:	9000NVT8	Date Collected:	10-Nov-20 13:05		Date Received:	16-Nov-20 10:02			
Location:	Drinking Water								

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	50.5	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 17:40	1
PFHxA	307-24-4	16.0	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 17:40	1
HFPO-DA	13252-13-6	ND	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 17:40	1
PFHpA	375-85-9	2.86	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 17:40	1
ADONA	919005-14-4	ND	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 17:40	1
PFHxS	355-46-4	45.2	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 17:40	1
PFOA	335-67-1	4.39	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 17:40	1
PFNA	375-95-1	ND	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 17:40	1
PFOS	1763-23-1	14.1	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 17:40	1
9CI-PF3ONS	756426-58-1	ND	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 17:40	1
PFDA	335-76-2	ND	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 17:40	1
MeFOSAA	2355-31-9	ND	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 17:40	1
EtFOSAA	2991-50-6	ND	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 17:40	1
PFUnA	2058-94-8	ND	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 17:40	1
PFDoA	307-55-1	ND	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 17:40	1
PFTTrDA	72629-94-8	ND	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 17:40	1
11CI-PF3OUdS	763051-92-9	ND	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 17:40	1
PFTeDA	376-06-7	ND	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 17:40	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	116	70 - 130		B0K0143	17-Nov-20	0.248 L	18-Nov-20 17:40	1
13C2-PFDA	SURR	100	70 - 130		B0K0143	17-Nov-20	0.248 L	18-Nov-20 17:40	1
d5-EtFOSAA	SURR	86.0	70 - 130		B0K0143	17-Nov-20	0.248 L	18-Nov-20 17:40	1
13C3-HFPO-DA	SURR	121	70 - 130		B0K0143	17-Nov-20	0.248 L	18-Nov-20 17:40	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

MW 12/18/20

Sample ID: WI-AF-3RW41P-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002512-10	Column:	BEH C18
Project:	9000NVT8	Date Collected:	10-Nov-20 13:10	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	49.4	0.763	1.52	2.03		B0K0143	17-Nov-20	0.246 L	18-Nov-20 17:51	1
PFHxA	307-24-4	14.9	0.763	1.52	2.03		B0K0143	17-Nov-20	0.246 L	18-Nov-20 17:51	1
HFPO-DA	13252-13-6	ND	0.763	1.52	2.03		B0K0143	17-Nov-20	0.246 L	18-Nov-20 17:51	1
PFHpA	375-85-9	2.89	0.763	1.52	2.03		B0K0143	17-Nov-20	0.246 L	18-Nov-20 17:51	1
ADONA	919005-14-4	ND	0.763	1.52	2.03		B0K0143	17-Nov-20	0.246 L	18-Nov-20 17:51	1
PFHxS	355-46-4	43.3	0.763	1.52	2.03		B0K0143	17-Nov-20	0.246 L	18-Nov-20 17:51	1
PFOA	335-67-1	3.91	0.763	1.52	2.03		B0K0143	17-Nov-20	0.246 L	18-Nov-20 17:51	1
PFNA	375-95-1	ND	0.763	1.52	2.03		B0K0143	17-Nov-20	0.246 L	18-Nov-20 17:51	1
PFOS	1763-23-1	12.3	0.763	1.52	2.03		B0K0143	17-Nov-20	0.246 L	18-Nov-20 17:51	1
9CI-PF3ONS	756426-58-1	ND	0.763	1.52	2.03		B0K0143	17-Nov-20	0.246 L	18-Nov-20 17:51	1
PFDA	335-76-2	ND	0.763	1.52	2.03		B0K0143	17-Nov-20	0.246 L	18-Nov-20 17:51	1
MeFOSAA	2355-31-9	ND	0.763	1.52	2.03		B0K0143	17-Nov-20	0.246 L	18-Nov-20 17:51	1
EtFOSAA	2991-50-6	ND	0.763	1.52	2.03		B0K0143	17-Nov-20	0.246 L	18-Nov-20 17:51	1
PFUnA	2058-94-8	ND	0.763	1.52	2.03		B0K0143	17-Nov-20	0.246 L	18-Nov-20 17:51	1
PFDoA	307-55-1	ND	0.763	1.52	2.03		B0K0143	17-Nov-20	0.246 L	18-Nov-20 17:51	1
PFTTrDA	72629-94-8	ND	0.763	1.52	2.03		B0K0143	17-Nov-20	0.246 L	18-Nov-20 17:51	1
11CI-PF3OUdS	763051-92-9	ND	0.763	1.52	2.03		B0K0143	17-Nov-20	0.246 L	18-Nov-20 17:51	1
PFTeDA	376-06-7	ND	0.763	1.52	2.03		B0K0143	17-Nov-20	0.246 L	18-Nov-20 17:51	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	114	70 - 130		B0K0143	17-Nov-20	0.246 L	18-Nov-20 17:51	1
13C2-PFDA	SURR	103	70 - 130		B0K0143	17-Nov-20	0.246 L	18-Nov-20 17:51	1
d5-EtFOSAA	SURR	86.3	70 - 130		B0K0143	17-Nov-20	0.246 L	18-Nov-20 17:51	1
13C3-HFPO-DA	SURR	120	70 - 130		B0K0143	17-Nov-20	0.246 L	18-Nov-20 17:51	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

11/21/20

Sample ID: WI-AF-3FB41-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002512-11	Column:	BEH C18
Project:	9000NVT8	Date Collected:	10-Nov-20 13:05	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.723	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 18:02	1
PFHxA	307-24-4	ND	0.723	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 18:02	1
HFPO-DA	13252-13-6	ND	0.723	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 18:02	1
PFHpA	375-85-9	ND	0.723	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 18:02	1
ADONA	919005-14-4	ND	0.723	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 18:02	1
PFHxS	355-46-4	ND	0.723	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 18:02	1
PFOA	335-67-1	ND	0.723	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 18:02	1
PFNA	375-95-1	ND	0.723	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 18:02	1
PFOS	1763-23-1	ND	0.723	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 18:02	1
9CI-PF3ONS	756426-58-1	ND	0.723	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 18:02	1
PFDA	335-76-2	ND	0.723	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 18:02	1
MeFOSAA	2355-31-9	ND	0.723	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 18:02	1
EtFOSAA	2991-50-6	ND	0.723	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 18:02	1
PFUnA	2058-94-8	ND	0.723	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 18:02	1
PFDaA	307-55-1	ND	0.723	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 18:02	1
PFTTrDA	72629-94-8	ND	0.723	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 18:02	1
11CI-PF3OUdS	763051-92-9	ND	0.723	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 18:02	1
PFTeDA	376-06-7	ND	0.723	1.45	1.93		B0K0143	17-Nov-20	0.259 L	18-Nov-20 18:02	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	112	70 - 130		B0K0143	17-Nov-20	0.259 L	18-Nov-20 18:02	1
13C2-PFDA	SURR	103	70 - 130		B0K0143	17-Nov-20	0.259 L	18-Nov-20 18:02	1
d5-EtFOSAA	SURR	91.7	70 - 130		B0K0143	17-Nov-20	0.259 L	18-Nov-20 18:02	1
13C3-HFPO-DA	SURR	118	70 - 130		B0K0143	17-Nov-20	0.259 L	18-Nov-20 18:02	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

11/21/20

Sample ID: WI-AF-1RW68-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002512-12	Column:	BEH C18
Project:	9000NVT8	Date Collected:	10-Nov-20 14:10	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.751	1.50	2.00		B0K0143	17-Nov-20	0.250 L	18-Nov-20 18:13	1
PFHxA	307-24-4	ND	0.751	1.50	2.00		B0K0143	17-Nov-20	0.250 L	18-Nov-20 18:13	1
HFPO-DA	13252-13-6	ND	0.751	1.50	2.00		B0K0143	17-Nov-20	0.250 L	18-Nov-20 18:13	1
PFHpA	375-85-9	ND	0.751	1.50	2.00		B0K0143	17-Nov-20	0.250 L	18-Nov-20 18:13	1
ADONA	919005-14-4	ND	0.751	1.50	2.00		B0K0143	17-Nov-20	0.250 L	18-Nov-20 18:13	1
PFHxS	355-46-4	ND	0.751	1.50	2.00		B0K0143	17-Nov-20	0.250 L	18-Nov-20 18:13	1
PFOA	335-67-1	ND	0.751	1.50	2.00		B0K0143	17-Nov-20	0.250 L	18-Nov-20 18:13	1
PFNA	375-95-1	ND	0.751	1.50	2.00		B0K0143	17-Nov-20	0.250 L	18-Nov-20 18:13	1
PFOS	1763-23-1	ND	0.751	1.50	2.00		B0K0143	17-Nov-20	0.250 L	18-Nov-20 18:13	1
9CI-PF3ONS	756426-58-1	ND	0.751	1.50	2.00		B0K0143	17-Nov-20	0.250 L	18-Nov-20 18:13	1
PFDA	335-76-2	ND	0.751	1.50	2.00		B0K0143	17-Nov-20	0.250 L	18-Nov-20 18:13	1
MeFOSAA	2355-31-9	ND	0.751	1.50	2.00		B0K0143	17-Nov-20	0.250 L	18-Nov-20 18:13	1
EtFOSAA	2991-50-6	ND	0.751	1.50	2.00		B0K0143	17-Nov-20	0.250 L	18-Nov-20 18:13	1
PFOuA	2058-94-8	ND	0.751	1.50	2.00		B0K0143	17-Nov-20	0.250 L	18-Nov-20 18:13	1
PFDoA	307-55-1	ND	0.751	1.50	2.00		B0K0143	17-Nov-20	0.250 L	18-Nov-20 18:13	1
PFTTrDA	72629-94-8	ND	0.751	1.50	2.00		B0K0143	17-Nov-20	0.250 L	18-Nov-20 18:13	1
11CI-PF3OUdS	763051-92-9	ND	0.751	1.50	2.00		B0K0143	17-Nov-20	0.250 L	18-Nov-20 18:13	1
PFTeDA	376-06-7	ND	0.751	1.50	2.00		B0K0143	17-Nov-20	0.250 L	18-Nov-20 18:13	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	115	70 - 130		B0K0143	17-Nov-20	0.250 L	18-Nov-20 18:13	1
13C2-PFDA	SURR	99.2	70 - 130		B0K0143	17-Nov-20	0.250 L	18-Nov-20 18:13	1
d5-EtFOSAA	SURR	83.1	70 - 130		B0K0143	17-Nov-20	0.250 L	18-Nov-20 18:13	1
13C3-HFPO-DA	SURR	122	70 - 130		B0K0143	17-Nov-20	0.250 L	18-Nov-20 18:13	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

11/18/20

Sample ID: WI-AF-1FB68-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002512-13	Column:	BEH C18
Project:	9000NVT8	Date Collected:	10-Nov-20 14:10	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.741	1.48	1.98		B0K0143	17-Nov-20	0.253 L	18-Nov-20 18:24	1
PFHxA	307-24-4	ND	0.741	1.48	1.98		B0K0143	17-Nov-20	0.253 L	18-Nov-20 18:24	1
HFPO-DA	13252-13-6	ND	0.741	1.48	1.98		B0K0143	17-Nov-20	0.253 L	18-Nov-20 18:24	1
PFHpA	375-85-9	ND	0.741	1.48	1.98		B0K0143	17-Nov-20	0.253 L	18-Nov-20 18:24	1
ADONA	919005-14-4	ND	0.741	1.48	1.98		B0K0143	17-Nov-20	0.253 L	18-Nov-20 18:24	1
PFHxS	355-46-4	ND	0.741	1.48	1.98		B0K0143	17-Nov-20	0.253 L	18-Nov-20 18:24	1
PFOA	335-67-1	ND	0.741	1.48	1.98		B0K0143	17-Nov-20	0.253 L	18-Nov-20 18:24	1
PFNA	375-95-1	ND	0.741	1.48	1.98		B0K0143	17-Nov-20	0.253 L	18-Nov-20 18:24	1
PFOS	1763-23-1	ND	0.741	1.48	1.98		B0K0143	17-Nov-20	0.253 L	18-Nov-20 18:24	1
9Cl-PF3ONS	756426-58-1	ND	0.741	1.48	1.98		B0K0143	17-Nov-20	0.253 L	18-Nov-20 18:24	1
PFDA	335-76-2	ND	0.741	1.48	1.98		B0K0143	17-Nov-20	0.253 L	18-Nov-20 18:24	1
MeFOSAA	2355-31-9	ND	0.741	1.48	1.98		B0K0143	17-Nov-20	0.253 L	18-Nov-20 18:24	1
EtFOSAA	2991-50-6	ND	0.741	1.48	1.98		B0K0143	17-Nov-20	0.253 L	18-Nov-20 18:24	1
PFUnA	2058-94-8	ND	0.741	1.48	1.98		B0K0143	17-Nov-20	0.253 L	18-Nov-20 18:24	1
PFDoA	307-55-1	ND	0.741	1.48	1.98		B0K0143	17-Nov-20	0.253 L	18-Nov-20 18:24	1
PFTTrDA	72629-94-8	ND	0.741	1.48	1.98		B0K0143	17-Nov-20	0.253 L	18-Nov-20 18:24	1
11Cl-PF3OUdS	763051-92-9	ND	0.741	1.48	1.98		B0K0143	17-Nov-20	0.253 L	18-Nov-20 18:24	1
PFTeDA	376-06-7	ND	0.741	1.48	1.98		B0K0143	17-Nov-20	0.253 L	18-Nov-20 18:24	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	112	70 - 130		B0K0143	17-Nov-20	0.253 L	18-Nov-20 18:24	1
13C2-PFDA	SURR	101	70 - 130		B0K0143	17-Nov-20	0.253 L	18-Nov-20 18:24	1
d5-EtFOSAA	SURR	91.3	70 - 130		B0K0143	17-Nov-20	0.253 L	18-Nov-20 18:24	1
13C3-HFPO-DA	SURR	119	70 - 130		B0K0143	17-Nov-20	0.253 L	18-Nov-20 18:24	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

11/12/18/20

Sample ID: WI-A06-RW24-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002512-14	Column:	BEH C18
Project:	9000NVT8	Date Collected:	10-Nov-20 15:00	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	22.0	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 18:36	1
PFHxA	307-24-4	59.5	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 18:36	1
HFPO-DA	13252-13-6	ND	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 18:36	1
PFHpA	375-85-9	8.22	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 18:36	1
ADONA	919005-14-4	ND	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 18:36	1
PFHxS	355-46-4	367	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 18:36	1
PFOA	335-67-1	52.1	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 18:36	1
PFNA	375-95-1	ND	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 18:36	1
PFOS	1763-23-1	206	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 18:36	1
9CI-PF3ONS	756426-58-1	ND	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 18:36	1
PFDA	335-76-2	ND	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 18:36	1
MeFOSAA	2355-31-9	ND	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 18:36	1
EtFOSAA	2991-50-6	ND	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 18:36	1
PFUnA	2058-94-8	ND	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 18:36	1
PFDaA	307-55-1	ND	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 18:36	1
PFTTrDA	72629-94-8	ND	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 18:36	1
11CI-PF3OUdS	763051-92-9	ND	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 18:36	1
PFTeDA	376-06-7	ND	0.755	1.51	2.01		B0K0143	17-Nov-20	0.248 L	18-Nov-20 18:36	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	110	70 - 130		B0K0143	17-Nov-20	0.248 L	18-Nov-20 18:36	1
13C2-PFDA	SURR	98.5	70 - 130		B0K0143	17-Nov-20	0.248 L	18-Nov-20 18:36	1
d5-EtFOSAA	SURR	79.8	70 - 130		B0K0143	17-Nov-20	0.248 L	18-Nov-20 18:36	1
13C3-HFPO-DA	SURR	118	70 - 130		B0K0143	17-Nov-20	0.248 L	18-Nov-20 18:36	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

11/18/20

Sample ID: WI-A06-FB24-1120

EPA Method 537.1

Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2002512-15	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	10-Nov-20 15:00		Date Received:	16-Nov-20 10:02					
Location:	Drinking Water										

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.743	1.49	1.98		B0K0143	17-Nov-20	0.252 L	18-Nov-20 18:47	1
PFHxA	307-24-4	ND	0.743	1.49	1.98		B0K0143	17-Nov-20	0.252 L	18-Nov-20 18:47	1
HFPO-DA	13252-13-6	ND	0.743	1.49	1.98		B0K0143	17-Nov-20	0.252 L	18-Nov-20 18:47	1
PFHpA	375-85-9	ND	0.743	1.49	1.98		B0K0143	17-Nov-20	0.252 L	18-Nov-20 18:47	1
ADONA	919005-14-4	ND	0.743	1.49	1.98		B0K0143	17-Nov-20	0.252 L	18-Nov-20 18:47	1
PFHxS	355-46-4	ND	0.743	1.49	1.98		B0K0143	17-Nov-20	0.252 L	18-Nov-20 18:47	1
PFOA	335-67-1	ND	0.743	1.49	1.98		B0K0143	17-Nov-20	0.252 L	18-Nov-20 18:47	1
PFNA	375-95-1	ND	0.743	1.49	1.98		B0K0143	17-Nov-20	0.252 L	18-Nov-20 18:47	1
PFOS	1763-23-1	ND	0.743	1.49	1.98		B0K0143	17-Nov-20	0.252 L	18-Nov-20 18:47	1
9CI-PF3ONS	756426-58-1	ND	0.743	1.49	1.98		B0K0143	17-Nov-20	0.252 L	18-Nov-20 18:47	1
PFDA	335-76-2	ND	0.743	1.49	1.98		B0K0143	17-Nov-20	0.252 L	18-Nov-20 18:47	1
MeFOSAA	2355-31-9	ND	0.743	1.49	1.98		B0K0143	17-Nov-20	0.252 L	18-Nov-20 18:47	1
EtFOSAA	2991-50-6	ND	0.743	1.49	1.98		B0K0143	17-Nov-20	0.252 L	18-Nov-20 18:47	1
PFUnA	2058-94-8	ND	0.743	1.49	1.98		B0K0143	17-Nov-20	0.252 L	18-Nov-20 18:47	1
PFDoA	307-55-1	ND	0.743	1.49	1.98		B0K0143	17-Nov-20	0.252 L	18-Nov-20 18:47	1
PFTTrDA	72629-94-8	ND	0.743	1.49	1.98		B0K0143	17-Nov-20	0.252 L	18-Nov-20 18:47	1
11CI-PF3OUdS	763051-92-9	ND	0.743	1.49	1.98		B0K0143	17-Nov-20	0.252 L	18-Nov-20 18:47	1
PFTeDA	376-06-7	ND	0.743	1.49	1.98		B0K0143	17-Nov-20	0.252 L	18-Nov-20 18:47	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	113	70 - 130		B0K0143	17-Nov-20	0.252 L	18-Nov-20 18:47	1
13C2-PFDA	SURR	104	70 - 130		B0K0143	17-Nov-20	0.252 L	18-Nov-20 18:47	1
d5-EtFOSAA	SURR	89.7	70 - 130		B0K0143	17-Nov-20	0.252 L	18-Nov-20 18:47	1
13C3-HFPO-DA	SURR	122	70 - 130		B0K0143	17-Nov-20	0.252 L	18-Nov-20 18:47	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

WI 11/18/20

**DATA VALIDATION SUMMARY REPORT
NAS WHIDBEY ISLAND, WASHINGTON**

Client: CH2M HILL, Inc., Corvallis, Oregon
 SDG: 2002513
 Laboratory: Vista Analytical Laboratory, El Dorado Hills, California
 Site: NAS Whidbey Island, Residential Wells, CTO-4384, Washington
 Date: December 18, 2020

PFAS			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	WI-CV-1RW27-1120	2002513-01	Water
1MS	WI-CV-1RW27-1120MS	2002513-01MS	Water
1MSD	WI-CV-1RW27-1120MSD	2002513-01MSD	Water
2	WI-CV-1FB27-1120	2002513-02	Water
3	WI-CV-1RW25-1120	2002513-03	Water
4	WI-CV-1FB25-1120	2002513-04	Water
5	WI-CV-1RW26-1120	2002513-05	Water
6	WI-CV-1RW26P-1120	2002513-06	Water
7	WI-CV-1FB26-1120	2002513-07	Water
8	WI-CV-1RW23-1120	2002513-08	Water
9	WI-CV-1FB23-1120	2002513-09	Water
10	WI-CV-3RW11-1120	2002513-10	Water
11	WI-CV-3RW11P-1120	2002513-11	Water
12	WI-CV-3FB11-1120	2002513-12	Water

A full data validation was performed on the analytical data for seven water samples and five aqueous field blank samples collected on November 11, 2020 by CH2M Hill at the NAS Whidbey Island site in Washington. The samples were analyzed under the EPA Method “Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)”.

Specific method references are as follows:

Analysis
PFAS

Method References
USEPA Method 537.1

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, DoD Final General Data Validation Guidelines, November 2019, and the USEPA Data Review and Validation Guidelines as follows:

- The USEPA “Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537,” November 2018;
- and the reviewer's professional judgment.

The following data quality indicators were reviewed for this report:

Organics

- Date Completeness, Case Narrative & Custody Documentation
- Holding times
- Liquid Chromatography/Mass Spectrometry (LC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field QC blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

A full (Stage 2B/4) data validation was performed with this review including a recalculation of 100% of the detected results in the samples.

Data Usability Assessment

There were no serious deficiencies of data.

The data are acceptable for the intended purposes. There were no qualifications.

Perfluorinated Alkyl Substances (PFAS)

Data Completeness, Case Narrative & Custody Documentation

- The case narrative and chain-of-custody documentation were included in the data package as required. All criteria were met.

Holding Times

- All samples were extracted within 14 days for water samples and analyzed within 28 days.

LC/MS Tuning

- All criteria were met.

Initial Calibration

- All relative standard deviation (%RSD) and/or correlation coefficients criteria were met.

Continuing Calibration

- All percent difference (%D) and RRF criteria were met.

Method Blank

- The method blanks were free of contamination.

Field QC Blank

- Field QC sample results are summarized in the table below.

Blank ID	Compound	Conc. ng/L	Qualifier	Affected Samples
WI-CV-1FB27-1120	None - ND	-	-	-
WI-CV-1FB25-1120	None - ND	-	-	-
WI-CV-1FB26-1120	None - ND	-	-	-
WI-CV-1FB23-1120	None - ND	-	-	-
WI-CV-3FB11-1120	None - ND	-	-	-

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- The MS/MSD samples exhibited acceptable percent recoveries (%R) and RPD values.

Laboratory Control Samples (LCS)

- The LCS samples exhibited acceptable percent recoveries (%R).

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- All criteria were met.

Field Duplicate Sample Precision

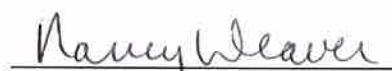
- Field duplicate samples are summarized below. The precision was acceptable.

Compound	WI-CV-1RW26-1120 ng/L	WI-CV-1RW26P-1120 ng/L	RPD	Qualifier
None	ND	ND	-	-

Compound	WI-CV-3RW11-1120 ng/L	WI-CV-3RW11P-1120 ng/L	RPD	Qualifier
PFBS	32.9	30.7	7%	None
PFHxA	91.9	90.1	2%	
PFHpA	14.6	14.4	1%	
PFHxS	80.4	76.8	5%	
PFOA	396	384	3%	
PFOS	1.92	1.50	25%	

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed:



Nancy Weaver
Senior Chemist

Dated: 12/21/20

Qualifier	Definition
U	The analyte was not detected and was reported as less than the LOD or as defined by the customer. The LOD has been adjusted for any dilution or concentration of the sample.
J	The reported result was an estimated value with an unknown bias.
J+	The result was an estimated quantity, but the result may be biased high.
J-	The result was an estimated quantity, but the result may be biased low.
N	The analysis indicates the presence of an analyte for which there was presumptive evidence to make a "tentative identification."
NJ	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value was the estimated concentration in the sample.
UJ	The analyte was not detected and was reported as less than the LOD or as defined by the customer. However, the associated numerical value is approximate.
X	<p>The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided.</p> <p>Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.</p>

Sample ID: WI-CV-1RW27-1120

EPA Method 537.1

Client Data					Laboratory Data				
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2002513-01	Column:	BEH C18	
Project:	9000NVT8	Date Collected:	11-Nov-20 09:10		Date Received:	16-Nov-20 10:02			
Location:	Drinking Water								

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.780	1.56	2.08		B0K0144	18-Nov-20	0.240 L	19-Nov-20 18:25	1
PFHxA	307-24-4	ND	0.780	1.56	2.08		B0K0144	18-Nov-20	0.240 L	19-Nov-20 18:25	1
HFPO-DA	13252-13-6	ND	0.780	1.56	2.08		B0K0144	18-Nov-20	0.240 L	19-Nov-20 18:25	1
PFHpA	375-85-9	ND	0.780	1.56	2.08		B0K0144	18-Nov-20	0.240 L	19-Nov-20 18:25	1
ADONA	919005-14-4	ND	0.780	1.56	2.08		B0K0144	18-Nov-20	0.240 L	19-Nov-20 18:25	1
PFHxS	355-46-4	ND	0.780	1.56	2.08		B0K0144	18-Nov-20	0.240 L	19-Nov-20 18:25	1
PFOA	335-67-1	ND	0.780	1.56	2.08		B0K0144	18-Nov-20	0.240 L	19-Nov-20 18:25	1
PFNA	375-95-1	ND	0.780	1.56	2.08		B0K0144	18-Nov-20	0.240 L	19-Nov-20 18:25	1
PFOS	1763-23-1	ND	0.780	1.56	2.08		B0K0144	18-Nov-20	0.240 L	19-Nov-20 18:25	1
9CI-PF3ONS	756426-58-1	ND	0.780	1.56	2.08		B0K0144	18-Nov-20	0.240 L	19-Nov-20 18:25	1
PFDA	335-76-2	ND	0.780	1.56	2.08		B0K0144	18-Nov-20	0.240 L	19-Nov-20 18:25	1
MeFOSAA	2355-31-9	ND	0.780	1.56	2.08		B0K0144	18-Nov-20	0.240 L	19-Nov-20 18:25	1
EtFOSAA	2991-50-6	ND	0.780	1.56	2.08		B0K0144	18-Nov-20	0.240 L	19-Nov-20 18:25	1
PFUnA	2058-94-8	ND	0.780	1.56	2.08		B0K0144	18-Nov-20	0.240 L	19-Nov-20 18:25	1
PFDoA	307-55-1	ND	0.780	1.56	2.08		B0K0144	18-Nov-20	0.240 L	19-Nov-20 18:25	1
PFTTrDA	72629-94-8	ND	0.780	1.56	2.08		B0K0144	18-Nov-20	0.240 L	19-Nov-20 18:25	1
11CI-PF3OUdS	763051-92-9	ND	0.780	1.56	2.08		B0K0144	18-Nov-20	0.240 L	19-Nov-20 18:25	1
PFTeDA	376-06-7	ND	0.780	1.56	2.08		B0K0144	18-Nov-20	0.240 L	19-Nov-20 18:25	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	111	70 - 130		B0K0144	18-Nov-20	0.240 L	19-Nov-20 18:25	1
13C2-PFDA	SURR	98.0	70 - 130		B0K0144	18-Nov-20	0.240 L	19-Nov-20 18:25	1
d5-EtFOSAA	SURR	91.3	70 - 130		B0K0144	18-Nov-20	0.240 L	19-Nov-20 18:25	1
13C3-HFPO-DA	SURR	117	70 - 130		B0K0144	18-Nov-20	0.240 L	19-Nov-20 18:25	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

11/21/20

Sample ID: WI-CV-1FB27-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002513-02	Column:	BEH C18
Project:	9000NVT8	Date Collected:	11-Nov-20 09:10	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.744	1.49	1.98		B0K0144	18-Nov-20	0.252 L	19-Nov-20 18:36	1
PFHxA	307-24-4	ND	0.744	1.49	1.98		B0K0144	18-Nov-20	0.252 L	19-Nov-20 18:36	1
HFPO-DA	13252-13-6	ND	0.744	1.49	1.98		B0K0144	18-Nov-20	0.252 L	19-Nov-20 18:36	1
PFHpA	375-85-9	ND	0.744	1.49	1.98		B0K0144	18-Nov-20	0.252 L	19-Nov-20 18:36	1
ADONA	919005-14-4	ND	0.744	1.49	1.98		B0K0144	18-Nov-20	0.252 L	19-Nov-20 18:36	1
PFHxS	355-46-4	ND	0.744	1.49	1.98		B0K0144	18-Nov-20	0.252 L	19-Nov-20 18:36	1
PFOA	335-67-1	ND	0.744	1.49	1.98		B0K0144	18-Nov-20	0.252 L	19-Nov-20 18:36	1
PFNA	375-95-1	ND	0.744	1.49	1.98		B0K0144	18-Nov-20	0.252 L	19-Nov-20 18:36	1
PFOS	1763-23-1	ND	0.744	1.49	1.98		B0K0144	18-Nov-20	0.252 L	19-Nov-20 18:36	1
9CI-PF3ONS	756426-58-1	ND	0.744	1.49	1.98		B0K0144	18-Nov-20	0.252 L	19-Nov-20 18:36	1
PFDA	335-76-2	ND	0.744	1.49	1.98		B0K0144	18-Nov-20	0.252 L	19-Nov-20 18:36	1
MeFOSAA	2355-31-9	ND	0.744	1.49	1.98		B0K0144	18-Nov-20	0.252 L	19-Nov-20 18:36	1
EtFOSAA	2991-50-6	ND	0.744	1.49	1.98		B0K0144	18-Nov-20	0.252 L	19-Nov-20 18:36	1
PFUnA	2058-94-8	ND	0.744	1.49	1.98		B0K0144	18-Nov-20	0.252 L	19-Nov-20 18:36	1
PFDoA	307-55-1	ND	0.744	1.49	1.98		B0K0144	18-Nov-20	0.252 L	19-Nov-20 18:36	1
PFTrDA	72629-94-8	ND	0.744	1.49	1.98		B0K0144	18-Nov-20	0.252 L	19-Nov-20 18:36	1
11CI-PF3OUdS	763051-92-9	ND	0.744	1.49	1.98		B0K0144	18-Nov-20	0.252 L	19-Nov-20 18:36	1
PFTeDA	376-06-7	ND	0.744	1.49	1.98		B0K0144	18-Nov-20	0.252 L	19-Nov-20 18:36	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	116	70 - 130		B0K0144	18-Nov-20	0.252 L	19-Nov-20 18:36	1
13C2-PFDA	SURR	104	70 - 130		B0K0144	18-Nov-20	0.252 L	19-Nov-20 18:36	1
d5-EtFOSAA	SURR	93.0	70 - 130		B0K0144	18-Nov-20	0.252 L	19-Nov-20 18:36	1
13C3-HFPO-DA	SURR	120	70 - 130		B0K0144	18-Nov-20	0.252 L	19-Nov-20 18:36	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Nov 12, 2020

Sample ID: WI-CV-1RW25-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002513-03	Column:	BEH C18
Project:	9000NVT8	Date Collected:	11-Nov-20 09:30	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.753	1.51	2.01		B0K0144	18-Nov-20	0.249 L	19-Nov-20 18:47	1
PFHxA	307-24-4	ND	0.753	1.51	2.01		B0K0144	18-Nov-20	0.249 L	19-Nov-20 18:47	1
HFPO-DA	13252-13-6	ND	0.753	1.51	2.01		B0K0144	18-Nov-20	0.249 L	19-Nov-20 18:47	1
PFHpA	375-85-9	ND	0.753	1.51	2.01		B0K0144	18-Nov-20	0.249 L	19-Nov-20 18:47	1
ADONA	919005-14-4	ND	0.753	1.51	2.01		B0K0144	18-Nov-20	0.249 L	19-Nov-20 18:47	1
PFHxS	355-46-4	ND	0.753	1.51	2.01		B0K0144	18-Nov-20	0.249 L	19-Nov-20 18:47	1
PFOA	335-67-1	ND	0.753	1.51	2.01		B0K0144	18-Nov-20	0.249 L	19-Nov-20 18:47	1
PFNA	375-95-1	ND	0.753	1.51	2.01		B0K0144	18-Nov-20	0.249 L	19-Nov-20 18:47	1
PFOS	1763-23-1	ND	0.753	1.51	2.01		B0K0144	18-Nov-20	0.249 L	19-Nov-20 18:47	1
9CI-PF3ONS	756426-58-1	ND	0.753	1.51	2.01		B0K0144	18-Nov-20	0.249 L	19-Nov-20 18:47	1
PFDA	335-76-2	ND	0.753	1.51	2.01		B0K0144	18-Nov-20	0.249 L	19-Nov-20 18:47	1
MeFOSAA	2355-31-9	ND	0.753	1.51	2.01		B0K0144	18-Nov-20	0.249 L	19-Nov-20 18:47	1
EtFOSAA	2991-50-6	ND	0.753	1.51	2.01		B0K0144	18-Nov-20	0.249 L	19-Nov-20 18:47	1
PFUnA	2058-94-8	ND	0.753	1.51	2.01		B0K0144	18-Nov-20	0.249 L	19-Nov-20 18:47	1
PFDoA	307-55-1	ND	0.753	1.51	2.01		B0K0144	18-Nov-20	0.249 L	19-Nov-20 18:47	1
PFTTrDA	72629-94-8	ND	0.753	1.51	2.01		B0K0144	18-Nov-20	0.249 L	19-Nov-20 18:47	1
11CI-PF3OUdS	763051-92-9	ND	0.753	1.51	2.01		B0K0144	18-Nov-20	0.249 L	19-Nov-20 18:47	1
PFTeDA	376-06-7	ND	0.753	1.51	2.01		B0K0144	18-Nov-20	0.249 L	19-Nov-20 18:47	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	111	70 - 130		B0K0144	18-Nov-20	0.249 L	19-Nov-20 18:47	1
13C2-PFDA	SURR	96.8	70 - 130		B0K0144	18-Nov-20	0.249 L	19-Nov-20 18:47	1
d5-EtFOSAA	SURR	84.9	70 - 130		B0K0144	18-Nov-20	0.249 L	19-Nov-20 18:47	1
13C3-HFPO-DA	SURR	118	70 - 130		B0K0144	18-Nov-20	0.249 L	19-Nov-20 18:47	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nrw121.8120

Sample ID: WI-CV-1FB25-1120
EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002513-04	Column:	BEH C18
Project:	9000NVT8	Date Collected:	11-Nov-20 09:30	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.729	1.46	1.94		B0K0144	18-Nov-20	0.257 L	19-Nov-20 18:58	1
PFHxA	307-24-4	ND	0.729	1.46	1.94		B0K0144	18-Nov-20	0.257 L	19-Nov-20 18:58	1
HFPO-DA	13252-13-6	ND	0.729	1.46	1.94		B0K0144	18-Nov-20	0.257 L	19-Nov-20 18:58	1
PFHpA	375-85-9	ND	0.729	1.46	1.94		B0K0144	18-Nov-20	0.257 L	19-Nov-20 18:58	1
ADONA	919005-14-4	ND	0.729	1.46	1.94		B0K0144	18-Nov-20	0.257 L	19-Nov-20 18:58	1
PFHxS	355-46-4	ND	0.729	1.46	1.94		B0K0144	18-Nov-20	0.257 L	19-Nov-20 18:58	1
PFOA	335-67-1	ND	0.729	1.46	1.94		B0K0144	18-Nov-20	0.257 L	19-Nov-20 18:58	1
PFNA	375-95-1	ND	0.729	1.46	1.94		B0K0144	18-Nov-20	0.257 L	19-Nov-20 18:58	1
PFOS	1763-23-1	ND	0.729	1.46	1.94		B0K0144	18-Nov-20	0.257 L	19-Nov-20 18:58	1
9CI-PF3ONS	756426-58-1	ND	0.729	1.46	1.94		B0K0144	18-Nov-20	0.257 L	19-Nov-20 18:58	1
PFDA	335-76-2	ND	0.729	1.46	1.94		B0K0144	18-Nov-20	0.257 L	19-Nov-20 18:58	1
MeFOSAA	2355-31-9	ND	0.729	1.46	1.94		B0K0144	18-Nov-20	0.257 L	19-Nov-20 18:58	1
EtFOSAA	2991-50-6	ND	0.729	1.46	1.94		B0K0144	18-Nov-20	0.257 L	19-Nov-20 18:58	1
PfUnA	2058-94-8	ND	0.729	1.46	1.94		B0K0144	18-Nov-20	0.257 L	19-Nov-20 18:58	1
PfDoA	307-55-1	ND	0.729	1.46	1.94		B0K0144	18-Nov-20	0.257 L	19-Nov-20 18:58	1
PFTTrDA	72629-94-8	ND	0.729	1.46	1.94		B0K0144	18-Nov-20	0.257 L	19-Nov-20 18:58	1
11CI-PF3OUdS	763051-92-9	ND	0.729	1.46	1.94		B0K0144	18-Nov-20	0.257 L	19-Nov-20 18:58	1
PFTeDA	376-06-7	ND	0.729	1.46	1.94		B0K0144	18-Nov-20	0.257 L	19-Nov-20 18:58	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	112	70 - 130		B0K0144	18-Nov-20	0.257 L	19-Nov-20 18:58	1
13C2-PFDA	SURR	102	70 - 130		B0K0144	18-Nov-20	0.257 L	19-Nov-20 18:58	1
d5-EtFOSAA	SURR	91.2	70 - 130		B0K0144	18-Nov-20	0.257 L	19-Nov-20 18:58	1
13C3-HFPO-DA	SURR	118	70 - 130		B0K0144	18-Nov-20	0.257 L	19-Nov-20 18:58	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

MW 12/18/20

Sample ID: WI-CV-1RW26-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002513-05	Column:	BEH C18
Project:	9000NVT8	Date Collected:	11-Nov-20 09:50	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.755	1.51	2.01		B0K0144	18-Nov-20	0.248 L	19-Nov-20 19:09	1
PFHxA	307-24-4	ND	0.755	1.51	2.01		B0K0144	18-Nov-20	0.248 L	19-Nov-20 19:09	1
HFPO-DA	13252-13-6	ND	0.755	1.51	2.01		B0K0144	18-Nov-20	0.248 L	19-Nov-20 19:09	1
PFHpA	375-85-9	ND	0.755	1.51	2.01		B0K0144	18-Nov-20	0.248 L	19-Nov-20 19:09	1
ADONA	919005-14-4	ND	0.755	1.51	2.01		B0K0144	18-Nov-20	0.248 L	19-Nov-20 19:09	1
PFHxS	355-46-4	ND	0.755	1.51	2.01		B0K0144	18-Nov-20	0.248 L	19-Nov-20 19:09	1
PFOA	335-67-1	ND	0.755	1.51	2.01		B0K0144	18-Nov-20	0.248 L	19-Nov-20 19:09	1
PFNA	375-95-1	ND	0.755	1.51	2.01		B0K0144	18-Nov-20	0.248 L	19-Nov-20 19:09	1
PFOS	1763-23-1	ND	0.755	1.51	2.01		B0K0144	18-Nov-20	0.248 L	19-Nov-20 19:09	1
9CI-PF3ONS	756426-58-1	ND	0.755	1.51	2.01		B0K0144	18-Nov-20	0.248 L	19-Nov-20 19:09	1
PFDA	335-76-2	ND	0.755	1.51	2.01		B0K0144	18-Nov-20	0.248 L	19-Nov-20 19:09	1
MeFOSAA	2355-31-9	ND	0.755	1.51	2.01		B0K0144	18-Nov-20	0.248 L	19-Nov-20 19:09	1
EtFOSAA	2991-50-6	ND	0.755	1.51	2.01		B0K0144	18-Nov-20	0.248 L	19-Nov-20 19:09	1
PFUnA	2058-94-8	ND	0.755	1.51	2.01		B0K0144	18-Nov-20	0.248 L	19-Nov-20 19:09	1
PFDoA	307-55-1	ND	0.755	1.51	2.01		B0K0144	18-Nov-20	0.248 L	19-Nov-20 19:09	1
PFTTrDA	72629-94-8	ND	0.755	1.51	2.01		B0K0144	18-Nov-20	0.248 L	19-Nov-20 19:09	1
11CI-PF3OUdS	763051-92-9	ND	0.755	1.51	2.01		B0K0144	18-Nov-20	0.248 L	19-Nov-20 19:09	1
PFTeDA	376-06-7	ND	0.755	1.51	2.01		B0K0144	18-Nov-20	0.248 L	19-Nov-20 19:09	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	115	70 - 130		B0K0144	18-Nov-20	0.248 L	19-Nov-20 19:09	1
13C2-PFDA	SURR	103	70 - 130		B0K0144	18-Nov-20	0.248 L	19-Nov-20 19:09	1
d5-EtFOSAA	SURR	85.6	70 - 130		B0K0144	18-Nov-20	0.248 L	19-Nov-20 19:09	1
13C3-HFPO-DA	SURR	120	70 - 130		B0K0144	18-Nov-20	0.248 L	19-Nov-20 19:09	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

WI 12/18/20

Sample ID: WI-CV-1RW26P-1120

EPA Method 537.1

Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2002513-06	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	11-Nov-20 09:55		Date Received:	16-Nov-20 10:02					
Location:	Drinking Water										

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.767	1.54	2.05		B0K0144	18-Nov-20	0.244 L	19-Nov-20 19:21	1
PFHxA	307-24-4	ND	0.767	1.54	2.05		B0K0144	18-Nov-20	0.244 L	19-Nov-20 19:21	1
HFPO-DA	13252-13-6	ND	0.767	1.54	2.05		B0K0144	18-Nov-20	0.244 L	19-Nov-20 19:21	1
PFHpA	375-85-9	ND	0.767	1.54	2.05		B0K0144	18-Nov-20	0.244 L	19-Nov-20 19:21	1
ADONA	919005-14-4	ND	0.767	1.54	2.05		B0K0144	18-Nov-20	0.244 L	19-Nov-20 19:21	1
PFHxS	355-46-4	ND	0.767	1.54	2.05		B0K0144	18-Nov-20	0.244 L	19-Nov-20 19:21	1
PFOA	335-67-1	ND	0.767	1.54	2.05		B0K0144	18-Nov-20	0.244 L	19-Nov-20 19:21	1
PFNA	375-95-1	ND	0.767	1.54	2.05		B0K0144	18-Nov-20	0.244 L	19-Nov-20 19:21	1
PFOS	1763-23-1	ND	0.767	1.54	2.05		B0K0144	18-Nov-20	0.244 L	19-Nov-20 19:21	1
9CI-PF3ONS	756426-58-1	ND	0.767	1.54	2.05		B0K0144	18-Nov-20	0.244 L	19-Nov-20 19:21	1
PFDA	335-76-2	ND	0.767	1.54	2.05		B0K0144	18-Nov-20	0.244 L	19-Nov-20 19:21	1
MeFOSAA	2355-31-9	ND	0.767	1.54	2.05		B0K0144	18-Nov-20	0.244 L	19-Nov-20 19:21	1
EtFOSAA	2991-50-6	ND	0.767	1.54	2.05		B0K0144	18-Nov-20	0.244 L	19-Nov-20 19:21	1
PFUnA	2058-94-8	ND	0.767	1.54	2.05		B0K0144	18-Nov-20	0.244 L	19-Nov-20 19:21	1
PFDoA	307-55-1	ND	0.767	1.54	2.05		B0K0144	18-Nov-20	0.244 L	19-Nov-20 19:21	1
PFTTrDA	72629-94-8	ND	0.767	1.54	2.05		B0K0144	18-Nov-20	0.244 L	19-Nov-20 19:21	1
11CI-PF3OUdS	763051-92-9	ND	0.767	1.54	2.05		B0K0144	18-Nov-20	0.244 L	19-Nov-20 19:21	1
PFTeDA	376-06-7	ND	0.767	1.54	2.05		B0K0144	18-Nov-20	0.244 L	19-Nov-20 19:21	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	115	70 - 130		B0K0144	18-Nov-20	0.244 L	19-Nov-20 19:21	1
13C2-PFDA	SURR	103	70 - 130		B0K0144	18-Nov-20	0.244 L	19-Nov-20 19:21	1
d5-EtFOSAA	SURR	84.3	70 - 130		B0K0144	18-Nov-20	0.244 L	19-Nov-20 19:21	1
13C3-HFPO-DA	SURR	118	70 - 130		B0K0144	18-Nov-20	0.244 L	19-Nov-20 19:21	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 12/18/20

Sample ID: WI-CV-1FB26-1120
EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002513-07	Column:	BEH C18
Project:	9000NVT8	Date Collected:	11-Nov-20 09:50	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.731	1.46	1.95		B0K0144	18-Nov-20	0.257 L	19-Nov-20 19:32	1
PFHxA	307-24-4	ND	0.731	1.46	1.95		B0K0144	18-Nov-20	0.257 L	19-Nov-20 19:32	1
HFPO-DA	13252-13-6	ND	0.731	1.46	1.95		B0K0144	18-Nov-20	0.257 L	19-Nov-20 19:32	1
PFHpA	375-85-9	ND	0.731	1.46	1.95		B0K0144	18-Nov-20	0.257 L	19-Nov-20 19:32	1
ADONA	919005-14-4	ND	0.731	1.46	1.95		B0K0144	18-Nov-20	0.257 L	19-Nov-20 19:32	1
PFHxS	355-46-4	ND	0.731	1.46	1.95		B0K0144	18-Nov-20	0.257 L	19-Nov-20 19:32	1
PFOA	335-67-1	ND	0.731	1.46	1.95		B0K0144	18-Nov-20	0.257 L	19-Nov-20 19:32	1
PFNA	375-95-1	ND	0.731	1.46	1.95		B0K0144	18-Nov-20	0.257 L	19-Nov-20 19:32	1
PFOS	1763-23-1	ND	0.731	1.46	1.95		B0K0144	18-Nov-20	0.257 L	19-Nov-20 19:32	1
9CI-PF3ONS	756426-58-1	ND	0.731	1.46	1.95		B0K0144	18-Nov-20	0.257 L	19-Nov-20 19:32	1
PFDA	335-76-2	ND	0.731	1.46	1.95		B0K0144	18-Nov-20	0.257 L	19-Nov-20 19:32	1
MeFOSAA	2355-31-9	ND	0.731	1.46	1.95		B0K0144	18-Nov-20	0.257 L	19-Nov-20 19:32	1
EtFOSAA	2991-50-6	ND	0.731	1.46	1.95		B0K0144	18-Nov-20	0.257 L	19-Nov-20 19:32	1
PFUnA	2058-94-8	ND	0.731	1.46	1.95		B0K0144	18-Nov-20	0.257 L	19-Nov-20 19:32	1
PFDaA	307-55-1	ND	0.731	1.46	1.95		B0K0144	18-Nov-20	0.257 L	19-Nov-20 19:32	1
PFTTrDA	72629-94-8	ND	0.731	1.46	1.95		B0K0144	18-Nov-20	0.257 L	19-Nov-20 19:32	1
11CI-PF3OUdS	763051-92-9	ND	0.731	1.46	1.95		B0K0144	18-Nov-20	0.257 L	19-Nov-20 19:32	1
PFTeDA	376-06-7	ND	0.731	1.46	1.95		B0K0144	18-Nov-20	0.257 L	19-Nov-20 19:32	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	109	70 - 130		B0K0144	18-Nov-20	0.257 L	19-Nov-20 19:32	1
13C2-PFDA	SURR	98.3	70 - 130		B0K0144	18-Nov-20	0.257 L	19-Nov-20 19:32	1
d5-EtFOSAA	SURR	90.2	70 - 130		B0K0144	18-Nov-20	0.257 L	19-Nov-20 19:32	1
13C3-HFPO-DA	SURR	115	70 - 130		B0K0144	18-Nov-20	0.257 L	19-Nov-20 19:32	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 12/18/20

Sample ID: WI-CV-1RW23-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002513-08	Column:	BEH C18
Project:	9000NVT8	Date Collected:	11-Nov-20 10:10	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	16.3	0.750	1.50	2.00		B0K0144	18-Nov-20	0.250 L	19-Nov-20 19:43	1
PFHxA	307-24-4	44.0	0.750	1.50	2.00		B0K0144	18-Nov-20	0.250 L	19-Nov-20 19:43	1
HFPO-DA	13252-13-6	ND	0.750	1.50	2.00		B0K0144	18-Nov-20	0.250 L	19-Nov-20 19:43	1
PFHpA	375-85-9	9.94	0.750	1.50	2.00		B0K0144	18-Nov-20	0.250 L	19-Nov-20 19:43	1
ADONA	919005-14-4	ND	0.750	1.50	2.00		B0K0144	18-Nov-20	0.250 L	19-Nov-20 19:43	1
PFHxS	355-46-4	53.7	0.750	1.50	2.00		B0K0144	18-Nov-20	0.250 L	19-Nov-20 19:43	1
PFOA	335-67-1	57.9	0.750	1.50	2.00		B0K0144	18-Nov-20	0.250 L	19-Nov-20 19:43	1
PFNA	375-95-1	ND	0.750	1.50	2.00		B0K0144	18-Nov-20	0.250 L	19-Nov-20 19:43	1
PFOS	1763-23-1	1.51	0.750	1.50	2.00	J	B0K0144	18-Nov-20	0.250 L	19-Nov-20 19:43	1
9CI-PF3ONS	756426-58-1	ND	0.750	1.50	2.00		B0K0144	18-Nov-20	0.250 L	19-Nov-20 19:43	1
PFDA	335-76-2	ND	0.750	1.50	2.00		B0K0144	18-Nov-20	0.250 L	19-Nov-20 19:43	1
MeFOSAA	2355-31-9	ND	0.750	1.50	2.00		B0K0144	18-Nov-20	0.250 L	19-Nov-20 19:43	1
EtFOSAA	2991-50-6	ND	0.750	1.50	2.00		B0K0144	18-Nov-20	0.250 L	19-Nov-20 19:43	1
PFUnA	2058-94-8	ND	0.750	1.50	2.00		B0K0144	18-Nov-20	0.250 L	19-Nov-20 19:43	1
PFDoA	307-55-1	ND	0.750	1.50	2.00		B0K0144	18-Nov-20	0.250 L	19-Nov-20 19:43	1
PFTTrDA	72629-94-8	ND	0.750	1.50	2.00		B0K0144	18-Nov-20	0.250 L	19-Nov-20 19:43	1
11CI-PF3OUdS	763051-92-9	ND	0.750	1.50	2.00		B0K0144	18-Nov-20	0.250 L	19-Nov-20 19:43	1
PFTeDA	376-06-7	ND	0.750	1.50	2.00		B0K0144	18-Nov-20	0.250 L	19-Nov-20 19:43	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	105	70 - 130		B0K0144	18-Nov-20	0.250 L	19-Nov-20 19:43	1
13C2-PFDA	SURR	96.2	70 - 130		B0K0144	18-Nov-20	0.250 L	19-Nov-20 19:43	1
d5-EtFOSAA	SURR	83.8	70 - 130		B0K0144	18-Nov-20	0.250 L	19-Nov-20 19:43	1
13C3-HFPO-DA	SURR	111	70 - 130		B0K0144	18-Nov-20	0.250 L	19-Nov-20 19:43	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

11/21/20

Sample ID: WI-CV-1FB23-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002513-09	Column:	BEH C18
Project:	9000NVT8	Date Collected:	11-Nov-20 10:10	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.746	1.49	1.99		B0K0144	18-Nov-20	0.251 L	19-Nov-20 19:54	1
PFHxA	307-24-4	ND	0.746	1.49	1.99		B0K0144	18-Nov-20	0.251 L	19-Nov-20 19:54	1
HFPO-DA	13252-13-6	ND	0.746	1.49	1.99		B0K0144	18-Nov-20	0.251 L	19-Nov-20 19:54	1
PFHpA	375-85-9	ND	0.746	1.49	1.99		B0K0144	18-Nov-20	0.251 L	19-Nov-20 19:54	1
ADONA	919005-14-4	ND	0.746	1.49	1.99		B0K0144	18-Nov-20	0.251 L	19-Nov-20 19:54	1
PFHxS	355-46-4	ND	0.746	1.49	1.99		B0K0144	18-Nov-20	0.251 L	19-Nov-20 19:54	1
PFOA	335-67-1	ND	0.746	1.49	1.99		B0K0144	18-Nov-20	0.251 L	19-Nov-20 19:54	1
PFNA	375-95-1	ND	0.746	1.49	1.99		B0K0144	18-Nov-20	0.251 L	19-Nov-20 19:54	1
PFOS	1763-23-1	ND	0.746	1.49	1.99		B0K0144	18-Nov-20	0.251 L	19-Nov-20 19:54	1
9CI-PF3ONS	756426-58-1	ND	0.746	1.49	1.99		B0K0144	18-Nov-20	0.251 L	19-Nov-20 19:54	1
PFDA	335-76-2	ND	0.746	1.49	1.99		B0K0144	18-Nov-20	0.251 L	19-Nov-20 19:54	1
MeFOSAA	2355-31-9	ND	0.746	1.49	1.99		B0K0144	18-Nov-20	0.251 L	19-Nov-20 19:54	1
EtFOSAA	2991-50-6	ND	0.746	1.49	1.99		B0K0144	18-Nov-20	0.251 L	19-Nov-20 19:54	1
PFUnA	2058-94-8	ND	0.746	1.49	1.99		B0K0144	18-Nov-20	0.251 L	19-Nov-20 19:54	1
PFDoA	307-55-1	ND	0.746	1.49	1.99		B0K0144	18-Nov-20	0.251 L	19-Nov-20 19:54	1
PFTTrDA	72629-94-8	ND	0.746	1.49	1.99		B0K0144	18-Nov-20	0.251 L	19-Nov-20 19:54	1
11CI-PF3OUdS	763051-92-9	ND	0.746	1.49	1.99		B0K0144	18-Nov-20	0.251 L	19-Nov-20 19:54	1
PFTeDA	376-06-7	ND	0.746	1.49	1.99		B0K0144	18-Nov-20	0.251 L	19-Nov-20 19:54	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	110	70 - 130		B0K0144	18-Nov-20	0.251 L	19-Nov-20 19:54	1
13C2-PFDA	SURR	98.6	70 - 130		B0K0144	18-Nov-20	0.251 L	19-Nov-20 19:54	1
d5-EtFOSAA	SURR	87.4	70 - 130		B0K0144	18-Nov-20	0.251 L	19-Nov-20 19:54	1
13C3-HFPO-DA	SURR	114	70 - 130		B0K0144	18-Nov-20	0.251 L	19-Nov-20 19:54	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

mw 12/8/20

Sample ID: WI-CV-3RW11-1120
EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002513-10	Column:	BEH C18
Project:	9000NVT8	Date Collected:	11-Nov-20 11:00	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	32.9	0.760	1.52	2.03		B0K0144	18-Nov-20	0.247 L	19-Nov-20 20:05	1
PFHxA	307-24-4	91.9	0.760	1.52	2.03		B0K0144	18-Nov-20	0.247 L	19-Nov-20 20:05	1
HFPO-DA	13252-13-6	ND	0.760	1.52	2.03		B0K0144	18-Nov-20	0.247 L	19-Nov-20 20:05	1
PFHpA	375-85-9	14.6	0.760	1.52	2.03		B0K0144	18-Nov-20	0.247 L	19-Nov-20 20:05	1
ADONA	919005-14-4	ND	0.760	1.52	2.03		B0K0144	18-Nov-20	0.247 L	19-Nov-20 20:05	1
PFHxS	355-46-4	80.4	0.760	1.52	2.03		B0K0144	18-Nov-20	0.247 L	19-Nov-20 20:05	1
PFOA	335-67-1	396	0.760	1.52	2.03		B0K0144	18-Nov-20	0.247 L	19-Nov-20 20:05	1
PFNA	375-95-1	ND	0.760	1.52	2.03		B0K0144	18-Nov-20	0.247 L	19-Nov-20 20:05	1
PFOS	1763-23-1	1.92	0.760	1.52	2.03	J	B0K0144	18-Nov-20	0.247 L	19-Nov-20 20:05	1
9CI-PF3ONS	756426-58-1	ND	0.760	1.52	2.03		B0K0144	18-Nov-20	0.247 L	19-Nov-20 20:05	1
PFDA	335-76-2	ND	0.760	1.52	2.03		B0K0144	18-Nov-20	0.247 L	19-Nov-20 20:05	1
MeFOSAA	2355-31-9	ND	0.760	1.52	2.03		B0K0144	18-Nov-20	0.247 L	19-Nov-20 20:05	1
EtFOSAA	2991-50-6	ND	0.760	1.52	2.03		B0K0144	18-Nov-20	0.247 L	19-Nov-20 20:05	1
PFUnA	2058-94-8	ND	0.760	1.52	2.03		B0K0144	18-Nov-20	0.247 L	19-Nov-20 20:05	1
PFDoA	307-55-1	ND	0.760	1.52	2.03		B0K0144	18-Nov-20	0.247 L	19-Nov-20 20:05	1
PFTTrDA	72629-94-8	ND	0.760	1.52	2.03		B0K0144	18-Nov-20	0.247 L	19-Nov-20 20:05	1
11CI-PF3OUdS	763051-92-9	ND	0.760	1.52	2.03		B0K0144	18-Nov-20	0.247 L	19-Nov-20 20:05	1
PFTeDA	376-06-7	ND	0.760	1.52	2.03		B0K0144	18-Nov-20	0.247 L	19-Nov-20 20:05	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	114	70 - 130		B0K0144	18-Nov-20	0.247 L	19-Nov-20 20:05	1
13C2-PFDA	SURR	99.4	70 - 130		B0K0144	18-Nov-20	0.247 L	19-Nov-20 20:05	1
d5-EtFOSAA	SURR	91.9	70 - 130		B0K0144	18-Nov-20	0.247 L	19-Nov-20 20:05	1
13C3-HFPO-DA	SURR	118	70 - 130		B0K0144	18-Nov-20	0.247 L	19-Nov-20 20:05	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 12/18/20

Sample ID: WI-CV-3RW11P-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002513-11	Column:	BEH C18
Project:	9000NVT8	Date Collected:	11-Nov-20 11:05	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	30.7	0.757	1.51	2.02		B0K0144	18-Nov-20	0.248 L	19-Nov-20 20:16	1
PFHxA	307-24-4	90.1	0.757	1.51	2.02		B0K0144	18-Nov-20	0.248 L	19-Nov-20 20:16	1
HFPO-DA	13252-13-6	ND	0.757	1.51	2.02		B0K0144	18-Nov-20	0.248 L	19-Nov-20 20:16	1
PFHpA	375-85-9	14.4	0.757	1.51	2.02		B0K0144	18-Nov-20	0.248 L	19-Nov-20 20:16	1
ADONA	919005-14-4	ND	0.757	1.51	2.02		B0K0144	18-Nov-20	0.248 L	19-Nov-20 20:16	1
PFHxS	355-46-4	76.8	0.757	1.51	2.02		B0K0144	18-Nov-20	0.248 L	19-Nov-20 20:16	1
PFOA	335-67-1	384	0.757	1.51	2.02		B0K0144	18-Nov-20	0.248 L	19-Nov-20 20:16	1
PFNA	375-95-1	ND	0.757	1.51	2.02		B0K0144	18-Nov-20	0.248 L	19-Nov-20 20:16	1
PFOS	1763-23-1	1.50	0.757	1.51	2.02	J	B0K0144	18-Nov-20	0.248 L	19-Nov-20 20:16	1
9CI-PF3ONS	756426-58-1	ND	0.757	1.51	2.02		B0K0144	18-Nov-20	0.248 L	19-Nov-20 20:16	1
PFDA	335-76-2	ND	0.757	1.51	2.02		B0K0144	18-Nov-20	0.248 L	19-Nov-20 20:16	1
MeFOSAA	2355-31-9	ND	0.757	1.51	2.02		B0K0144	18-Nov-20	0.248 L	19-Nov-20 20:16	1
EtFOSAA	2991-50-6	ND	0.757	1.51	2.02		B0K0144	18-Nov-20	0.248 L	19-Nov-20 20:16	1
PFUnA	2058-94-8	ND	0.757	1.51	2.02		B0K0144	18-Nov-20	0.248 L	19-Nov-20 20:16	1
PFDoA	307-55-1	ND	0.757	1.51	2.02		B0K0144	18-Nov-20	0.248 L	19-Nov-20 20:16	1
PFTTrDA	72629-94-8	ND	0.757	1.51	2.02		B0K0144	18-Nov-20	0.248 L	19-Nov-20 20:16	1
11CI-PF3OUdS	763051-92-9	ND	0.757	1.51	2.02		B0K0144	18-Nov-20	0.248 L	19-Nov-20 20:16	1
PFTeDA	376-06-7	ND	0.757	1.51	2.02		B0K0144	18-Nov-20	0.248 L	19-Nov-20 20:16	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	107	70 - 130		B0K0144	18-Nov-20	0.248 L	19-Nov-20 20:16	1
13C2-PFDA	SURR	96.2	70 - 130		B0K0144	18-Nov-20	0.248 L	19-Nov-20 20:16	1
d5-EtFOSAA	SURR	86.7	70 - 130		B0K0144	18-Nov-20	0.248 L	19-Nov-20 20:16	1
13C3-HFPO-DA	SURR	111	70 - 130		B0K0144	18-Nov-20	0.248 L	19-Nov-20 20:16	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

rw12/8/20

Sample ID: WI-CV-3FB11-1120 **EPA Method 537.1**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002513-12	Column:	BEH C18
Project:	9000NVT8	Date Collected:	11-Nov-20 11:00	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.721	1.44	1.92		B0K0144	18-Nov-20	0.260 L	19-Nov-20 20:27	1
PFHxA	307-24-4	ND	0.721	1.44	1.92		B0K0144	18-Nov-20	0.260 L	19-Nov-20 20:27	1
HFPO-DA	13252-13-6	ND	0.721	1.44	1.92		B0K0144	18-Nov-20	0.260 L	19-Nov-20 20:27	1
PFHpA	375-85-9	ND	0.721	1.44	1.92		B0K0144	18-Nov-20	0.260 L	19-Nov-20 20:27	1
ADONA	919005-14-4	ND	0.721	1.44	1.92		B0K0144	18-Nov-20	0.260 L	19-Nov-20 20:27	1
PFHxS	355-46-4	ND	0.721	1.44	1.92		B0K0144	18-Nov-20	0.260 L	19-Nov-20 20:27	1
PFOA	335-67-1	ND	0.721	1.44	1.92		B0K0144	18-Nov-20	0.260 L	19-Nov-20 20:27	1
PFNA	375-95-1	ND	0.721	1.44	1.92		B0K0144	18-Nov-20	0.260 L	19-Nov-20 20:27	1
PFOS	1763-23-1	ND	0.721	1.44	1.92		B0K0144	18-Nov-20	0.260 L	19-Nov-20 20:27	1
9CI-PF3ONS	756426-58-1	ND	0.721	1.44	1.92		B0K0144	18-Nov-20	0.260 L	19-Nov-20 20:27	1
PFDA	335-76-2	ND	0.721	1.44	1.92		B0K0144	18-Nov-20	0.260 L	19-Nov-20 20:27	1
MeFOSAA	2355-31-9	ND	0.721	1.44	1.92		B0K0144	18-Nov-20	0.260 L	19-Nov-20 20:27	1
EtFOSAA	2991-50-6	ND	0.721	1.44	1.92		B0K0144	18-Nov-20	0.260 L	19-Nov-20 20:27	1
PFUnA	2058-94-8	ND	0.721	1.44	1.92		B0K0144	18-Nov-20	0.260 L	19-Nov-20 20:27	1
PFDoA	307-55-1	ND	0.721	1.44	1.92		B0K0144	18-Nov-20	0.260 L	19-Nov-20 20:27	1
PFTTrDA	72629-94-8	ND	0.721	1.44	1.92		B0K0144	18-Nov-20	0.260 L	19-Nov-20 20:27	1
11CI-PF3OUdS	763051-92-9	ND	0.721	1.44	1.92		B0K0144	18-Nov-20	0.260 L	19-Nov-20 20:27	1
PFTeDA	376-06-7	ND	0.721	1.44	1.92		B0K0144	18-Nov-20	0.260 L	19-Nov-20 20:27	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	110	70 - 130		B0K0144	18-Nov-20	0.260 L	19-Nov-20 20:27	1
13C2-PFDA	SURR	96.3	70 - 130		B0K0144	18-Nov-20	0.260 L	19-Nov-20 20:27	1
d5-EtFOSAA	SURR	92.0	70 - 130		B0K0144	18-Nov-20	0.260 L	19-Nov-20 20:27	1
13C3-HFPO-DA	SURR	114	70 - 130		B0K0144	18-Nov-20	0.260 L	19-Nov-20 20:27	1

DL - Detection Limit

LOD - Limit of Detection

LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

11/21/20

**DATA VALIDATION SUMMARY REPORT
NAS WHIDBEY ISLAND, WASHINGTON**

Client: CH2M HILL, Inc., Corvallis, Oregon
 SDG: 2002514
 Laboratory: Vista Analytical Laboratory, El Dorado Hills, California
 Site: NAS Whidbey Island, Residential Wells, CTO-4384, Washington
 Date: December 18, 2020

PFAS			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	WI-CV-1RW14-1120	2002514-01	Water
2	WI-CV-1FB14-1120	2002514-02	Water
3	WI-CV-1RW22-1120	2002514-03	Water
4	WI-CV-1FB22-1120	2002514-04	Water
5	WI-CV-1RW90-1120	2002514-05	Water
6	WI-CV-1RW90P-1120	2002514-06	Water
7	WI-CV-1FB90-1120	2002514-07	Water
8	WI-CV-1RW40-1120	2002514-08	Water
9	WI-CV-1FB40-1120	2002514-09	Water

A full data validation was performed on the analytical data for five water samples and four aqueous field blank samples collected on November 11, 2020 by CH2M Hill at the NAS Whidbey Island site in Washington. The samples were analyzed under the EPA Method “Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)”.

Specific method references are as follows:

Analysis
PFAS

Method References
USEPA Method 537.1

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, DoD Final General Data Validation Guidelines, November 2019, and the USEPA Data Review and Validation Guidelines as follows:

- The USEPA “Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537,” November 2018;
- and the reviewer's professional judgment.

The following data quality indicators were reviewed for this report:

Organics

- Date Completeness, Case Narrative & Custody Documentation
- Holding times
- Liquid Chromatography/Mass Spectrometry (LC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field QC blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

A full (Stage 2B/4) data validation was performed with this review including a recalculation of 100% of the detected results in the samples.

Data Usability Assessment

There were no serious deficiencies of data.

The data are acceptable for the intended purposes. There were no qualifications.

Perfluorinated Alkyl Substances (PFAS)

Data Completeness, Case Narrative & Custody Documentation

- The case narrative and chain-of-custody documentation were included in the data package as required. All criteria were met.

Holding Times

- All samples were extracted within 14 days for water samples and analyzed within 28 days.

LC/MS Tuning

- All criteria were met.

Initial Calibration

- All relative standard deviation (%RSD) and/or correlation coefficients criteria were met.

Continuing Calibration

- All percent difference (%D) and RRF criteria were met.

Method Blank

- The method blanks were free of contamination.

Field QC Blank

- Field QC sample results are summarized in the table below.

Blank ID	Compound	Conc. ng/L	Qualifier	Affected Samples
WI-CV-1FB14-1120	None - ND	-	-	-
WI-CV-1FB22-1120	None - ND	-	-	-
WI-CV-1FB90-1120	None - ND	-	-	-
WI-CV-1FB40-1120	None - ND	-	-	-

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- MS/MSD samples were not analyzed.

Laboratory Control Samples (LCS)

- The LCS samples exhibited acceptable percent recoveries (%R).

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- All criteria were met.

Field Duplicate Sample Precision

- Field duplicate samples are summarized below. The precision was acceptable.

Compound	WI-CV-1RW90-1120 ng/L	WI-CV-1RW90P-1120 ng/L	RPD	Qualifier
PFBS	41.5	41.8	1%	None
PFHxA	60.4	61.7	2%	
PFHpA	17.6	17.6	0%	
PFHxS	191	189	1%	
PFOA	169	165	2%	
PFOS	10.3	10.2	1%	

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed:

Nancy Weaver
Nancy Weaver
Senior Chemist

Dated: 12/21/20

Qualifier	Definition
U	The analyte was not detected and was reported as less than the LOD or as defined by the customer. The LOD has been adjusted for any dilution or concentration of the sample.
J	The reported result was an estimated value with an unknown bias.
J+	The result was an estimated quantity, but the result may be biased high.
J-	The result was an estimated quantity, but the result may be biased low.
N	The analysis indicates the presence of an analyte for which there was presumptive evidence to make a "tentative identification."
NJ	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value was the estimated concentration in the sample.
UJ	The analyte was not detected and was reported as less than the LOD or as defined by the customer. However, the associated numerical value is approximate.
X	<p>The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided.</p> <p>Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.</p>

Sample ID: WI-CV-1RW14-1120

EPA Method 537.1

Client Data					Laboratory Data				
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2002514-01	Column:	BEH C18	
Project:	9000NVT8	Date Collected:	11-Nov-20 14:10		Date Received:	16-Nov-20 10:02			
Location:	Drinking Water								

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.757	1.51	2.02		B0K0145	18-Nov-20	0.248 L	19-Nov-20 21:44	1
PFHxA	307-24-4	ND	0.757	1.51	2.02		B0K0145	18-Nov-20	0.248 L	19-Nov-20 21:44	1
HFPO-DA	13252-13-6	ND	0.757	1.51	2.02		B0K0145	18-Nov-20	0.248 L	19-Nov-20 21:44	1
PFHpA	375-85-9	ND	0.757	1.51	2.02		B0K0145	18-Nov-20	0.248 L	19-Nov-20 21:44	1
ADONA	919005-14-4	ND	0.757	1.51	2.02		B0K0145	18-Nov-20	0.248 L	19-Nov-20 21:44	1
PFHxS	355-46-4	ND	0.757	1.51	2.02		B0K0145	18-Nov-20	0.248 L	19-Nov-20 21:44	1
PFOA	335-67-1	ND	0.757	1.51	2.02		B0K0145	18-Nov-20	0.248 L	19-Nov-20 21:44	1
PFNA	375-95-1	ND	0.757	1.51	2.02		B0K0145	18-Nov-20	0.248 L	19-Nov-20 21:44	1
PFOS	1763-23-1	ND	0.757	1.51	2.02		B0K0145	18-Nov-20	0.248 L	19-Nov-20 21:44	1
9CI-PF3ONS	756426-58-1	ND	0.757	1.51	2.02		B0K0145	18-Nov-20	0.248 L	19-Nov-20 21:44	1
PFDA	335-76-2	ND	0.757	1.51	2.02		B0K0145	18-Nov-20	0.248 L	19-Nov-20 21:44	1
MeFOSAA	2355-31-9	ND	0.757	1.51	2.02		B0K0145	18-Nov-20	0.248 L	19-Nov-20 21:44	1
EtFOSAA	2991-50-6	ND	0.757	1.51	2.02		B0K0145	18-Nov-20	0.248 L	19-Nov-20 21:44	1
PFUnA	2058-94-8	ND	0.757	1.51	2.02		B0K0145	18-Nov-20	0.248 L	19-Nov-20 21:44	1
PFDoA	307-55-1	ND	0.757	1.51	2.02		B0K0145	18-Nov-20	0.248 L	19-Nov-20 21:44	1
PFTTrDA	72629-94-8	ND	0.757	1.51	2.02		B0K0145	18-Nov-20	0.248 L	19-Nov-20 21:44	1
11CI-PF3OUdS	763051-92-9	ND	0.757	1.51	2.02		B0K0145	18-Nov-20	0.248 L	19-Nov-20 21:44	1
PFTeDA	376-06-7	ND	0.757	1.51	2.02		B0K0145	18-Nov-20	0.248 L	19-Nov-20 21:44	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	116	70 - 130		B0K0145	18-Nov-20	0.248 L	19-Nov-20 21:44	1
13C2-PFDA	SURR	108	70 - 130		B0K0145	18-Nov-20	0.248 L	19-Nov-20 21:44	1
d5-EtFOSAA	SURR	92.2	70 - 130		B0K0145	18-Nov-20	0.248 L	19-Nov-20 21:44	1
13C3-HFPO-DA	SURR	125	70 - 130		B0K0145	18-Nov-20	0.248 L	19-Nov-20 21:44	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

mw12/18/20

Sample ID: WI-CV-1FB14-1120
EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002514-02	Column:	BEH C18
Project:	9000NVT8	Date Collected:	11-Nov-20 14:10	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.743	1.49	1.98		B0K0145	18-Nov-20	0.252 L	19-Nov-20 21:55	1
PFHxA	307-24-4	ND	0.743	1.49	1.98		B0K0145	18-Nov-20	0.252 L	19-Nov-20 21:55	1
HFPO-DA	13252-13-6	ND	0.743	1.49	1.98		B0K0145	18-Nov-20	0.252 L	19-Nov-20 21:55	1
PFHpA	375-85-9	ND	0.743	1.49	1.98		B0K0145	18-Nov-20	0.252 L	19-Nov-20 21:55	1
ADONA	919005-14-4	ND	0.743	1.49	1.98		B0K0145	18-Nov-20	0.252 L	19-Nov-20 21:55	1
PFHxS	355-46-4	ND	0.743	1.49	1.98		B0K0145	18-Nov-20	0.252 L	19-Nov-20 21:55	1
PFOA	335-67-1	ND	0.743	1.49	1.98		B0K0145	18-Nov-20	0.252 L	19-Nov-20 21:55	1
PFNA	375-95-1	ND	0.743	1.49	1.98		B0K0145	18-Nov-20	0.252 L	19-Nov-20 21:55	1
PFOS	1763-23-1	ND	0.743	1.49	1.98		B0K0145	18-Nov-20	0.252 L	19-Nov-20 21:55	1
9CI-PF3ONS	756426-58-1	ND	0.743	1.49	1.98		B0K0145	18-Nov-20	0.252 L	19-Nov-20 21:55	1
PFDA	335-76-2	ND	0.743	1.49	1.98		B0K0145	18-Nov-20	0.252 L	19-Nov-20 21:55	1
MeFOSAA	2355-31-9	ND	0.743	1.49	1.98		B0K0145	18-Nov-20	0.252 L	19-Nov-20 21:55	1
EtFOSAA	2991-50-6	ND	0.743	1.49	1.98		B0K0145	18-Nov-20	0.252 L	19-Nov-20 21:55	1
PFUnA	2058-94-8	ND	0.743	1.49	1.98		B0K0145	18-Nov-20	0.252 L	19-Nov-20 21:55	1
PFDoA	307-55-1	ND	0.743	1.49	1.98		B0K0145	18-Nov-20	0.252 L	19-Nov-20 21:55	1
PFTTrDA	72629-94-8	ND	0.743	1.49	1.98		B0K0145	18-Nov-20	0.252 L	19-Nov-20 21:55	1
11CI-PF3OUdS	763051-92-9	ND	0.743	1.49	1.98		B0K0145	18-Nov-20	0.252 L	19-Nov-20 21:55	1
PFTeDA	376-06-7	ND	0.743	1.49	1.98		B0K0145	18-Nov-20	0.252 L	19-Nov-20 21:55	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	122	70 - 130		B0K0145	18-Nov-20	0.252 L	19-Nov-20 21:55	1
13C2-PFDA	SURR	108	70 - 130		B0K0145	18-Nov-20	0.252 L	19-Nov-20 21:55	1
d5-EtFOSAA	SURR	97.8	70 - 130		B0K0145	18-Nov-20	0.252 L	19-Nov-20 21:55	1
13C3-HFPO-DA	SURR	127	70 - 130		B0K0145	18-Nov-20	0.252 L	19-Nov-20 21:55	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW12118120

Sample ID: WI-CV-1RW22-1120

EPA Method 537.1

Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2002514-03	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	11-Nov-20 15:05		Date Received:	16-Nov-20 10:02					
Location:	Drinking Water										

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.744	1.49	1.98		B0K0145	18-Nov-20	0.252 L	20-Nov-20 18:25	1
PFHxA	307-24-4	ND	0.744	1.49	1.98		B0K0145	18-Nov-20	0.252 L	20-Nov-20 18:25	1
HFPO-DA	13252-13-6	ND	0.744	1.49	1.98		B0K0145	18-Nov-20	0.252 L	20-Nov-20 18:25	1
PFHpA	375-85-9	ND	0.744	1.49	1.98		B0K0145	18-Nov-20	0.252 L	20-Nov-20 18:25	1
ADONA	919005-14-4	ND	0.744	1.49	1.98		B0K0145	18-Nov-20	0.252 L	20-Nov-20 18:25	1
PFHxS	355-46-4	ND	0.744	1.49	1.98		B0K0145	18-Nov-20	0.252 L	20-Nov-20 18:25	1
PFOA	335-67-1	ND	0.744	1.49	1.98		B0K0145	18-Nov-20	0.252 L	20-Nov-20 18:25	1
PFNA	375-95-1	ND	0.744	1.49	1.98		B0K0145	18-Nov-20	0.252 L	20-Nov-20 18:25	1
PFOS	1763-23-1	ND	0.744	1.49	1.98		B0K0145	18-Nov-20	0.252 L	20-Nov-20 18:25	1
9CI-PF3ONS	756426-58-1	ND	0.744	1.49	1.98		B0K0145	18-Nov-20	0.252 L	20-Nov-20 18:25	1
PFDA	335-76-2	ND	0.744	1.49	1.98		B0K0145	18-Nov-20	0.252 L	20-Nov-20 18:25	1
MeFOSAA	2355-31-9	ND	0.744	1.49	1.98		B0K0145	18-Nov-20	0.252 L	20-Nov-20 18:25	1
EtFOSAA	2991-50-6	ND	0.744	1.49	1.98		B0K0145	18-Nov-20	0.252 L	20-Nov-20 18:25	1
PFUnA	2058-94-8	ND	0.744	1.49	1.98		B0K0145	18-Nov-20	0.252 L	20-Nov-20 18:25	1
PFDoA	307-55-1	ND	0.744	1.49	1.98		B0K0145	18-Nov-20	0.252 L	20-Nov-20 18:25	1
PFTTrDA	72629-94-8	ND	0.744	1.49	1.98		B0K0145	18-Nov-20	0.252 L	20-Nov-20 18:25	1
11CI-PF3OUdS	763051-92-9	ND	0.744	1.49	1.98		B0K0145	18-Nov-20	0.252 L	20-Nov-20 18:25	1
PFTeDA	376-06-7	ND	0.744	1.49	1.98		B0K0145	18-Nov-20	0.252 L	20-Nov-20 18:25	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	107	70 - 130		B0K0145	18-Nov-20	0.252 L	20-Nov-20 18:25	1
13C2-PFDA	SURR	119	70 - 130		B0K0145	18-Nov-20	0.252 L	20-Nov-20 18:25	1
d5-EtFOSAA	SURR	98.8	70 - 130		B0K0145	18-Nov-20	0.252 L	20-Nov-20 18:25	1
13C3-HFPO-DA	SURR	105	70 - 130		B0K0145	18-Nov-20	0.252 L	20-Nov-20 18:25	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Nwizl18/20

Sample ID: WI-CV-1FB22-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002514-04	Column:	BEH C18
Project:	9000NVT8	Date Collected:	11-Nov-20 15:05	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:18	1
PFHxA	307-24-4	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:18	1
HFPO-DA	13252-13-6	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:18	1
PFHpA	375-85-9	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:18	1
ADONA	919005-14-4	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:18	1
PFHxS	355-46-4	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:18	1
PFOA	335-67-1	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:18	1
PFNA	375-95-1	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:18	1
PFOS	1763-23-1	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:18	1
9CI-PF3ONS	756426-58-1	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:18	1
PFDA	335-76-2	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:18	1
MeFOSAA	2355-31-9	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:18	1
EtFOSAA	2991-50-6	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:18	1
PFUnA	2058-94-8	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:18	1
PFDoA	307-55-1	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:18	1
PFTTrDA	72629-94-8	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:18	1
11Cl-PF3OUdS	763051-92-9	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:18	1
PFTeDA	376-06-7	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:18	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	96.2	70 - 130		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:18	1
13C2-PFDA	SURR	86.1	70 - 130		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:18	1
d5-EtFOSAA	SURR	78.0	70 - 130		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:18	1
13C3-HFPO-DA	SURR	99.6	70 - 130		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:18	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

new 12/8/20

Sample ID: WI-CV-1RW90-1120
EPA Method 537.1

Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2002514-05	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	11-Nov-20 16:05		Date Received:	16-Nov-20 10:02					
Location:	Drinking Water										

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	41.5	0.746	1.49	1.99		B0K0145	18-Nov-20	0.251 L	19-Nov-20 22:29	1
PFHxA	307-24-4	60.4	0.746	1.49	1.99		B0K0145	18-Nov-20	0.251 L	19-Nov-20 22:29	1
HFPO-DA	13252-13-6	ND	0.746	1.49	1.99		B0K0145	18-Nov-20	0.251 L	19-Nov-20 22:29	1
PFHpA	375-85-9	17.6	0.746	1.49	1.99		B0K0145	18-Nov-20	0.251 L	19-Nov-20 22:29	1
ADONA	919005-14-4	ND	0.746	1.49	1.99		B0K0145	18-Nov-20	0.251 L	19-Nov-20 22:29	1
PFHxS	355-46-4	191	0.746	1.49	1.99		B0K0145	18-Nov-20	0.251 L	19-Nov-20 22:29	1
PFOA	335-67-1	169	0.746	1.49	1.99		B0K0145	18-Nov-20	0.251 L	19-Nov-20 22:29	1
PFNA	375-95-1	ND	0.746	1.49	1.99		B0K0145	18-Nov-20	0.251 L	19-Nov-20 22:29	1
PFOS	1763-23-1	10.3	0.746	1.49	1.99		B0K0145	18-Nov-20	0.251 L	19-Nov-20 22:29	1
9CI-PF3ONS	756426-58-1	ND	0.746	1.49	1.99		B0K0145	18-Nov-20	0.251 L	19-Nov-20 22:29	1
PFDA	335-76-2	ND	0.746	1.49	1.99		B0K0145	18-Nov-20	0.251 L	19-Nov-20 22:29	1
MeFOSAA	2355-31-9	ND	0.746	1.49	1.99		B0K0145	18-Nov-20	0.251 L	19-Nov-20 22:29	1
EtFOSAA	2991-50-6	ND	0.746	1.49	1.99		B0K0145	18-Nov-20	0.251 L	19-Nov-20 22:29	1
PFUnA	2058-94-8	ND	0.746	1.49	1.99		B0K0145	18-Nov-20	0.251 L	19-Nov-20 22:29	1
PFDoA	307-55-1	ND	0.746	1.49	1.99		B0K0145	18-Nov-20	0.251 L	19-Nov-20 22:29	1
PFTTrDA	72629-94-8	ND	0.746	1.49	1.99		B0K0145	18-Nov-20	0.251 L	19-Nov-20 22:29	1
11CI-PF3OUdS	763051-92-9	ND	0.746	1.49	1.99		B0K0145	18-Nov-20	0.251 L	19-Nov-20 22:29	1
PFTeDA	376-06-7	ND	0.746	1.49	1.99		B0K0145	18-Nov-20	0.251 L	19-Nov-20 22:29	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	118	70 - 130		B0K0145	18-Nov-20	0.251 L	19-Nov-20 22:29	1
13C2-PFDA	SURR	108	70 - 130		B0K0145	18-Nov-20	0.251 L	19-Nov-20 22:29	1
d5-EtFOSAA	SURR	97.1	70 - 130		B0K0145	18-Nov-20	0.251 L	19-Nov-20 22:29	1
13C3-HFPO-DA	SURR	125	70 - 130		B0K0145	18-Nov-20	0.251 L	19-Nov-20 22:29	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

11/21/20

Sample ID: WI-CV-1RW90P-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002514-06	Column:	BEH C18
Project:	9000NVT8	Date Collected:	11-Nov-20 16:10	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	41.8	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:40	1
PFHxA	307-24-4	61.7	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:40	1
HFPO-DA	13252-13-6	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:40	1
PFHpA	375-85-9	17.6	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:40	1
ADONA	919005-14-4	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:40	1
PFHxS	355-46-4	189	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:40	1
PFOA	335-67-1	165	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:40	1
PFNA	375-95-1	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:40	1
PFOS	1763-23-1	10.2	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:40	1
9CI-PF3ONS	756426-58-1	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:40	1
PFDA	335-76-2	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:40	1
MeFOSAA	2355-31-9	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:40	1
EtFOSAA	2991-50-6	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:40	1
PFUnA	2058-94-8	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:40	1
PFDoA	307-55-1	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:40	1
PFTTrDA	72629-94-8	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:40	1
11CI-PF3OUdS	763051-92-9	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:40	1
PFTeDA	376-06-7	ND	0.745	1.49	1.99		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:40	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	119	70 - 130		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:40	1
13C2-PFDA	SURR	106	70 - 130		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:40	1
d5-EtFOSAA	SURR	102	70 - 130		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:40	1
13C3-HFPO-DA	SURR	125	70 - 130		B0K0145	18-Nov-20	0.252 L	19-Nov-20 22:40	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

W121.8/20

Sample ID: WI-CV-1FB90-1120
EPA Method 537.1

Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2002514-07	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	11-Nov-20 16:05		Date Received:	16-Nov-20 10:02					
Location:	Drinking Water										

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.761	1.52	2.03		B0K0145	18-Nov-20	0.246 L	19-Nov-20 22:51	1
PFHxA	307-24-4	ND	0.761	1.52	2.03		B0K0145	18-Nov-20	0.246 L	19-Nov-20 22:51	1
HFPO-DA	13252-13-6	ND	0.761	1.52	2.03		B0K0145	18-Nov-20	0.246 L	19-Nov-20 22:51	1
PFHpA	375-85-9	ND	0.761	1.52	2.03		B0K0145	18-Nov-20	0.246 L	19-Nov-20 22:51	1
ADONA	919005-14-4	ND	0.761	1.52	2.03		B0K0145	18-Nov-20	0.246 L	19-Nov-20 22:51	1
PFHxS	355-46-4	ND	0.761	1.52	2.03		B0K0145	18-Nov-20	0.246 L	19-Nov-20 22:51	1
PFOA	335-67-1	ND	0.761	1.52	2.03		B0K0145	18-Nov-20	0.246 L	19-Nov-20 22:51	1
PFNA	375-95-1	ND	0.761	1.52	2.03		B0K0145	18-Nov-20	0.246 L	19-Nov-20 22:51	1
PFOS	1763-23-1	ND	0.761	1.52	2.03		B0K0145	18-Nov-20	0.246 L	19-Nov-20 22:51	1
9CI-PF3ONS	756426-58-1	ND	0.761	1.52	2.03		B0K0145	18-Nov-20	0.246 L	19-Nov-20 22:51	1
PFDA	335-76-2	ND	0.761	1.52	2.03		B0K0145	18-Nov-20	0.246 L	19-Nov-20 22:51	1
MeFOSAA	2355-31-9	ND	0.761	1.52	2.03		B0K0145	18-Nov-20	0.246 L	19-Nov-20 22:51	1
EtFOSAA	2991-50-6	ND	0.761	1.52	2.03		B0K0145	18-Nov-20	0.246 L	19-Nov-20 22:51	1
PFUnA	2058-94-8	ND	0.761	1.52	2.03		B0K0145	18-Nov-20	0.246 L	19-Nov-20 22:51	1
PFDoA	307-55-1	ND	0.761	1.52	2.03		B0K0145	18-Nov-20	0.246 L	19-Nov-20 22:51	1
PFTTrDA	72629-94-8	ND	0.761	1.52	2.03		B0K0145	18-Nov-20	0.246 L	19-Nov-20 22:51	1
11Cl-PF3OUdS	763051-92-9	ND	0.761	1.52	2.03		B0K0145	18-Nov-20	0.246 L	19-Nov-20 22:51	1
PFTeDA	376-06-7	ND	0.761	1.52	2.03		B0K0145	18-Nov-20	0.246 L	19-Nov-20 22:51	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	110	70 - 130		B0K0145	18-Nov-20	0.246 L	19-Nov-20 22:51	1
13C2-PFDA	SURR	97.8	70 - 130		B0K0145	18-Nov-20	0.246 L	19-Nov-20 22:51	1
d5-EtFOSAA	SURR	87.7	70 - 130		B0K0145	18-Nov-20	0.246 L	19-Nov-20 22:51	1
13C3-HFPO-DA	SURR	114	70 - 130		B0K0145	18-Nov-20	0.246 L	19-Nov-20 22:51	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

MW 12/18/20

Sample ID: WI-CV-1RW40-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002514-08	Column:	BEH C18
Project:	9000NVT8	Date Collected:	11-Nov-20 13:10	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.750	1.50	2.00		B0K0145	18-Nov-20	0.250 L	19-Nov-20 23:02	1
PFHxA	307-24-4	ND	0.750	1.50	2.00		B0K0145	18-Nov-20	0.250 L	19-Nov-20 23:02	1
HFPO-DA	13252-13-6	ND	0.750	1.50	2.00		B0K0145	18-Nov-20	0.250 L	19-Nov-20 23:02	1
PFHpA	375-85-9	ND	0.750	1.50	2.00		B0K0145	18-Nov-20	0.250 L	19-Nov-20 23:02	1
ADONA	919005-14-4	ND	0.750	1.50	2.00		B0K0145	18-Nov-20	0.250 L	19-Nov-20 23:02	1
PFHxS	355-46-4	ND	0.750	1.50	2.00		B0K0145	18-Nov-20	0.250 L	19-Nov-20 23:02	1
PFOA	335-67-1	ND	0.750	1.50	2.00		B0K0145	18-Nov-20	0.250 L	19-Nov-20 23:02	1
PFNA	375-95-1	ND	0.750	1.50	2.00		B0K0145	18-Nov-20	0.250 L	19-Nov-20 23:02	1
PFOS	1763-23-1	ND	0.750	1.50	2.00		B0K0145	18-Nov-20	0.250 L	19-Nov-20 23:02	1
9CI-PF3ONS	756426-58-1	ND	0.750	1.50	2.00		B0K0145	18-Nov-20	0.250 L	19-Nov-20 23:02	1
PFDA	335-76-2	ND	0.750	1.50	2.00		B0K0145	18-Nov-20	0.250 L	19-Nov-20 23:02	1
MeFOSAA	2355-31-9	ND	0.750	1.50	2.00		B0K0145	18-Nov-20	0.250 L	19-Nov-20 23:02	1
EtFOSAA	2991-50-6	ND	0.750	1.50	2.00		B0K0145	18-Nov-20	0.250 L	19-Nov-20 23:02	1
PFUnA	2058-94-8	ND	0.750	1.50	2.00		B0K0145	18-Nov-20	0.250 L	19-Nov-20 23:02	1
PFDoA	307-55-1	ND	0.750	1.50	2.00		B0K0145	18-Nov-20	0.250 L	19-Nov-20 23:02	1
PFTTrDA	72629-94-8	ND	0.750	1.50	2.00		B0K0145	18-Nov-20	0.250 L	19-Nov-20 23:02	1
11CI-PF3OUdS	763051-92-9	ND	0.750	1.50	2.00		B0K0145	18-Nov-20	0.250 L	19-Nov-20 23:02	1
PFTeDA	376-06-7	ND	0.750	1.50	2.00		B0K0145	18-Nov-20	0.250 L	19-Nov-20 23:02	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	113	70 - 130		B0K0145	18-Nov-20	0.250 L	19-Nov-20 23:02	1
13C2-PFDA	SURR	103	70 - 130		B0K0145	18-Nov-20	0.250 L	19-Nov-20 23:02	1
d5-EtFOSAA	SURR	91.0	70 - 130		B0K0145	18-Nov-20	0.250 L	19-Nov-20 23:02	1
13C3-HFPO-DA	SURR	119	70 - 130		B0K0145	18-Nov-20	0.250 L	19-Nov-20 23:02	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Nov 21, 8/20

Sample ID: WI-CV-1FB40-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002514-09	Column:	BEH C18
Project:	9000NVT8	Date Collected:	11-Nov-20 13:10	Date Received:	16-Nov-20 10:02		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.727	1.45	1.94		B0K0145	18-Nov-20	0.258 L	19-Nov-20 23:13	1
PFHxA	307-24-4	ND	0.727	1.45	1.94		B0K0145	18-Nov-20	0.258 L	19-Nov-20 23:13	1
HFPO-DA	13252-13-6	ND	0.727	1.45	1.94		B0K0145	18-Nov-20	0.258 L	19-Nov-20 23:13	1
PFHpA	375-85-9	ND	0.727	1.45	1.94		B0K0145	18-Nov-20	0.258 L	19-Nov-20 23:13	1
ADONA	919005-14-4	ND	0.727	1.45	1.94		B0K0145	18-Nov-20	0.258 L	19-Nov-20 23:13	1
PFHxS	355-46-4	ND	0.727	1.45	1.94		B0K0145	18-Nov-20	0.258 L	19-Nov-20 23:13	1
PFOA	335-67-1	ND	0.727	1.45	1.94		B0K0145	18-Nov-20	0.258 L	19-Nov-20 23:13	1
PFNA	375-95-1	ND	0.727	1.45	1.94		B0K0145	18-Nov-20	0.258 L	19-Nov-20 23:13	1
PFOS	1763-23-1	ND	0.727	1.45	1.94		B0K0145	18-Nov-20	0.258 L	19-Nov-20 23:13	1
9CI-PF3ONS	756426-58-1	ND	0.727	1.45	1.94		B0K0145	18-Nov-20	0.258 L	19-Nov-20 23:13	1
PFDA	335-76-2	ND	0.727	1.45	1.94		B0K0145	18-Nov-20	0.258 L	19-Nov-20 23:13	1
MeFOSAA	2355-31-9	ND	0.727	1.45	1.94		B0K0145	18-Nov-20	0.258 L	19-Nov-20 23:13	1
EtFOSAA	2991-50-6	ND	0.727	1.45	1.94		B0K0145	18-Nov-20	0.258 L	19-Nov-20 23:13	1
PFUnA	2058-94-8	ND	0.727	1.45	1.94		B0K0145	18-Nov-20	0.258 L	19-Nov-20 23:13	1
PFDoA	307-55-1	ND	0.727	1.45	1.94		B0K0145	18-Nov-20	0.258 L	19-Nov-20 23:13	1
PFTTrDA	72629-94-8	ND	0.727	1.45	1.94		B0K0145	18-Nov-20	0.258 L	19-Nov-20 23:13	1
11CI-PF3OUdS	763051-92-9	ND	0.727	1.45	1.94		B0K0145	18-Nov-20	0.258 L	19-Nov-20 23:13	1
PFTeDA	376-06-7	ND	0.727	1.45	1.94		B0K0145	18-Nov-20	0.258 L	19-Nov-20 23:13	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	113	70 - 130		B0K0145	18-Nov-20	0.258 L	19-Nov-20 23:13	1
13C2-PFDA	SURR	99.2	70 - 130		B0K0145	18-Nov-20	0.258 L	19-Nov-20 23:13	1
d5-EtFOSAA	SURR	95.7	70 - 130		B0K0145	18-Nov-20	0.258 L	19-Nov-20 23:13	1
13C3-HFPO-DA	SURR	118	70 - 130		B0K0145	18-Nov-20	0.258 L	19-Nov-20 23:13	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

rw, 21.8.20

**DATA VALIDATION SUMMARY REPORT
NAS WHIDBEY ISLAND, WASHINGTON**

Client: CH2M HILL, Inc., Corvallis, Oregon
 SDG: 2002519
 Laboratory: Vista Analytical Laboratory, El Dorado Hills, California
 Site: NAS Whidbey Island, Residential Wells, CTO-4384, Washington
 Date: December 18, 2020

PFAS			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	WI-A06-RW14-1120	2002519-01	Water
2	WI-A06-FB14-1120	2002519-02	Water
3	WI-AF-1RW28-1120	2002519-03	Water
3MS	WI-AF-1RW28-1120MS	2002519-03MS	Water
3MSD	WI-AF-1RW28-1120MSD	2002519-03MSD	Water
4	WI-AF-1FB28-1120	2002519-04	Water
5	WI-AF-1RW01-1120	2002519-05	Water
6	WI-AF-1FB01-1120	2002519-06	Water
7	WI-A06-RW05-1120	2002519-07	Water
7MS	WI-A06-RW05-1120MS	2002519-07MS	Water
7MSD	WI-A06-RW05-1120MSD	2002519-07MSD	Water
8	WI-A06-FB05-1120	2002519-08	Water
9	WI-A06-RW03-1120	2002519-09	Water
10	WI-A06-RW03P-1120	2002519-10	Water
11	WI-A06-FB03-1120	2002519-11	Water
12	WI-A06-RW04-1120	2002519-12	Water
13	WI-A06-FB04-1120	2002519-13	Water

A full data validation was performed on the analytical data for seven water samples and six aqueous field blank samples collected on November 12, 2020 by CH2M Hill at the NAS Whidbey Island site in Washington. The samples were analyzed under the EPA Method “Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)”.

Specific method references are as follows:

Analysis
PFAS

Method References
USEPA Method 537.1

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, DoD Final General Data Validation Guidelines, November 2019, and the USEPA Data Review and Validation Guidelines as follows:

- The USEPA “Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537,” November 2018;
- and the reviewer's professional judgment.

The following data quality indicators were reviewed for this report:

Organics

- Date Completeness, Case Narrative & Custody Documentation
- Holding times
- Liquid Chromatography/Mass Spectrometry (LC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field QC blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

A full (Stage 2B/4) data validation was performed with this review including a recalculation of 100% of the detected results in the samples.

Data Usability Assessment

There were no serious deficiencies of data.

The data are acceptable for the intended purposes. There were no qualifications.

Perfluorinated Alkyl Substances (PFAS)

Data Completeness, Case Narrative & Custody Documentation

- The case narrative and chain-of-custody documentation were included in the data package as required. All criteria were met.

Holding Times

- All samples were extracted within 14 days for water samples and analyzed within 28 days.

LC/MS Tuning

- All criteria were met.

Initial Calibration

- All relative standard deviation (%RSD) and/or correlation coefficients criteria were met.

Continuing Calibration

- All percent difference (%D) and RRF criteria were met.

Method Blank

- The method blanks were free of contamination.

Field QC Blank

- Field QC sample results are summarized in the table below.

Blank ID	Compound	Conc. ng/L	Qualifier	Affected Samples
WI-A06-FB14-1120	None - ND	-	-	-
WI-AF-1FB28-1120	None - ND	-	-	-
WI-AF-1FB01-1120	None - ND	-	-	-
WI-A06-FB05-1120	None - ND	-	-	-
WI-A06-FB03-1120	None - ND	-	-	-
WI-A06-FB04-1120	None - ND	-	-	-

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- The MS/MSD samples exhibited acceptable percent recoveries (%R) and RPD values.

Laboratory Control Samples (LCS)

- The LCS samples exhibited acceptable percent recoveries (%R).

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- All criteria were met.

Field Duplicate Sample Precision

- Field duplicate samples are summarized below. The precision was acceptable.

Compound	WI-A06-RW03-1120 ng/L	WI-A06-RW03P-1120 ng/L	RPD	Qualifier
PFBS	35.2	34.5	2%	None
PFHxA	56.4	54.4	4%	
PFHpA	19.5	19.3	1%	
PFHxS	117	103	13%	
PFOA	37.2	35.1	6%	
PFOS	15.4	15.7	2%	

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed: Nancy Weaver
Nancy Weaver
Senior Chemist

Dated: 12/21/20

Qualifier	Definition
U	The analyte was not detected and was reported as less than the LOD or as defined by the customer. The LOD has been adjusted for any dilution or concentration of the sample.
J	The reported result was an estimated value with an unknown bias.
J+	The result was an estimated quantity, but the result may be biased high.
J-	The result was an estimated quantity, but the result may be biased low.
N	The analysis indicates the presence of an analyte for which there was presumptive evidence to make a "tentative identification."
NJ	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value was the estimated concentration in the sample.
UJ	The analyte was not detected and was reported as less than the LOD or as defined by the customer. However, the associated numerical value is approximate.
X	<p>The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided.</p> <p>Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.</p>

Sample ID: WI-A06-RW14-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002519-01	Column:	BEH C18
Project:	9000NVT8	Date Collected:	12-Nov-20 11:30	Date Received:	17-Nov-20 10:43		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	55.9	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 19:43	1
PFHxA	307-24-4	65.2	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 19:43	1
HFPO-DA	13252-13-6	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 19:43	1
PFHpA	375-85-9	16.7	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 19:43	1
ADONA	919005-14-4	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 19:43	1
PFHxS	355-46-4	220	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 19:43	1
PFOA	335-67-1	24.2	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 19:43	1
PFNA	375-95-1	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 19:43	1
PFOS	1763-23-1	14.4	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 19:43	1
9CI-PF3ONS	756426-58-1	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 19:43	1
PFDA	335-76-2	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 19:43	1
MeFOSAA	2355-31-9	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 19:43	1
EtFOSAA	2991-50-6	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 19:43	1
PFUnA	2058-94-8	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 19:43	1
PFDoA	307-55-1	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 19:43	1
PFTTrDA	72629-94-8	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 19:43	1
11CI-PF3OUdS	763051-92-9	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 19:43	1
PFTeDA	376-06-7	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 19:43	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	102	70 - 130		B0K0156	19-Nov-20	0.252 L	20-Nov-20 19:43	1
13C2-PFDA	SURR	110	70 - 130		B0K0156	19-Nov-20	0.252 L	20-Nov-20 19:43	1
d5-EtFOSAA	SURR	89.9	70 - 130		B0K0156	19-Nov-20	0.252 L	20-Nov-20 19:43	1
13C3-HFPO-DA	SURR	98.3	70 - 130		B0K0156	19-Nov-20	0.252 L	20-Nov-20 19:43	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

WI2118/20

Sample ID: WI-A06-FB14-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002519-02	Column:	BEH C18
Project:	9000NVT8	Date Collected:	12-Nov-20 11:30	Date Received:	17-Nov-20 10:43		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.754	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 19:54	1
PFHxA	307-24-4	ND	0.754	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 19:54	1
HFPO-DA	13252-13-6	ND	0.754	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 19:54	1
PFHpA	375-85-9	ND	0.754	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 19:54	1
ADONA	919005-14-4	ND	0.754	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 19:54	1
PFHxS	355-46-4	ND	0.754	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 19:54	1
PFOA	335-67-1	ND	0.754	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 19:54	1
PFNA	375-95-1	ND	0.754	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 19:54	1
PFOS	1763-23-1	ND	0.754	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 19:54	1
9CI-PF3ONS	756426-58-1	ND	0.754	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 19:54	1
PFDA	335-76-2	ND	0.754	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 19:54	1
MeFOSAA	2355-31-9	ND	0.754	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 19:54	1
EtFOSAA	2991-50-6	ND	0.754	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 19:54	1
PFUnA	2058-94-8	ND	0.754	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 19:54	1
PFDoA	307-55-1	ND	0.754	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 19:54	1
PFTTrDA	72629-94-8	ND	0.754	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 19:54	1
11CI-PF3OUdS	763051-92-9	ND	0.754	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 19:54	1
PFTeDA	376-06-7	ND	0.754	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 19:54	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	104	70 - 130		B0K0156	19-Nov-20	0.249 L	20-Nov-20 19:54	1
13C2-PFDA	SURR	108	70 - 130		B0K0156	19-Nov-20	0.249 L	20-Nov-20 19:54	1
d5-EtFOSAA	SURR	92.1	70 - 130		B0K0156	19-Nov-20	0.249 L	20-Nov-20 19:54	1
13C3-HFPO-DA	SURR	101	70 - 130		B0K0156	19-Nov-20	0.249 L	20-Nov-20 19:54	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Nov 12/18/20

Sample ID: WI-AF-1RW28-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002519-03	Column:	BEH C18
Project:	9000NVT8	Date Collected:	12-Nov-20 12:55	Date Received:	17-Nov-20 10:43		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	2.72	0.740	1.48	1.97		B0K0156	19-Nov-20	0.253 L	20-Nov-20 20:05	1
PFHxA	307-24-4	5.85	0.740	1.48	1.97		B0K0156	19-Nov-20	0.253 L	20-Nov-20 20:05	1
HFPO-DA	13252-13-6	ND	0.740	1.48	1.97		B0K0156	19-Nov-20	0.253 L	20-Nov-20 20:05	1
PFHpA	375-85-9	3.77	0.740	1.48	1.97		B0K0156	19-Nov-20	0.253 L	20-Nov-20 20:05	1
ADONA	919005-14-4	ND	0.740	1.48	1.97		B0K0156	19-Nov-20	0.253 L	20-Nov-20 20:05	1
PFHxS	355-46-4	9.23	0.740	1.48	1.97		B0K0156	19-Nov-20	0.253 L	20-Nov-20 20:05	1
PFOA	335-67-1	31.4	0.740	1.48	1.97		B0K0156	19-Nov-20	0.253 L	20-Nov-20 20:05	1
PFNA	375-95-1	ND	0.740	1.48	1.97		B0K0156	19-Nov-20	0.253 L	20-Nov-20 20:05	1
PFOS	1763-23-1	0.961	0.740	1.48	1.97	J	B0K0156	19-Nov-20	0.253 L	20-Nov-20 20:05	1
9CI-PF3ONS	756426-58-1	ND	0.740	1.48	1.97		B0K0156	19-Nov-20	0.253 L	20-Nov-20 20:05	1
PFDA	335-76-2	ND	0.740	1.48	1.97		B0K0156	19-Nov-20	0.253 L	20-Nov-20 20:05	1
MeFOSAA	2355-31-9	ND	0.740	1.48	1.97		B0K0156	19-Nov-20	0.253 L	20-Nov-20 20:05	1
EtFOSAA	2991-50-6	ND	0.740	1.48	1.97		B0K0156	19-Nov-20	0.253 L	20-Nov-20 20:05	1
PFUnA	2058-94-8	ND	0.740	1.48	1.97		B0K0156	19-Nov-20	0.253 L	20-Nov-20 20:05	1
PFDoA	307-55-1	ND	0.740	1.48	1.97		B0K0156	19-Nov-20	0.253 L	20-Nov-20 20:05	1
PFTTrDA	72629-94-8	ND	0.740	1.48	1.97		B0K0156	19-Nov-20	0.253 L	20-Nov-20 20:05	1
11CI-PF3OUdS	763051-92-9	ND	0.740	1.48	1.97		B0K0156	19-Nov-20	0.253 L	20-Nov-20 20:05	1
PFTeDA	376-06-7	ND	0.740	1.48	1.97		B0K0156	19-Nov-20	0.253 L	20-Nov-20 20:05	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	94.0	70 - 130		B0K0156	19-Nov-20	0.253 L	20-Nov-20 20:05	1
13C2-PFDA	SURR	101	70 - 130		B0K0156	19-Nov-20	0.253 L	20-Nov-20 20:05	1
d5-EtFOSAA	SURR	78.2	70 - 130		B0K0156	19-Nov-20	0.253 L	20-Nov-20 20:05	1
13C3-HFPO-DA	SURR	88.4	70 - 130		B0K0156	19-Nov-20	0.253 L	20-Nov-20 20:05	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

rw 12/8/20

Sample ID: WI-AF-1FB28-1120

EPA Method 537.1

Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2002519-04	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	12-Nov-20 12:55		Date Received:	17-Nov-20 10:43					
Location:	Drinking Water										

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 20:16	1
PFHxA	307-24-4	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 20:16	1
HFPO-DA	13252-13-6	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 20:16	1
PFHpA	375-85-9	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 20:16	1
ADONA	919005-14-4	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 20:16	1
PFHxS	355-46-4	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 20:16	1
PFOA	335-67-1	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 20:16	1
PFNA	375-95-1	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 20:16	1
PFOS	1763-23-1	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 20:16	1
9CI-PF3ONS	756426-58-1	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 20:16	1
PFDA	335-76-2	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 20:16	1
MeFOSAA	2355-31-9	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 20:16	1
EtFOSAA	2991-50-6	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 20:16	1
PFUnA	2058-94-8	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 20:16	1
PFDoA	307-55-1	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 20:16	1
PFTTrDA	72629-94-8	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 20:16	1
11CI-PF3OUdS	763051-92-9	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 20:16	1
PFTeDA	376-06-7	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	20-Nov-20 20:16	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	99.0	70 - 130		B0K0156	19-Nov-20	0.252 L	20-Nov-20 20:16	1
13C2-PFDA	SURR	108	70 - 130		B0K0156	19-Nov-20	0.252 L	20-Nov-20 20:16	1
d5-EtFOSAA	SURR	84.6	70 - 130		B0K0156	19-Nov-20	0.252 L	20-Nov-20 20:16	1
13C3-HFPO-DA	SURR	95.4	70 - 130		B0K0156	19-Nov-20	0.252 L	20-Nov-20 20:16	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 12/18/20

Sample ID: WI-AF-1RW01-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002519-05	Column:	BEH C18
Project:	9000NVT8	Date Collected:	12-Nov-20 14:20	Date Received:	17-Nov-20 10:43		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.755	1.51	2.01		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:27	1
PFHxA	307-24-4	ND	0.755	1.51	2.01		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:27	1
HFPO-DA	13252-13-6	ND	0.755	1.51	2.01		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:27	1
PFHpA	375-85-9	ND	0.755	1.51	2.01		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:27	1
ADONA	919005-14-4	ND	0.755	1.51	2.01		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:27	1
PFHxS	355-46-4	ND	0.755	1.51	2.01		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:27	1
PFOA	335-67-1	ND	0.755	1.51	2.01		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:27	1
PFNA	375-95-1	ND	0.755	1.51	2.01		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:27	1
PFOS	1763-23-1	ND	0.755	1.51	2.01		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:27	1
9CI-PF3ONS	756426-58-1	ND	0.755	1.51	2.01		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:27	1
PFDA	335-76-2	ND	0.755	1.51	2.01		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:27	1
MeFOSAA	2355-31-9	ND	0.755	1.51	2.01		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:27	1
EtFOSAA	2991-50-6	ND	0.755	1.51	2.01		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:27	1
PFUnA	2058-94-8	ND	0.755	1.51	2.01		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:27	1
PFDoA	307-55-1	ND	0.755	1.51	2.01		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:27	1
PFTTrDA	72629-94-8	ND	0.755	1.51	2.01		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:27	1
11CI-PF3OUdS	763051-92-9	ND	0.755	1.51	2.01		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:27	1
PFTeDA	376-06-7	ND	0.755	1.51	2.01		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:27	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	92.1	70 - 130		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:27	1
13C2-PFDA	SURR	103	70 - 130		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:27	1
d5-EtFOSAA	SURR	86.0	70 - 130		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:27	1
13C3-HFPO-DA	SURR	87.7	70 - 130		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:27	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

new 12/18/20

Sample ID: WI-AF-1FB01-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002519-06	Column:	BEH C18
Project:	9000NVT8	Date Collected:	12-Nov-20 14:20	Date Received:	17-Nov-20 10:43		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.757	1.51	2.02		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:38	1
PFHxA	307-24-4	ND	0.757	1.51	2.02		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:38	1
HFPO-DA	13252-13-6	ND	0.757	1.51	2.02		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:38	1
PFHpA	375-85-9	ND	0.757	1.51	2.02		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:38	1
ADONA	919005-14-4	ND	0.757	1.51	2.02		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:38	1
PFHxS	355-46-4	ND	0.757	1.51	2.02		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:38	1
PFOA	335-67-1	ND	0.757	1.51	2.02		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:38	1
PFNA	375-95-1	ND	0.757	1.51	2.02		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:38	1
PFOS	1763-23-1	ND	0.757	1.51	2.02		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:38	1
9CI-PF3ONS	756426-58-1	ND	0.757	1.51	2.02		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:38	1
PFDA	335-76-2	ND	0.757	1.51	2.02		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:38	1
MeFOSAA	2355-31-9	ND	0.757	1.51	2.02		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:38	1
EtFOSAA	2991-50-6	ND	0.757	1.51	2.02		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:38	1
PFUnA	2058-94-8	ND	0.757	1.51	2.02		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:38	1
PFDaA	307-55-1	ND	0.757	1.51	2.02		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:38	1
PFTTrDA	72629-94-8	ND	0.757	1.51	2.02		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:38	1
11CI-PF3OUdS	763051-92-9	ND	0.757	1.51	2.02		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:38	1
PFTeDA	376-06-7	ND	0.757	1.51	2.02		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:38	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	97.3	70 - 130		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:38	1
13C2-PFDA	SURR	106	70 - 130		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:38	1
d5-EtFOSAA	SURR	93.7	70 - 130		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:38	1
13C3-HFPO-DA	SURR	91.9	70 - 130		B0K0156	19-Nov-20	0.248 L	20-Nov-20 20:38	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

WI 12/8/20

Sample ID: WI-A06-RW05-1120

EPA Method 537.1

Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2002519-07	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	12-Nov-20 15:35		Date Received:	17-Nov-20 10:43					
Location:	Drinking Water										

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	20.6	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 20:49	1
PFHxA	307-24-4	45.2	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 20:49	1
HFPO-DA	13252-13-6	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 20:49	1
PFHpA	375-85-9	15.4	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 20:49	1
ADONA	919005-14-4	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 20:49	1
PFHxS	355-46-4	170	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 20:49	1
PFOA	335-67-1	53.5	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 20:49	1
PFNA	375-95-1	1.03	0.723	1.45	1.93	J	B0K0156	19-Nov-20	0.259 L	20-Nov-20 20:49	1
PFOS	1763-23-1	62.3	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 20:49	1
9CI-PF3ONS	756426-58-1	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 20:49	1
PFDA	335-76-2	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 20:49	1
MeFOSAA	2355-31-9	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 20:49	1
EtFOSAA	2991-50-6	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 20:49	1
PFUnA	2058-94-8	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 20:49	1
PFDoA	307-55-1	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 20:49	1
PFTTrDA	72629-94-8	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 20:49	1
11CI-PF3OUdS	763051-92-9	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 20:49	1
PFTeDA	376-06-7	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 20:49	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	93.7	70 - 130		B0K0156	19-Nov-20	0.259 L	20-Nov-20 20:49	1
13C2-PFDA	SURR	97.5	70 - 130		B0K0156	19-Nov-20	0.259 L	20-Nov-20 20:49	1
d5-EtFOSAA	SURR	74.6	70 - 130		B0K0156	19-Nov-20	0.259 L	20-Nov-20 20:49	1
13C3-HFPO-DA	SURR	89.7	70 - 130		B0K0156	19-Nov-20	0.259 L	20-Nov-20 20:49	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW1218120

Sample ID: WI-A06-FB05-1120

EPA Method 537.1

Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2002519-08	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	12-Nov-20 15:35		Date Received:	17-Nov-20 10:43					
Location:	Drinking Water										

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 21:00	1
PFHxA	307-24-4	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 21:00	1
HFPO-DA	13252-13-6	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 21:00	1
PFHpA	375-85-9	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 21:00	1
ADONA	919005-14-4	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 21:00	1
PFHxS	355-46-4	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 21:00	1
PFOA	335-67-1	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 21:00	1
PFNA	375-95-1	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 21:00	1
PFOS	1763-23-1	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 21:00	1
9CI-PF3ONS	756426-58-1	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 21:00	1
PFDA	335-76-2	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 21:00	1
MeFOSAA	2355-31-9	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 21:00	1
EtFOSAA	2991-50-6	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 21:00	1
PFOA	2058-94-8	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 21:00	1
PFDaA	307-55-1	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 21:00	1
PFTTrDA	72629-94-8	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 21:00	1
11CI-PF3OUdS	763051-92-9	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 21:00	1
PFTeDA	376-06-7	ND	0.723	1.45	1.93		B0K0156	19-Nov-20	0.259 L	20-Nov-20 21:00	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	92.2	70 - 130		B0K0156	19-Nov-20	0.259 L	20-Nov-20 21:00	1
13C2-PFDA	SURR	100	70 - 130		B0K0156	19-Nov-20	0.259 L	20-Nov-20 21:00	1
d5-EtFOSAA	SURR	80.2	70 - 130		B0K0156	19-Nov-20	0.259 L	20-Nov-20 21:00	1
13C3-HFPO-DA	SURR	88.1	70 - 130		B0K0156	19-Nov-20	0.259 L	20-Nov-20 21:00	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw1218120

Sample ID: WI-A06-RW03-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002519-09	Column:	BEH C18
Project:	9000NVT8	Date Collected:	12-Nov-20 16:05	Date Received:	17-Nov-20 10:43		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	35.2	0.726	1.45	1.94		B0K0156	19-Nov-20	0.258 L	20-Nov-20 21:11	1
PFHxA	307-24-4	56.4	0.726	1.45	1.94		B0K0156	19-Nov-20	0.258 L	20-Nov-20 21:11	1
HFPO-DA	13252-13-6	ND	0.726	1.45	1.94		B0K0156	19-Nov-20	0.258 L	20-Nov-20 21:11	1
PFHpA	375-85-9	19.5	0.726	1.45	1.94		B0K0156	19-Nov-20	0.258 L	20-Nov-20 21:11	1
ADONA	919005-14-4	ND	0.726	1.45	1.94		B0K0156	19-Nov-20	0.258 L	20-Nov-20 21:11	1
PFHxS	355-46-4	117	0.726	1.45	1.94		B0K0156	19-Nov-20	0.258 L	20-Nov-20 21:11	1
PFOA	335-67-1	37.2	0.726	1.45	1.94		B0K0156	19-Nov-20	0.258 L	20-Nov-20 21:11	1
PFNA	375-95-1	ND	0.726	1.45	1.94		B0K0156	19-Nov-20	0.258 L	20-Nov-20 21:11	1
PFOS	1763-23-1	15.4	0.726	1.45	1.94		B0K0156	19-Nov-20	0.258 L	20-Nov-20 21:11	1
9CI-PF3ONS	756426-58-1	ND	0.726	1.45	1.94		B0K0156	19-Nov-20	0.258 L	20-Nov-20 21:11	1
PFDA	335-76-2	ND	0.726	1.45	1.94		B0K0156	19-Nov-20	0.258 L	20-Nov-20 21:11	1
MeFOSAA	2355-31-9	ND	0.726	1.45	1.94		B0K0156	19-Nov-20	0.258 L	20-Nov-20 21:11	1
EtFOSAA	2991-50-6	ND	0.726	1.45	1.94		B0K0156	19-Nov-20	0.258 L	20-Nov-20 21:11	1
PFUnA	2058-94-8	ND	0.726	1.45	1.94		B0K0156	19-Nov-20	0.258 L	20-Nov-20 21:11	1
PFDoA	307-55-1	ND	0.726	1.45	1.94		B0K0156	19-Nov-20	0.258 L	20-Nov-20 21:11	1
PFTTrDA	72629-94-8	ND	0.726	1.45	1.94		B0K0156	19-Nov-20	0.258 L	20-Nov-20 21:11	1
11Cl-PF3OUdS	763051-92-9	ND	0.726	1.45	1.94		B0K0156	19-Nov-20	0.258 L	20-Nov-20 21:11	1
PFTeDA	376-06-7	ND	0.726	1.45	1.94		B0K0156	19-Nov-20	0.258 L	20-Nov-20 21:11	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	99.9	70 - 130		B0K0156	19-Nov-20	0.258 L	20-Nov-20 21:11	1
13C2-PFDA	SURR	107	70 - 130		B0K0156	19-Nov-20	0.258 L	20-Nov-20 21:11	1
d5-EtFOSAA	SURR	90.7	70 - 130		B0K0156	19-Nov-20	0.258 L	20-Nov-20 21:11	1
13C3-HFPO-DA	SURR	95.7	70 - 130		B0K0156	19-Nov-20	0.258 L	20-Nov-20 21:11	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

rw: 21.8/20

Sample ID: WI-A06-RW03P-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002519-10	Column:	BEH C18
Project:	9000NVT8	Date Collected:	12-Nov-20 16:10	Date Received:	17-Nov-20 10:43		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	34.5	0.769	1.54	2.05		B0K0156	19-Nov-20	0.244 L	20-Nov-20 21:22	1
PFHxA	307-24-4	54.4	0.769	1.54	2.05		B0K0156	19-Nov-20	0.244 L	20-Nov-20 21:22	1
HFPO-DA	13252-13-6	ND	0.769	1.54	2.05		B0K0156	19-Nov-20	0.244 L	20-Nov-20 21:22	1
PFHpA	375-85-9	19.3	0.769	1.54	2.05		B0K0156	19-Nov-20	0.244 L	20-Nov-20 21:22	1
ADONA	919005-14-4	ND	0.769	1.54	2.05		B0K0156	19-Nov-20	0.244 L	20-Nov-20 21:22	1
PFHxS	355-46-4	103	0.769	1.54	2.05		B0K0156	19-Nov-20	0.244 L	20-Nov-20 21:22	1
PFOA	335-67-1	35.1	0.769	1.54	2.05		B0K0156	19-Nov-20	0.244 L	20-Nov-20 21:22	1
PFNA	375-95-1	ND	0.769	1.54	2.05		B0K0156	19-Nov-20	0.244 L	20-Nov-20 21:22	1
PFOS	1763-23-1	15.7	0.769	1.54	2.05		B0K0156	19-Nov-20	0.244 L	20-Nov-20 21:22	1
9CI-PF3ONS	756426-58-1	ND	0.769	1.54	2.05		B0K0156	19-Nov-20	0.244 L	20-Nov-20 21:22	1
PFDA	335-76-2	ND	0.769	1.54	2.05		B0K0156	19-Nov-20	0.244 L	20-Nov-20 21:22	1
MeFOSAA	2355-31-9	ND	0.769	1.54	2.05		B0K0156	19-Nov-20	0.244 L	20-Nov-20 21:22	1
EtFOSAA	2991-50-6	ND	0.769	1.54	2.05		B0K0156	19-Nov-20	0.244 L	20-Nov-20 21:22	1
PFUnA	2058-94-8	ND	0.769	1.54	2.05		B0K0156	19-Nov-20	0.244 L	20-Nov-20 21:22	1
PFDoA	307-55-1	ND	0.769	1.54	2.05		B0K0156	19-Nov-20	0.244 L	20-Nov-20 21:22	1
PFTTrDA	72629-94-8	ND	0.769	1.54	2.05		B0K0156	19-Nov-20	0.244 L	20-Nov-20 21:22	1
11CI-PF3OUdS	763051-92-9	ND	0.769	1.54	2.05		B0K0156	19-Nov-20	0.244 L	20-Nov-20 21:22	1
PFTeDA	376-06-7	ND	0.769	1.54	2.05		B0K0156	19-Nov-20	0.244 L	20-Nov-20 21:22	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	93.8	70 - 130		B0K0156	19-Nov-20	0.244 L	20-Nov-20 21:22	1
13C2-PFDA	SURR	101	70 - 130		B0K0156	19-Nov-20	0.244 L	20-Nov-20 21:22	1
d5-EtFOSAA	SURR	90.8	70 - 130		B0K0156	19-Nov-20	0.244 L	20-Nov-20 21:22	1
13C3-HFPO-DA	SURR	90.2	70 - 130		B0K0156	19-Nov-20	0.244 L	20-Nov-20 21:22	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

11/21/20

Sample ID: WI-A06-FB03-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002519-11	Column:	BEH C18
Project:	9000NVT8	Date Collected:	12-Nov-20 16:05	Date Received:	17-Nov-20 10:43		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	21-Nov-20 11:58	1
PFHxA	307-24-4	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	21-Nov-20 11:58	1
HFPO-DA	13252-13-6	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	21-Nov-20 11:58	1
PFHpA	375-85-9	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	21-Nov-20 11:58	1
ADONA	919005-14-4	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	21-Nov-20 11:58	1
PFHxS	355-46-4	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	21-Nov-20 11:58	1
PFOA	335-67-1	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	21-Nov-20 11:58	1
PFNA	375-95-1	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	21-Nov-20 11:58	1
PFOS	1763-23-1	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	21-Nov-20 11:58	1
9CI-PF3ONS	756426-58-1	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	21-Nov-20 11:58	1
PFDA	335-76-2	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	21-Nov-20 11:58	1
MeFOSAA	2355-31-9	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	21-Nov-20 11:58	1
EtFOSAA	2991-50-6	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	21-Nov-20 11:58	1
PFUnA	2058-94-8	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	21-Nov-20 11:58	1
PFDoA	307-55-1	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	21-Nov-20 11:58	1
PFTTrDA	72629-94-8	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	21-Nov-20 11:58	1
11CI-PF3OUdS	763051-92-9	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	21-Nov-20 11:58	1
PFTeDA	376-06-7	ND	0.745	1.49	1.99		B0K0156	19-Nov-20	0.252 L	21-Nov-20 11:58	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	73.7	70 - 130		B0K0156	19-Nov-20	0.252 L	21-Nov-20 11:58	1
13C2-PFDA	SURR	83.1	70 - 130		B0K0156	19-Nov-20	0.252 L	21-Nov-20 11:58	1
d5-EtFOSAA	SURR	71.5	70 - 130		B0K0156	19-Nov-20	0.252 L	21-Nov-20 11:58	1
13C3-HFPO-DA	SURR	70.7	70 - 130		B0K0156	19-Nov-20	0.252 L	21-Nov-20 11:58	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

WI 21.8/20

Sample ID: WI-A06-RW04-1120

EPA Method 537.1

Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2002519-12	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	12-Nov-20 16:20		Date Received:	17-Nov-20 10:43					
Location:	Drinking Water										

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	32.5	0.752	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 21:44	1
PFHxA	307-24-4	5.60	0.752	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 21:44	1
HFPO-DA	13252-13-6	ND	0.752	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 21:44	1
PFHpA	375-85-9	3.17	0.752	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 21:44	1
ADONA	919005-14-4	ND	0.752	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 21:44	1
PFHxS	355-46-4	75.1	0.752	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 21:44	1
PFOA	335-67-1	6.23	0.752	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 21:44	1
PFNA	375-95-1	ND	0.752	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 21:44	1
PFOS	1763-23-1	5.81	0.752	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 21:44	1
9CI-PF3ONS	756426-58-1	ND	0.752	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 21:44	1
PFDA	335-76-2	ND	0.752	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 21:44	1
MeFOSAA	2355-31-9	ND	0.752	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 21:44	1
EtFOSAA	2991-50-6	ND	0.752	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 21:44	1
PfUnA	2058-94-8	ND	0.752	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 21:44	1
PFDaA	307-55-1	ND	0.752	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 21:44	1
PFTrDA	72629-94-8	ND	0.752	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 21:44	1
11Cl-PF3OUdS	763051-92-9	ND	0.752	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 21:44	1
PFTeDA	376-06-7	ND	0.752	1.51	2.01		B0K0156	19-Nov-20	0.249 L	20-Nov-20 21:44	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	89.3	70 - 130		B0K0156	19-Nov-20	0.249 L	20-Nov-20 21:44	1
13C2-PFDA	SURR	92.7	70 - 130		B0K0156	19-Nov-20	0.249 L	20-Nov-20 21:44	1
d5-EtFOSAA	SURR	76.7	70 - 130		B0K0156	19-Nov-20	0.249 L	20-Nov-20 21:44	1
13C3-HFPO-DA	SURR	87.8	70 - 130		B0K0156	19-Nov-20	0.249 L	20-Nov-20 21:44	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw12/18/20

Sample ID: WI-A06-FB04-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002519-13	Column:	BEH C18
Project:	9000NVT8	Date Collected:	12-Nov-20 16:20	Date Received:	17-Nov-20 10:43		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.751	1.50	2.00		B0K0156	19-Nov-20	0.250 L	20-Nov-20 21:55	1
PFHxA	307-24-4	ND	0.751	1.50	2.00		B0K0156	19-Nov-20	0.250 L	20-Nov-20 21:55	1
HFPO-DA	13252-13-6	ND	0.751	1.50	2.00		B0K0156	19-Nov-20	0.250 L	20-Nov-20 21:55	1
PFHpA	375-85-9	ND	0.751	1.50	2.00		B0K0156	19-Nov-20	0.250 L	20-Nov-20 21:55	1
ADONA	919005-14-4	ND	0.751	1.50	2.00		B0K0156	19-Nov-20	0.250 L	20-Nov-20 21:55	1
PFHxS	355-46-4	ND	0.751	1.50	2.00		B0K0156	19-Nov-20	0.250 L	20-Nov-20 21:55	1
PFOA	335-67-1	ND	0.751	1.50	2.00		B0K0156	19-Nov-20	0.250 L	20-Nov-20 21:55	1
PFNA	375-95-1	ND	0.751	1.50	2.00		B0K0156	19-Nov-20	0.250 L	20-Nov-20 21:55	1
PFOS	1763-23-1	ND	0.751	1.50	2.00		B0K0156	19-Nov-20	0.250 L	20-Nov-20 21:55	1
9CI-PF3ONS	756426-58-1	ND	0.751	1.50	2.00		B0K0156	19-Nov-20	0.250 L	20-Nov-20 21:55	1
PFDA	335-76-2	ND	0.751	1.50	2.00		B0K0156	19-Nov-20	0.250 L	20-Nov-20 21:55	1
MeFOSAA	2355-31-9	ND	0.751	1.50	2.00		B0K0156	19-Nov-20	0.250 L	20-Nov-20 21:55	1
EtFOSAA	2991-50-6	ND	0.751	1.50	2.00		B0K0156	19-Nov-20	0.250 L	20-Nov-20 21:55	1
PFOA	2058-94-8	ND	0.751	1.50	2.00		B0K0156	19-Nov-20	0.250 L	20-Nov-20 21:55	1
PFDoA	307-55-1	ND	0.751	1.50	2.00		B0K0156	19-Nov-20	0.250 L	20-Nov-20 21:55	1
PFTTrDA	72629-94-8	ND	0.751	1.50	2.00		B0K0156	19-Nov-20	0.250 L	20-Nov-20 21:55	1
11CI-PF3OUdS	763051-92-9	ND	0.751	1.50	2.00		B0K0156	19-Nov-20	0.250 L	20-Nov-20 21:55	1
PFTeDA	376-06-7	ND	0.751	1.50	2.00		B0K0156	19-Nov-20	0.250 L	20-Nov-20 21:55	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	93.7	70 - 130		B0K0156	19-Nov-20	0.250 L	20-Nov-20 21:55	1
13C2-PFDA	SURR	102	70 - 130		B0K0156	19-Nov-20	0.250 L	20-Nov-20 21:55	1
d5-EtFOSAA	SURR	89.5	70 - 130		B0K0156	19-Nov-20	0.250 L	20-Nov-20 21:55	1
13C3-HFPO-DA	SURR	90.5	70 - 130		B0K0156	19-Nov-20	0.250 L	20-Nov-20 21:55	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

WI 21.8/20

**DATA VALIDATION SUMMARY REPORT
NAS WHIDBEY ISLAND, WASHINGTON**

Client: CH2M HILL, Inc., Corvallis, Oregon
 SDG: 2002520
 Laboratory: Vista Analytical Laboratory, El Dorado Hills, California
 Site: NAS Whidbey Island, Residential Wells, CTO-4384, Washington
 Date: December 18, 2020

PFAS			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	WI-CV-2RW04-1120	2002520-01	Water
2	WI-CV-2FB04-1120	2002520-02	Water
3	WI-CV-1RW37-1120	2002520-03	Water
4	WI-CV-1FB37-1120	2002520-04	Water
5	WI-CV-3RW07-1120	2002520-05	Water
6	WI-CV-3FB07-1120	2002520-06	Water
7	WI-CV-2RW02-1120	2002520-07	Water
8	WI-CV-2FB02-1120	2002520-08	Water

A full data validation was performed on the analytical data for four water samples and four aqueous field blank samples collected on November 13, 2020 by CH2M Hill at the NAS Whidbey Island site in Washington. The samples were analyzed under the EPA Method “Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)”.

Specific method references are as follows:

Analysis
PFAS

Method References
USEPA Method 537.1

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, DoD Final General Data Validation Guidelines, November 2019, and the USEPA Data Review and Validation Guidelines as follows:

- The USEPA “Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537,” November 2018;
- and the reviewer's professional judgment.

The following data quality indicators were reviewed for this report:

Organics

- Date Completeness, Case Narrative & Custody Documentation
- Holding times
- Liquid Chromatography/Mass Spectrometry (LC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field QC blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

A full (Stage 2B/4) data validation was performed with this review including a recalculation of 100% of the detected results in the samples.

Data Usability Assessment

There were no serious deficiencies of data.

The data are acceptable for the intended purposes. There were no qualifications.

Perfluorinated Alkyl Substances (PFAS)

Data Completeness, Case Narrative & Custody Documentation

- The case narrative and chain-of-custody documentation were included in the data package as required. All criteria were met.

Holding Times

- All samples were extracted within 14 days for water samples and analyzed within 28 days.

LC/MS Tuning

- All criteria were met.

Initial Calibration

- All relative standard deviation (%RSD) and/or correlation coefficients criteria were met.

Continuing Calibration

- All percent difference (%D) and RRF criteria were met.

Method Blank

- The method blanks were free of contamination.

Field QC Blank

- Field QC sample results are summarized in the table below.

Blank ID	Compound	Conc. ng/L	Qualifier	Affected Samples
WI-CV-2FB04-1120	None - ND	-	-	-
WI-CV-1FB37-1120	None - ND	-	-	-
WI-CV-3FB07-1120	None - ND	-	-	-
WI-CV-2FB02-1120	None - ND	-	-	-

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- MS/MSD samples were not analyzed.

Laboratory Control Samples (LCS)

- The LCS samples exhibited acceptable percent recoveries (%R).

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- All criteria were met.

Field Duplicate Sample Precision

- Field duplicate samples were not collected.

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed: Nancy Weaver
Nancy Weaver
Senior Chemist

Dated: 12/21/20

Qualifier	Definition
U	The analyte was not detected and was reported as less than the LOD or as defined by the customer. The LOD has been adjusted for any dilution or concentration of the sample.
J	The reported result was an estimated value with an unknown bias.
J+	The result was an estimated quantity, but the result may be biased high.
J-	The result was an estimated quantity, but the result may be biased low.
N	The analysis indicates the presence of an analyte for which there was presumptive evidence to make a "tentative identification."
NJ	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value was the estimated concentration in the sample.
UJ	The analyte was not detected and was reported as less than the LOD or as defined by the customer. However, the associated numerical value is approximate.
X	The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided. Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.

Sample ID: WI-CV-2RW04-1120

EPA Method 537.1

Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2002520-01	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	13-Nov-20 09:05		Date Received:	17-Nov-20 10:43					
Location:	Drinking Water										

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	17.2	0.764	1.52	2.04		B0K0157	19-Nov-20	0.246 L	20-Nov-20 23:13	1
PFHxA	307-24-4	6.33	0.764	1.52	2.04		B0K0157	19-Nov-20	0.246 L	20-Nov-20 23:13	1
HFPO-DA	13252-13-6	ND	0.764	1.52	2.04		B0K0157	19-Nov-20	0.246 L	20-Nov-20 23:13	1
PFHpA	375-85-9	2.95	0.764	1.52	2.04		B0K0157	19-Nov-20	0.246 L	20-Nov-20 23:13	1
ADONA	919005-14-4	ND	0.764	1.52	2.04		B0K0157	19-Nov-20	0.246 L	20-Nov-20 23:13	1
PFHxS	355-46-4	21.7	0.764	1.52	2.04		B0K0157	19-Nov-20	0.246 L	20-Nov-20 23:13	1
PFOA	335-67-1	10.8	0.764	1.52	2.04		B0K0157	19-Nov-20	0.246 L	20-Nov-20 23:13	1
PFNA	375-95-1	ND	0.764	1.52	2.04		B0K0157	19-Nov-20	0.246 L	20-Nov-20 23:13	1
PFOS	1763-23-1	21.6	0.764	1.52	2.04		B0K0157	19-Nov-20	0.246 L	20-Nov-20 23:13	1
9CI-PF3ONS	756426-58-1	ND	0.764	1.52	2.04		B0K0157	19-Nov-20	0.246 L	20-Nov-20 23:13	1
PFDA	335-76-2	ND	0.764	1.52	2.04		B0K0157	19-Nov-20	0.246 L	20-Nov-20 23:13	1
MeFOSAA	2355-31-9	ND	0.764	1.52	2.04		B0K0157	19-Nov-20	0.246 L	20-Nov-20 23:13	1
EtFOSAA	2991-50-6	ND	0.764	1.52	2.04		B0K0157	19-Nov-20	0.246 L	20-Nov-20 23:13	1
PFUnA	2058-94-8	ND	0.764	1.52	2.04		B0K0157	19-Nov-20	0.246 L	20-Nov-20 23:13	1
PFDoA	307-55-1	ND	0.764	1.52	2.04		B0K0157	19-Nov-20	0.246 L	20-Nov-20 23:13	1
PFTTrDA	72629-94-8	ND	0.764	1.52	2.04		B0K0157	19-Nov-20	0.246 L	20-Nov-20 23:13	1
11CI-PF3OUdS	763051-92-9	ND	0.764	1.52	2.04		B0K0157	19-Nov-20	0.246 L	20-Nov-20 23:13	1
PFTeDA	376-06-7	ND	0.764	1.52	2.04		B0K0157	19-Nov-20	0.246 L	20-Nov-20 23:13	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	98.8	70 - 130		B0K0157	19-Nov-20	0.246 L	20-Nov-20 23:13	1
13C2-PFDA	SURR	111	70 - 130		B0K0157	19-Nov-20	0.246 L	20-Nov-20 23:13	1
d5-EtFOSAA	SURR	95.2	70 - 130		B0K0157	19-Nov-20	0.246 L	20-Nov-20 23:13	1
13C3-HFPO-DA	SURR	97.4	70 - 130		B0K0157	19-Nov-20	0.246 L	20-Nov-20 23:13	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

MW121,8120

Sample ID: WI-CV-2FB04-1120

EPA Method 537.1

Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2002520-02	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	13-Nov-20 09:05		Date Received:	17-Nov-20 10:43					
Location:	Drinking Water										

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.755	1.51	2.01		B0K0157	19-Nov-20	0.248 L	20-Nov-20 23:24	1
PFHxA	307-24-4	ND	0.755	1.51	2.01		B0K0157	19-Nov-20	0.248 L	20-Nov-20 23:24	1
HFPO-DA	13252-13-6	ND	0.755	1.51	2.01		B0K0157	19-Nov-20	0.248 L	20-Nov-20 23:24	1
PFHpA	375-85-9	ND	0.755	1.51	2.01		B0K0157	19-Nov-20	0.248 L	20-Nov-20 23:24	1
ADONA	919005-14-4	ND	0.755	1.51	2.01		B0K0157	19-Nov-20	0.248 L	20-Nov-20 23:24	1
PFHxS	355-46-4	ND	0.755	1.51	2.01		B0K0157	19-Nov-20	0.248 L	20-Nov-20 23:24	1
PFOA	335-67-1	ND	0.755	1.51	2.01		B0K0157	19-Nov-20	0.248 L	20-Nov-20 23:24	1
PFNA	375-95-1	ND	0.755	1.51	2.01		B0K0157	19-Nov-20	0.248 L	20-Nov-20 23:24	1
PFOS	1763-23-1	ND	0.755	1.51	2.01		B0K0157	19-Nov-20	0.248 L	20-Nov-20 23:24	1
9CI-PF3ONS	756426-58-1	ND	0.755	1.51	2.01		B0K0157	19-Nov-20	0.248 L	20-Nov-20 23:24	1
PFDA	335-76-2	ND	0.755	1.51	2.01		B0K0157	19-Nov-20	0.248 L	20-Nov-20 23:24	1
MeFOSAA	2355-31-9	ND	0.755	1.51	2.01		B0K0157	19-Nov-20	0.248 L	20-Nov-20 23:24	1
EtFOSAA	2991-50-6	ND	0.755	1.51	2.01		B0K0157	19-Nov-20	0.248 L	20-Nov-20 23:24	1
PFOA	2058-94-8	ND	0.755	1.51	2.01		B0K0157	19-Nov-20	0.248 L	20-Nov-20 23:24	1
PFDoA	307-55-1	ND	0.755	1.51	2.01		B0K0157	19-Nov-20	0.248 L	20-Nov-20 23:24	1
PFTTrDA	72629-94-8	ND	0.755	1.51	2.01		B0K0157	19-Nov-20	0.248 L	20-Nov-20 23:24	1
11CI-PF3OUdS	763051-92-9	ND	0.755	1.51	2.01		B0K0157	19-Nov-20	0.248 L	20-Nov-20 23:24	1
PFTeDA	376-06-7	ND	0.755	1.51	2.01		B0K0157	19-Nov-20	0.248 L	20-Nov-20 23:24	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	101	70 - 130		B0K0157	19-Nov-20	0.248 L	20-Nov-20 23:24	1
13C2-PFDA	SURR	117	70 - 130		B0K0157	19-Nov-20	0.248 L	20-Nov-20 23:24	1
d5-EtFOSAA	SURR	93.3	70 - 130		B0K0157	19-Nov-20	0.248 L	20-Nov-20 23:24	1
13C3-HFPO-DA	SURR	97.4	70 - 130		B0K0157	19-Nov-20	0.248 L	20-Nov-20 23:24	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

WI 12/8/20

Sample ID: WI-CV-1RW37-1120
EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002520-03	Column:	BEH C18
Project:	9000NVT8	Date Collected:	13-Nov-20 10:15	Date Received:	17-Nov-20 10:43		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.750	1.50	2.00		B0K0157	19-Nov-20	0.250 L	20-Nov-20 23:35	1
PFHxA	307-24-4	ND	0.750	1.50	2.00		B0K0157	19-Nov-20	0.250 L	20-Nov-20 23:35	1
HFPO-DA	13252-13-6	ND	0.750	1.50	2.00		B0K0157	19-Nov-20	0.250 L	20-Nov-20 23:35	1
PFHpA	375-85-9	ND	0.750	1.50	2.00		B0K0157	19-Nov-20	0.250 L	20-Nov-20 23:35	1
ADONA	919005-14-4	ND	0.750	1.50	2.00		B0K0157	19-Nov-20	0.250 L	20-Nov-20 23:35	1
PFHxS	355-46-4	ND	0.750	1.50	2.00		B0K0157	19-Nov-20	0.250 L	20-Nov-20 23:35	1
PFOA	335-67-1	ND	0.750	1.50	2.00		B0K0157	19-Nov-20	0.250 L	20-Nov-20 23:35	1
PFNA	375-95-1	ND	0.750	1.50	2.00		B0K0157	19-Nov-20	0.250 L	20-Nov-20 23:35	1
PFOS	1763-23-1	ND	0.750	1.50	2.00		B0K0157	19-Nov-20	0.250 L	20-Nov-20 23:35	1
9CI-PF3ONS	756426-58-1	ND	0.750	1.50	2.00		B0K0157	19-Nov-20	0.250 L	20-Nov-20 23:35	1
PFDA	335-76-2	ND	0.750	1.50	2.00		B0K0157	19-Nov-20	0.250 L	20-Nov-20 23:35	1
MeFOSAA	2355-31-9	ND	0.750	1.50	2.00		B0K0157	19-Nov-20	0.250 L	20-Nov-20 23:35	1
EtFOSAA	2991-50-6	ND	0.750	1.50	2.00		B0K0157	19-Nov-20	0.250 L	20-Nov-20 23:35	1
PFOA	2058-94-8	ND	0.750	1.50	2.00		B0K0157	19-Nov-20	0.250 L	20-Nov-20 23:35	1
PFDaA	307-55-1	ND	0.750	1.50	2.00		B0K0157	19-Nov-20	0.250 L	20-Nov-20 23:35	1
PFTTrDA	72629-94-8	ND	0.750	1.50	2.00		B0K0157	19-Nov-20	0.250 L	20-Nov-20 23:35	1
11CI-PF3OUdS	763051-92-9	ND	0.750	1.50	2.00		B0K0157	19-Nov-20	0.250 L	20-Nov-20 23:35	1
PFTeDA	376-06-7	ND	0.750	1.50	2.00		B0K0157	19-Nov-20	0.250 L	20-Nov-20 23:35	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	98.0	70 - 130		B0K0157	19-Nov-20	0.250 L	20-Nov-20 23:35	1
13C2-PFDA	SURR	106	70 - 130		B0K0157	19-Nov-20	0.250 L	20-Nov-20 23:35	1
d5-EtFOSAA	SURR	86.3	70 - 130		B0K0157	19-Nov-20	0.250 L	20-Nov-20 23:35	1
13C3-HFPO-DA	SURR	95.3	70 - 130		B0K0157	19-Nov-20	0.250 L	20-Nov-20 23:35	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

MW1218120

Sample ID: WI-CV-1FB37-1120

EPA Method 537.1

Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2002520-04	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	13-Nov-20 10:15		Date Received:	17-Nov-20 10:43					
Location:	Drinking Water										

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.752	1.51	2.00		B0K0157	19-Nov-20	0.249 L	21-Nov-20 12:20	1
PFHxA	307-24-4	ND	0.752	1.51	2.00		B0K0157	19-Nov-20	0.249 L	21-Nov-20 12:20	1
HFPO-DA	13252-13-6	ND	0.752	1.51	2.00		B0K0157	19-Nov-20	0.249 L	21-Nov-20 12:20	1
PFHpA	375-85-9	ND	0.752	1.51	2.00		B0K0157	19-Nov-20	0.249 L	21-Nov-20 12:20	1
ADONA	919005-14-4	ND	0.752	1.51	2.00		B0K0157	19-Nov-20	0.249 L	21-Nov-20 12:20	1
PFHxS	355-46-4	ND	0.752	1.51	2.00		B0K0157	19-Nov-20	0.249 L	21-Nov-20 12:20	1
PFOA	335-67-1	ND	0.752	1.51	2.00		B0K0157	19-Nov-20	0.249 L	21-Nov-20 12:20	1
PFNA	375-95-1	ND	0.752	1.51	2.00		B0K0157	19-Nov-20	0.249 L	21-Nov-20 12:20	1
PFOS	1763-23-1	ND	0.752	1.51	2.00		B0K0157	19-Nov-20	0.249 L	21-Nov-20 12:20	1
9CI-PF3ONS	756426-58-1	ND	0.752	1.51	2.00		B0K0157	19-Nov-20	0.249 L	21-Nov-20 12:20	1
PFDA	335-76-2	ND	0.752	1.51	2.00		B0K0157	19-Nov-20	0.249 L	21-Nov-20 12:20	1
MeFOSAA	2355-31-9	ND	0.752	1.51	2.00		B0K0157	19-Nov-20	0.249 L	21-Nov-20 12:20	1
EtFOSAA	2991-50-6	ND	0.752	1.51	2.00		B0K0157	19-Nov-20	0.249 L	21-Nov-20 12:20	1
PFUnA	2058-94-8	ND	0.752	1.51	2.00		B0K0157	19-Nov-20	0.249 L	21-Nov-20 12:20	1
PFDoA	307-55-1	ND	0.752	1.51	2.00		B0K0157	19-Nov-20	0.249 L	21-Nov-20 12:20	1
PFTTrDA	72629-94-8	ND	0.752	1.51	2.00		B0K0157	19-Nov-20	0.249 L	21-Nov-20 12:20	1
11CI-PF3OUdS	763051-92-9	ND	0.752	1.51	2.00		B0K0157	19-Nov-20	0.249 L	21-Nov-20 12:20	1
PFTeDA	376-06-7	ND	0.752	1.51	2.00		B0K0157	19-Nov-20	0.249 L	21-Nov-20 12:20	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	95.1	70 - 130		B0K0157	19-Nov-20	0.249 L	21-Nov-20 12:20	1
13C2-PFDA	SURR	105	70 - 130		B0K0157	19-Nov-20	0.249 L	21-Nov-20 12:20	1
d5-EtFOSAA	SURR	96.1	70 - 130		B0K0157	19-Nov-20	0.249 L	21-Nov-20 12:20	1
13C3-HFPO-DA	SURR	89.7	70 - 130		B0K0157	19-Nov-20	0.249 L	21-Nov-20 12:20	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

11/21/20

Sample ID: WI-CV-3RW07-1120

EPA Method 537.1

Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2002520-05	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	13-Nov-20 11:15		Date Received:	17-Nov-20 10:43					
Location:	Drinking Water										

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 12:31	1
PFHxA	307-24-4	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 12:31	1
HFPO-DA	13252-13-6	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 12:31	1
PFHpA	375-85-9	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 12:31	1
ADONA	919005-14-4	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 12:31	1
PFHxS	355-46-4	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 12:31	1
PFOA	335-67-1	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 12:31	1
PFNA	375-95-1	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 12:31	1
PFOS	1763-23-1	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 12:31	1
9CI-PF3ONS	756426-58-1	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 12:31	1
PFDA	335-76-2	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 12:31	1
MeFOSAA	2355-31-9	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 12:31	1
EtFOSAA	2991-50-6	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 12:31	1
PFUnA	2058-94-8	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 12:31	1
PFDoA	307-55-1	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 12:31	1
PFTTrDA	72629-94-8	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 12:31	1
11CI-PF3OUdS	763051-92-9	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 12:31	1
PFTeDA	376-06-7	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 12:31	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	97.5	70 - 130		B0K0157	19-Nov-20	0.246 L	21-Nov-20 12:31	1
13C2-PFDA	SURR	105	70 - 130		B0K0157	19-Nov-20	0.246 L	21-Nov-20 12:31	1
d5-EtFOSAA	SURR	84.8	70 - 130		B0K0157	19-Nov-20	0.246 L	21-Nov-20 12:31	1
13C3-HFPO-DA	SURR	94.6	70 - 130		B0K0157	19-Nov-20	0.246 L	21-Nov-20 12:31	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

WI1218/20

Sample ID: WI-CV-3FB07-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002520-06	Column:	BEH C18
Project:	9000NVT8	Date Collected:	13-Nov-20 11:15	Date Received:	17-Nov-20 10:43		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.720	1.44	1.92		B0K0157	19-Nov-20	0.260 L	21-Nov-20 12:42	1
PFHxA	307-24-4	ND	0.720	1.44	1.92		B0K0157	19-Nov-20	0.260 L	21-Nov-20 12:42	1
HFPO-DA	13252-13-6	ND	0.720	1.44	1.92		B0K0157	19-Nov-20	0.260 L	21-Nov-20 12:42	1
PFHpA	375-85-9	ND	0.720	1.44	1.92		B0K0157	19-Nov-20	0.260 L	21-Nov-20 12:42	1
ADONA	919005-14-4	ND	0.720	1.44	1.92		B0K0157	19-Nov-20	0.260 L	21-Nov-20 12:42	1
PFHxS	355-46-4	ND	0.720	1.44	1.92		B0K0157	19-Nov-20	0.260 L	21-Nov-20 12:42	1
PFOA	335-67-1	ND	0.720	1.44	1.92		B0K0157	19-Nov-20	0.260 L	21-Nov-20 12:42	1
PFNA	375-95-1	ND	0.720	1.44	1.92		B0K0157	19-Nov-20	0.260 L	21-Nov-20 12:42	1
PFOS	1763-23-1	ND	0.720	1.44	1.92		B0K0157	19-Nov-20	0.260 L	21-Nov-20 12:42	1
9CI-PF3ONS	756426-58-1	ND	0.720	1.44	1.92		B0K0157	19-Nov-20	0.260 L	21-Nov-20 12:42	1
PFDA	335-76-2	ND	0.720	1.44	1.92		B0K0157	19-Nov-20	0.260 L	21-Nov-20 12:42	1
MeFOSAA	2355-31-9	ND	0.720	1.44	1.92		B0K0157	19-Nov-20	0.260 L	21-Nov-20 12:42	1
EtFOSAA	2991-50-6	ND	0.720	1.44	1.92		B0K0157	19-Nov-20	0.260 L	21-Nov-20 12:42	1
PFUnA	2058-94-8	ND	0.720	1.44	1.92		B0K0157	19-Nov-20	0.260 L	21-Nov-20 12:42	1
PFDoA	307-55-1	ND	0.720	1.44	1.92		B0K0157	19-Nov-20	0.260 L	21-Nov-20 12:42	1
PFTTrDA	72629-94-8	ND	0.720	1.44	1.92		B0K0157	19-Nov-20	0.260 L	21-Nov-20 12:42	1
11CI-PF3OUdS	763051-92-9	ND	0.720	1.44	1.92		B0K0157	19-Nov-20	0.260 L	21-Nov-20 12:42	1
PFTeDA	376-06-7	ND	0.720	1.44	1.92		B0K0157	19-Nov-20	0.260 L	21-Nov-20 12:42	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	97.0	70 - 130		B0K0157	19-Nov-20	0.260 L	21-Nov-20 12:42	1
13C2-PFDA	SURR	106	70 - 130		B0K0157	19-Nov-20	0.260 L	21-Nov-20 12:42	1
d5-EtFOSAA	SURR	95.8	70 - 130		B0K0157	19-Nov-20	0.260 L	21-Nov-20 12:42	1
13C3-HFPO-DA	SURR	93.2	70 - 130		B0K0157	19-Nov-20	0.260 L	21-Nov-20 12:42	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 12/18/20

Sample ID: WI-CV-2RW02-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002520-07	Column:	BEH C18
Project:	9000NVT8	Date Collected:	13-Nov-20 14:20	Date Received:	17-Nov-20 10:43		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	19.8	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 00:19	1
PFHxA	307-24-4	78.9	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 00:19	1
HFPO-DA	13252-13-6	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 00:19	1
PFHpA	375-85-9	17.1	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 00:19	1
ADONA	919005-14-4	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 00:19	1
PFHxS	355-46-4	53.4	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 00:19	1
PFOA	335-67-1	263	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 00:19	1
PFNA	375-95-1	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 00:19	1
PFOS	1763-23-1	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 00:19	1
9CI-PF3ONS	756426-58-1	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 00:19	1
PFDA	335-76-2	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 00:19	1
MeFOSAA	2355-31-9	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 00:19	1
EtFOSAA	2991-50-6	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 00:19	1
PFUnA	2058-94-8	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 00:19	1
PFDoA	307-55-1	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 00:19	1
PFTTrDA	72629-94-8	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 00:19	1
11CI-PF3OUdS	763051-92-9	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 00:19	1
PFTeDA	376-06-7	ND	0.761	1.52	2.03		B0K0157	19-Nov-20	0.246 L	21-Nov-20 00:19	1
Labeled Standards	Type	% Recovery		Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	96.2		70 - 130			B0K0157	19-Nov-20	0.246 L	21-Nov-20 00:19	1
13C2-PFDA	SURR	105		70 - 130			B0K0157	19-Nov-20	0.246 L	21-Nov-20 00:19	1
d5-EtFOSAA	SURR	81.1		70 - 130			B0K0157	19-Nov-20	0.246 L	21-Nov-20 00:19	1
13C3-HFPO-DA	SURR	93.5		70 - 130			B0K0157	19-Nov-20	0.246 L	21-Nov-20 00:19	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

WI 2/18/20

Sample ID: WI-CV-2FB02-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002520-08	Column:	BEH C18
Project:	9000NVT8	Date Collected:	13-Nov-20 14:20	Date Received:	17-Nov-20 10:43		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.756	1.51	2.01		B0K0157	19-Nov-20	0.248 L	21-Nov-20 00:30	1
PFHxA	307-24-4	ND	0.756	1.51	2.01		B0K0157	19-Nov-20	0.248 L	21-Nov-20 00:30	1
HFPO-DA	13252-13-6	ND	0.756	1.51	2.01		B0K0157	19-Nov-20	0.248 L	21-Nov-20 00:30	1
PFHpA	375-85-9	ND	0.756	1.51	2.01		B0K0157	19-Nov-20	0.248 L	21-Nov-20 00:30	1
ADONA	919005-14-4	ND	0.756	1.51	2.01		B0K0157	19-Nov-20	0.248 L	21-Nov-20 00:30	1
PFHxS	355-46-4	ND	0.756	1.51	2.01		B0K0157	19-Nov-20	0.248 L	21-Nov-20 00:30	1
PFOA	335-67-1	ND	0.756	1.51	2.01		B0K0157	19-Nov-20	0.248 L	21-Nov-20 00:30	1
PFNA	375-95-1	ND	0.756	1.51	2.01		B0K0157	19-Nov-20	0.248 L	21-Nov-20 00:30	1
PFOS	1763-23-1	ND	0.756	1.51	2.01		B0K0157	19-Nov-20	0.248 L	21-Nov-20 00:30	1
9CI-PF3ONS	756426-58-1	ND	0.756	1.51	2.01		B0K0157	19-Nov-20	0.248 L	21-Nov-20 00:30	1
PFDA	335-76-2	ND	0.756	1.51	2.01		B0K0157	19-Nov-20	0.248 L	21-Nov-20 00:30	1
MeFOSAA	2355-31-9	ND	0.756	1.51	2.01		B0K0157	19-Nov-20	0.248 L	21-Nov-20 00:30	1
EtFOSAA	2991-50-6	ND	0.756	1.51	2.01		B0K0157	19-Nov-20	0.248 L	21-Nov-20 00:30	1
PFUnA	2058-94-8	ND	0.756	1.51	2.01		B0K0157	19-Nov-20	0.248 L	21-Nov-20 00:30	1
PFDoA	307-55-1	ND	0.756	1.51	2.01		B0K0157	19-Nov-20	0.248 L	21-Nov-20 00:30	1
PFTTrDA	72629-54-8	ND	0.756	1.51	2.01		B0K0157	19-Nov-20	0.248 L	21-Nov-20 00:30	1
11CI-PF3OUdS	763051-92-9	ND	0.756	1.51	2.01		B0K0157	19-Nov-20	0.248 L	21-Nov-20 00:30	1
PFTeDA	376-06-7	ND	0.756	1.51	2.01		B0K0157	19-Nov-20	0.248 L	21-Nov-20 00:30	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	95.0	70 - 130		B0K0157	19-Nov-20	0.248 L	21-Nov-20 00:30	1
13C2-PFDA	SURR	107	70 - 130		B0K0157	19-Nov-20	0.248 L	21-Nov-20 00:30	1
d5-EtFOSAA	SURR	88.5	70 - 130		B0K0157	19-Nov-20	0.248 L	21-Nov-20 00:30	1
13C3-HFPO-DA	SURR	93.9	70 - 130		B0K0157	19-Nov-20	0.248 L	21-Nov-20 00:30	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 12/18/20

**DATA VALIDATION SUMMARY REPORT
NAS WHIDBEY ISLAND, WASHINGTON**

Client: CH2M HILL, Inc., Corvallis, Oregon
 SDG: 2002558
 Laboratory: Vista Analytical Laboratory, El Dorado Hills, California
 Site: NAS Whidbey Island, Residential Wells, CTO-4384, Washington
 Date: December 18, 2020

PFAS			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	WI-CV-1RW72-1120	2002558-01	Water
2	WI-CV-1FB72-1120	2002558-02	Water
3	WI-CV-3RW18-1120	2002558-03	Water
4	WI-CV-3FB18-1120	2002558-04	Water
5	WI-A06-RW18-1120	2002558-05	Water
6	WI-A06-FB18-1120	2002558-06	Water
7	WI-AF-1RW51-1120	2002558-07	Water
8	WI-AF-1FB51-1120	2002558-08	Water
9	WI-A06-RW20-1120	2002558-09	Water
10	WI-A06-FB20-1120	2002558-10	Water

A full data validation was performed on the analytical data for five water samples and five aqueous field blank samples collected on November 18, 2020 by CH2M Hill at the NAS Whidbey Island site in Washington. The samples were analyzed under the EPA Method “Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)”.

Specific method references are as follows:

Analysis
PFAS

Method References
USEPA Method 537.1

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, DoD Final General Data Validation Guidelines, November 2019, and the USEPA Data Review and Validation Guidelines as follows:

- The USEPA “Data Review and Validation Guidelines for Perfluoroalkyl Substances (PFASs) Analyzed Using EPA Method 537,” November 2018;
- and the reviewer's professional judgment.

The following data quality indicators were reviewed for this report:

Organics

- Date Completeness, Case Narrative & Custody Documentation
- Holding times
- Liquid Chromatography/Mass Spectrometry (LC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field QC blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

A full (Stage 2B/4) data validation was performed with this review including a recalculation of 100% of the detected results in the samples.

Data Usability Assessment

There were no serious deficiencies of data.

The data are acceptable for the intended purposes. There were no qualifications.

Perfluorinated Alkyl Substances (PFAS)

Data Completeness, Case Narrative & Custody Documentation

- The case narrative and chain-of-custody documentation were included in the data package as required. All criteria were met.

Holding Times

- All samples were extracted within 14 days for water samples and analyzed within 28 days.

LC/MS Tuning

- All criteria were met.

Initial Calibration

- All relative standard deviation (%RSD) and/or correlation coefficients criteria were met.

Continuing Calibration

- All percent difference (%D) and RRF criteria were met.

Method Blank

- The method blanks were free of contamination.

Field QC Blank

- Field QC sample results are summarized in the table below.

Blank ID	Compound	Conc. ng/L	Qualifier	Affected Samples
WI-CV-1FB72-1120	None - ND	-	-	-
WI-CV-3FB18-1120	None - ND	-	-	-
WI-A06-FB18-1120	None - ND	-	-	-
WI-AF-1FB51-1120	None - ND	-	-	-
WI-A06-FB20-1120	None - ND	-	-	-

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- MS/MSD samples were not analyzed.

Laboratory Control Samples (LCS)

- The LCS samples exhibited acceptable percent recoveries (%R).

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- All criteria were met.

Field Duplicate Sample Precision

- Field duplicate samples were not collected.

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed: Nancy Weaver
Nancy Weaver
Senior Chemist

Dated: 12/21/20

Qualifier	Definition
U	The analyte was not detected and was reported as less than the LOD or as defined by the customer. The LOD has been adjusted for any dilution or concentration of the sample.
J	The reported result was an estimated value with an unknown bias.
J+	The result was an estimated quantity, but the result may be biased high.
J-	The result was an estimated quantity, but the result may be biased low.
N	The analysis indicates the presence of an analyte for which there was presumptive evidence to make a "tentative identification."
NJ	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value was the estimated concentration in the sample.
UJ	The analyte was not detected and was reported as less than the LOD or as defined by the customer. However, the associated numerical value is approximate.
X	<p>The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided.</p> <p>Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.</p>

Sample ID: WI-CV-1RW72-1120

EPA Method 537.1

Client Data					Laboratory Data				
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2002558-01	Column:	BEH C18	
Project:	9000NVT8	Date Collected:	18-Nov-20 10:15		Date Received:	20-Nov-20 10:00			
Location:	Drinking Water								

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	1.59	0.783	1.57	2.09	J	B0K0182	22-Nov-20	0.239 L	24-Nov-20 02:17	1
PFHxA	307-24-4	1.86	0.783	1.57	2.09	J	B0K0182	22-Nov-20	0.239 L	24-Nov-20 02:17	1
HFPO-DA	13252-13-6	ND	0.783	1.57	2.09		B0K0182	22-Nov-20	0.239 L	24-Nov-20 02:17	1
PFHpA	375-85-9	ND	0.783	1.57	2.09		B0K0182	22-Nov-20	0.239 L	24-Nov-20 02:17	1
ADONA	919005-14-4	ND	0.783	1.57	2.09		B0K0182	22-Nov-20	0.239 L	24-Nov-20 02:17	1
PFHxS	355-46-4	1.15	0.783	1.57	2.09	J	B0K0182	22-Nov-20	0.239 L	24-Nov-20 02:17	1
PFOA	335-67-1	1.18	0.783	1.57	2.09	J	B0K0182	22-Nov-20	0.239 L	24-Nov-20 02:17	1
PFNA	375-95-1	ND	0.783	1.57	2.09		B0K0182	22-Nov-20	0.239 L	24-Nov-20 02:17	1
PFOS	1763-23-1	ND	0.783	1.57	2.09		B0K0182	22-Nov-20	0.239 L	24-Nov-20 02:17	1
9CI-PF3ONS	756426-58-1	ND	0.783	1.57	2.09		B0K0182	22-Nov-20	0.239 L	24-Nov-20 02:17	1
PFDA	335-76-2	ND	0.783	1.57	2.09		B0K0182	22-Nov-20	0.239 L	24-Nov-20 02:17	1
MeFOSAA	2355-31-9	ND	0.783	1.57	2.09		B0K0182	22-Nov-20	0.239 L	24-Nov-20 02:17	1
EtFOSAA	2991-50-6	ND	0.783	1.57	2.09		B0K0182	22-Nov-20	0.239 L	24-Nov-20 02:17	1
PFUnA	2058-94-8	ND	0.783	1.57	2.09		B0K0182	22-Nov-20	0.239 L	24-Nov-20 02:17	1
PFDaA	307-55-1	ND	0.783	1.57	2.09		B0K0182	22-Nov-20	0.239 L	24-Nov-20 02:17	1
PFTTrDA	72629-94-8	ND	0.783	1.57	2.09		B0K0182	22-Nov-20	0.239 L	24-Nov-20 02:17	1
11CI-PF3OUdS	763051-92-9	ND	0.783	1.57	2.09		B0K0182	22-Nov-20	0.239 L	24-Nov-20 02:17	1
PFTeDA	376-06-7	ND	0.783	1.57	2.09		B0K0182	22-Nov-20	0.239 L	24-Nov-20 02:17	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	95.9	70 - 130		B0K0182	22-Nov-20	0.239 L	24-Nov-20 02:17	1
13C2-PFDA	SURR	95.2	70 - 130		B0K0182	22-Nov-20	0.239 L	24-Nov-20 02:17	1
d5-EtFOSAA	SURR	72.1	70 - 130		B0K0182	22-Nov-20	0.239 L	24-Nov-20 02:17	1
13C3-HFPO-DA	SURR	90.2	70 - 130		B0K0182	22-Nov-20	0.239 L	24-Nov-20 02:17	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW 12/18/20

Sample ID: WI-CV-1FB72-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002558-02	Column:	BEH C18
Project:	9000NVT8	Date Collected:	18-Nov-20 10:15	Date Received:	20-Nov-20 10:00		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.737	1.47	1.96		B0K0182	22-Nov-20	0.255 L	24-Nov-20 02:28	1
PFHxA	307-24-4	ND	0.737	1.47	1.96		B0K0182	22-Nov-20	0.255 L	24-Nov-20 02:28	1
HFPO-DA	13252-13-6	ND	0.737	1.47	1.96		B0K0182	22-Nov-20	0.255 L	24-Nov-20 02:28	1
PFHpA	375-85-9	ND	0.737	1.47	1.96		B0K0182	22-Nov-20	0.255 L	24-Nov-20 02:28	1
ADONA	919005-14-4	ND	0.737	1.47	1.96		B0K0182	22-Nov-20	0.255 L	24-Nov-20 02:28	1
PFHxS	355-46-4	ND	0.737	1.47	1.96		B0K0182	22-Nov-20	0.255 L	24-Nov-20 02:28	1
PFOA	335-67-1	ND	0.737	1.47	1.96		B0K0182	22-Nov-20	0.255 L	24-Nov-20 02:28	1
PFNA	375-95-1	ND	0.737	1.47	1.96		B0K0182	22-Nov-20	0.255 L	24-Nov-20 02:28	1
PFOS	1763-23-1	ND	0.737	1.47	1.96		B0K0182	22-Nov-20	0.255 L	24-Nov-20 02:28	1
9CI-PF3ONS	756426-58-1	ND	0.737	1.47	1.96		B0K0182	22-Nov-20	0.255 L	24-Nov-20 02:28	1
PFDA	335-76-2	ND	0.737	1.47	1.96		B0K0182	22-Nov-20	0.255 L	24-Nov-20 02:28	1
MeFOSAA	2355-31-9	ND	0.737	1.47	1.96		B0K0182	22-Nov-20	0.255 L	24-Nov-20 02:28	1
EtFOSAA	2991-50-6	ND	0.737	1.47	1.96		B0K0182	22-Nov-20	0.255 L	24-Nov-20 02:28	1
PFOA	2058-94-8	ND	0.737	1.47	1.96		B0K0182	22-Nov-20	0.255 L	24-Nov-20 02:28	1
PFOA	307-55-1	ND	0.737	1.47	1.96		B0K0182	22-Nov-20	0.255 L	24-Nov-20 02:28	1
PFTTrDA	72629-94-8	ND	0.737	1.47	1.96		B0K0182	22-Nov-20	0.255 L	24-Nov-20 02:28	1
11CI-PF3OUdS	763051-92-9	ND	0.737	1.47	1.96		B0K0182	22-Nov-20	0.255 L	24-Nov-20 02:28	1
PFTeDA	376-06-7	ND	0.737	1.47	1.96		B0K0182	22-Nov-20	0.255 L	24-Nov-20 02:28	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	93.9	70 - 130		B0K0182	22-Nov-20	0.255 L	24-Nov-20 02:28	1
13C2-PFDA	SURR	95.5	70 - 130		B0K0182	22-Nov-20	0.255 L	24-Nov-20 02:28	1
d5-EtFOSAA	SURR	82.7	70 - 130		B0K0182	22-Nov-20	0.255 L	24-Nov-20 02:28	1
13C3-HFPO-DA	SURR	88.9	70 - 130		B0K0182	22-Nov-20	0.255 L	24-Nov-20 02:28	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

WI1218120

Sample ID: WI-CV-3RW18-1120

EPA Method 537.1

Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2002558-03	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	18-Nov-20 11:15		Date Received:	20-Nov-20 10:00					
Location:	Drinking Water										

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.768	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 02:39	1
PFHxA	307-24-4	ND	0.768	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 02:39	1
HFPO-DA	13252-13-6	ND	0.768	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 02:39	1
PFHpA	375-85-9	ND	0.768	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 02:39	1
ADONA	919005-14-4	ND	0.768	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 02:39	1
PFHxS	355-46-4	ND	0.768	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 02:39	1
PFOA	335-67-1	ND	0.768	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 02:39	1
PFNA	375-95-1	ND	0.768	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 02:39	1
PFOS	1763-23-1	ND	0.768	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 02:39	1
9CI-PF3ONS	756426-58-1	ND	0.768	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 02:39	1
PFDA	335-76-2	ND	0.768	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 02:39	1
MeFOSAA	2355-31-9	ND	0.768	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 02:39	1
EtFOSAA	2991-50-6	ND	0.768	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 02:39	1
PFUnA	2058-94-8	ND	0.768	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 02:39	1
PFDaA	307-55-1	ND	0.768	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 02:39	1
PFTTrDA	72629-94-8	ND	0.768	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 02:39	1
11CI-PF3OUdS	763051-92-9	ND	0.768	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 02:39	1
PFTeDA	376-06-7	ND	0.768	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 02:39	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	91.3	70 - 130		B0K0182	22-Nov-20	0.244 L	24-Nov-20 02:39	1
13C2-PFDA	SURR	90.9	70 - 130		B0K0182	22-Nov-20	0.244 L	24-Nov-20 02:39	1
d5-EtFOSAA	SURR	72.7	70 - 130		B0K0182	22-Nov-20	0.244 L	24-Nov-20 02:39	1
13C3-HFPO-DA	SURR	88.7	70 - 130		B0K0182	22-Nov-20	0.244 L	24-Nov-20 02:39	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

WI 12/18/20

Sample ID: WI-CV-3FB18-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002558-04	Column:	BEH C18
Project:	9000NVT8	Date Collected:	18-Nov-20 11:15	Date Received:	20-Nov-20 10:00		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.738	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 02:50	1
PFHxA	307-24-4	ND	0.738	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 02:50	1
HFPO-DA	13252-13-6	ND	0.738	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 02:50	1
PFHpA	375-85-9	ND	0.738	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 02:50	1
ADONA	919005-14-4	ND	0.738	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 02:50	1
PFHxS	355-46-4	ND	0.738	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 02:50	1
PFOA	335-67-1	ND	0.738	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 02:50	1
PFNA	375-95-1	ND	0.738	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 02:50	1
PFOS	1763-23-1	ND	0.738	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 02:50	1
9CI-PF3ONS	756426-58-1	ND	0.738	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 02:50	1
PFDA	335-76-2	ND	0.738	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 02:50	1
MeFOSAA	2355-31-9	ND	0.738	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 02:50	1
EtFOSAA	2991-50-6	ND	0.738	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 02:50	1
PFUnA	2058-94-8	ND	0.738	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 02:50	1
PFDaA	307-55-1	ND	0.738	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 02:50	1
PFTTrDA	72629-94-8	ND	0.738	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 02:50	1
11CI-PF3OUdS	763051-92-9	ND	0.738	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 02:50	1
PFTeDA	376-06-7	ND	0.738	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 02:50	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	94.1	70 - 130		B0K0182	22-Nov-20	0.254 L	24-Nov-20 02:50	1
13C2-PFDA	SURR	96.4	70 - 130		B0K0182	22-Nov-20	0.254 L	24-Nov-20 02:50	1
d5-EtFOSAA	SURR	87.7	70 - 130		B0K0182	22-Nov-20	0.254 L	24-Nov-20 02:50	1
13C3-HFPO-DA	SURR	90.6	70 - 130		B0K0182	22-Nov-20	0.254 L	24-Nov-20 02:50	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

mw 12/18/20

Sample ID: WI-A06-RW18-1120

EPA Method 537.1

Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2002558-05	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	18-Nov-20 12:55		Date Received:	20-Nov-20 10:00					
Location:	Drinking Water										

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	22.9	0.766	1.53	2.04		B0K0182	22-Nov-20	0.245 L	24-Nov-20 03:01	1
PFHxA	307-24-4	26.8	0.766	1.53	2.04		B0K0182	22-Nov-20	0.245 L	24-Nov-20 03:01	1
HFPO-DA	13252-13-6	ND	0.766	1.53	2.04		B0K0182	22-Nov-20	0.245 L	24-Nov-20 03:01	1
PFHpA	375-85-9	8.51	0.766	1.53	2.04		B0K0182	22-Nov-20	0.245 L	24-Nov-20 03:01	1
ADONA	919005-14-4	ND	0.766	1.53	2.04		B0K0182	22-Nov-20	0.245 L	24-Nov-20 03:01	1
PFHxS	355-46-4	91.3	0.766	1.53	2.04		B0K0182	22-Nov-20	0.245 L	24-Nov-20 03:01	1
PFOA	335-67-1	25.5	0.766	1.53	2.04		B0K0182	22-Nov-20	0.245 L	24-Nov-20 03:01	1
PFNA	375-95-1	ND	0.766	1.53	2.04		B0K0182	22-Nov-20	0.245 L	24-Nov-20 03:01	1
PFOS	1763-23-1	18.6	0.766	1.53	2.04		B0K0182	22-Nov-20	0.245 L	24-Nov-20 03:01	1
9CI-PF3ONS	756426-58-1	ND	0.766	1.53	2.04		B0K0182	22-Nov-20	0.245 L	24-Nov-20 03:01	1
PFDA	335-76-2	ND	0.766	1.53	2.04		B0K0182	22-Nov-20	0.245 L	24-Nov-20 03:01	1
MeFOSAA	2355-31-9	ND	0.766	1.53	2.04		B0K0182	22-Nov-20	0.245 L	24-Nov-20 03:01	1
EtFOSAA	2991-50-6	ND	0.766	1.53	2.04		B0K0182	22-Nov-20	0.245 L	24-Nov-20 03:01	1
PFUnA	2058-94-8	ND	0.766	1.53	2.04		B0K0182	22-Nov-20	0.245 L	24-Nov-20 03:01	1
PFDoA	307-55-1	ND	0.766	1.53	2.04		B0K0182	22-Nov-20	0.245 L	24-Nov-20 03:01	1
PFTTrDA	72629-94-8	ND	0.766	1.53	2.04		B0K0182	22-Nov-20	0.245 L	24-Nov-20 03:01	1
11CI-PF3OUdS	763051-92-9	ND	0.766	1.53	2.04		B0K0182	22-Nov-20	0.245 L	24-Nov-20 03:01	1
PFTeDA	376-06-7	ND	0.766	1.53	2.04		B0K0182	22-Nov-20	0.245 L	24-Nov-20 03:01	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	98.1	70 - 130		B0K0182	22-Nov-20	0.245 L	24-Nov-20 03:01	1
13C2-PFDA	SURR	96.1	70 - 130		B0K0182	22-Nov-20	0.245 L	24-Nov-20 03:01	1
d5-EtFOSAA	SURR	74.5	70 - 130		B0K0182	22-Nov-20	0.245 L	24-Nov-20 03:01	1
13C3-HFPO-DA	SURR	94.4	70 - 130		B0K0182	22-Nov-20	0.245 L	24-Nov-20 03:01	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

WI 12/18/20

Sample ID: WI-A06-FB18-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002558-06	Column:	BEH C18
Project:	9000NVT8	Date Collected:	18-Nov-20 12:55	Date Received:	20-Nov-20 10:00		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.744	1.49	1.99		B0K0182	22-Nov-20	0.252 L	24-Nov-20 03:12	1
PFHxA	307-24-4	ND	0.744	1.49	1.99		B0K0182	22-Nov-20	0.252 L	24-Nov-20 03:12	1
HFPO-DA	13252-13-6	ND	0.744	1.49	1.99		B0K0182	22-Nov-20	0.252 L	24-Nov-20 03:12	1
PFHpA	375-85-9	ND	0.744	1.49	1.99		B0K0182	22-Nov-20	0.252 L	24-Nov-20 03:12	1
ADONA	919005-14-4	ND	0.744	1.49	1.99		B0K0182	22-Nov-20	0.252 L	24-Nov-20 03:12	1
PFHxS	355-46-4	ND	0.744	1.49	1.99		B0K0182	22-Nov-20	0.252 L	24-Nov-20 03:12	1
PFOA	335-67-1	ND	0.744	1.49	1.99		B0K0182	22-Nov-20	0.252 L	24-Nov-20 03:12	1
PFNA	375-95-1	ND	0.744	1.49	1.99		B0K0182	22-Nov-20	0.252 L	24-Nov-20 03:12	1
PFOS	1763-23-1	ND	0.744	1.49	1.99		B0K0182	22-Nov-20	0.252 L	24-Nov-20 03:12	1
9CI-PF3ONS	756426-58-1	ND	0.744	1.49	1.99		B0K0182	22-Nov-20	0.252 L	24-Nov-20 03:12	1
PFDA	335-76-2	ND	0.744	1.49	1.99		B0K0182	22-Nov-20	0.252 L	24-Nov-20 03:12	1
MeFOSAA	2355-31-9	ND	0.744	1.49	1.99		B0K0182	22-Nov-20	0.252 L	24-Nov-20 03:12	1
EtFOSAA	2991-50-6	ND	0.744	1.49	1.99		B0K0182	22-Nov-20	0.252 L	24-Nov-20 03:12	1
PFUnA	2058-94-8	ND	0.744	1.49	1.99		B0K0182	22-Nov-20	0.252 L	24-Nov-20 03:12	1
PFDoA	307-55-1	ND	0.744	1.49	1.99		B0K0182	22-Nov-20	0.252 L	24-Nov-20 03:12	1
PFTTrDA	72629-94-8	ND	0.744	1.49	1.99		B0K0182	22-Nov-20	0.252 L	24-Nov-20 03:12	1
11CI-PF3OUdS	763051-92-9	ND	0.744	1.49	1.99		B0K0182	22-Nov-20	0.252 L	24-Nov-20 03:12	1
PFTeDA	376-06-7	ND	0.744	1.49	1.99		B0K0182	22-Nov-20	0.252 L	24-Nov-20 03:12	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	91.5	70 - 130		B0K0182	22-Nov-20	0.252 L	24-Nov-20 03:12	1
13C2-PFDA	SURR	93.9	70 - 130		B0K0182	22-Nov-20	0.252 L	24-Nov-20 03:12	1
d5-EtFOSAA	SURR	84.8	70 - 130		B0K0182	22-Nov-20	0.252 L	24-Nov-20 03:12	1
13C3-HFPO-DA	SURR	87.4	70 - 130		B0K0182	22-Nov-20	0.252 L	24-Nov-20 03:12	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

WI 12/18/20

Sample ID: WI-AF-1RW51-1120 **EPA Method 537.1**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002558-07	Column:	BEH C18
Project:	9000NVT8	Date Collected:	18-Nov-20 14:00	Date Received:	20-Nov-20 10:00		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.737	1.48	1.96		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:23	1
PFHxA	307-24-4	ND	0.737	1.48	1.96		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:23	1
HFPO-DA	13252-13-6	ND	0.737	1.48	1.96		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:23	1
PFHpA	375-85-9	ND	0.737	1.48	1.96		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:23	1
ADONA	919005-14-4	ND	0.737	1.48	1.96		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:23	1
PFHxS	355-46-4	ND	0.737	1.48	1.96		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:23	1
PFOA	335-67-1	ND	0.737	1.48	1.96		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:23	1
PFNA	375-95-1	ND	0.737	1.48	1.96		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:23	1
PFOS	1763-23-1	ND	0.737	1.48	1.96		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:23	1
9CI-PF3ONS	756426-58-1	ND	0.737	1.48	1.96		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:23	1
PFDA	335-76-2	ND	0.737	1.48	1.96		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:23	1
MeFOSAA	2355-31-9	ND	0.737	1.48	1.96		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:23	1
EtFOSAA	2991-50-6	ND	0.737	1.48	1.96		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:23	1
PFUnA	2058-94-8	ND	0.737	1.48	1.96		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:23	1
PFDoA	307-55-1	ND	0.737	1.48	1.96		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:23	1
PFTTrDA	72629-94-8	ND	0.737	1.48	1.96		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:23	1
11CI-PF3OUdS	763051-92-9	ND	0.737	1.48	1.96		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:23	1
PFTeDA	376-06-7	ND	0.737	1.48	1.96		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:23	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	94.2	70 - 130		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:23	1
13C2-PFDA	SURR	94.8	70 - 130		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:23	1
d5-EtFOSAA	SURR	78.4	70 - 130		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:23	1
13C3-HFPO-DA	SURR	90.5	70 - 130		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:23	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

11/18/20

Sample ID: WI-AF-1FB51-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002558-08	Column:	BEH C18
Project:	9000NVT8	Date Collected:	18-Nov-20 14:00	Date Received:	20-Nov-20 10:00		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.739	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:34	1
PFHxA	307-24-4	ND	0.739	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:34	1
HFPO-DA	13252-13-6	ND	0.739	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:34	1
PFHpA	375-85-9	ND	0.739	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:34	1
ADONA	919005-14-4	ND	0.739	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:34	1
PFHxS	355-46-4	ND	0.739	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:34	1
PFOA	335-67-1	ND	0.739	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:34	1
PFNA	375-95-1	ND	0.739	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:34	1
PFOS	1763-23-1	ND	0.739	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:34	1
9CI-PF3ONS	756426-58-1	ND	0.739	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:34	1
PFDA	335-76-2	ND	0.739	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:34	1
MeFOSAA	2355-31-9	ND	0.739	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:34	1
EtFOSAA	2991-50-6	ND	0.739	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:34	1
PFUnA	2058-94-8	ND	0.739	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:34	1
PFDoA	307-55-1	ND	0.739	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:34	1
PFTTrDA	72629-94-8	ND	0.739	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:34	1
11CI-PF3OUdS	763051-92-9	ND	0.739	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:34	1
PFTeDA	376-06-7	ND	0.739	1.48	1.97		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:34	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	96.0	70 - 130		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:34	1
13C2-PFDA	SURR	99.9	70 - 130		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:34	1
d5-EtFOSAA	SURR	84.3	70 - 130		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:34	1
13C3-HFPO-DA	SURR	92.5	70 - 130		B0K0182	22-Nov-20	0.254 L	24-Nov-20 03:34	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW 12/18/20

Sample ID: WI-A06-RW20-1120

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2002558-09	Column:	BEH C18
Project:	9000NVT8	Date Collected:	18-Nov-20 14:35	Date Received:	20-Nov-20 10:00		
Location:	Drinking Water						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	18.6	0.769	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 03:45	1
PFHxA	307-24-4	21.6	0.769	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 03:45	1
HFPO-DA	13252-13-6	ND	0.769	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 03:45	1
PFHpA	375-85-9	3.76	0.769	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 03:45	1
ADONA	919005-14-4	ND	0.769	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 03:45	1
PFHxS	355-46-4	122	0.769	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 03:45	1
PFOA	335-67-1	46.4	0.769	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 03:45	1
PFNA	375-95-1	ND	0.769	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 03:45	1
PFOS	1763-23-1	27.4	0.769	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 03:45	1
9CI-PF3ONS	756426-58-1	ND	0.769	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 03:45	1
PFDA	335-76-2	ND	0.769	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 03:45	1
MeFOSAA	2355-31-9	ND	0.769	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 03:45	1
EtFOSAA	2991-50-6	ND	0.769	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 03:45	1
PFUnA	2058-94-8	ND	0.769	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 03:45	1
PFDoA	307-55-1	ND	0.769	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 03:45	1
PFTTrDA	72629-94-8	ND	0.769	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 03:45	1
11CI-PF3OUdS	763051-92-9	ND	0.769	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 03:45	1
PFTeDA	376-06-7	ND	0.769	1.54	2.05		B0K0182	22-Nov-20	0.244 L	24-Nov-20 03:45	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	93.9	70 - 130		B0K0182	22-Nov-20	0.244 L	24-Nov-20 03:45	1
13C2-PFDA	SURR	92.2	70 - 130		B0K0182	22-Nov-20	0.244 L	24-Nov-20 03:45	1
d5-EtFOSAA	SURR	75.2	70 - 130		B0K0182	22-Nov-20	0.244 L	24-Nov-20 03:45	1
13C3-HFPO-DA	SURR	90.2	70 - 130		B0K0182	22-Nov-20	0.244 L	24-Nov-20 03:45	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

11/21/20

Sample ID: WI-A06-FB20-1120
EPA Method 537.1

Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2002558-10	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	18-Nov-20 14:35		Date Received:	20-Nov-20 10:00					
Location:	Drinking Water										

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.746	1.49	1.99		B0K0182	22-Nov-20	0.251 L	24-Nov-20 03:56	1
PFHxA	307-24-4	ND	0.746	1.49	1.99		B0K0182	22-Nov-20	0.251 L	24-Nov-20 03:56	1
HFPO-DA	13252-13-6	ND	0.746	1.49	1.99		B0K0182	22-Nov-20	0.251 L	24-Nov-20 03:56	1
PFHpA	375-85-9	ND	0.746	1.49	1.99		B0K0182	22-Nov-20	0.251 L	24-Nov-20 03:56	1
ADONA	919005-14-4	ND	0.746	1.49	1.99		B0K0182	22-Nov-20	0.251 L	24-Nov-20 03:56	1
PFHxS	355-46-4	ND	0.746	1.49	1.99		B0K0182	22-Nov-20	0.251 L	24-Nov-20 03:56	1
PFOA	335-67-1	ND	0.746	1.49	1.99		B0K0182	22-Nov-20	0.251 L	24-Nov-20 03:56	1
PFNA	375-95-1	ND	0.746	1.49	1.99		B0K0182	22-Nov-20	0.251 L	24-Nov-20 03:56	1
PFOS	1763-23-1	ND	0.746	1.49	1.99		B0K0182	22-Nov-20	0.251 L	24-Nov-20 03:56	1
9CI-PF3ONS	756426-58-1	ND	0.746	1.49	1.99		B0K0182	22-Nov-20	0.251 L	24-Nov-20 03:56	1
PFDA	335-76-2	ND	0.746	1.49	1.99		B0K0182	22-Nov-20	0.251 L	24-Nov-20 03:56	1
MeFOSAA	2355-31-9	ND	0.746	1.49	1.99		B0K0182	22-Nov-20	0.251 L	24-Nov-20 03:56	1
EtFOSAA	2991-50-6	ND	0.746	1.49	1.99		B0K0182	22-Nov-20	0.251 L	24-Nov-20 03:56	1
PFUnA	2058-94-8	ND	0.746	1.49	1.99		B0K0182	22-Nov-20	0.251 L	24-Nov-20 03:56	1
PFDoA	307-55-1	ND	0.746	1.49	1.99		B0K0182	22-Nov-20	0.251 L	24-Nov-20 03:56	1
PFTTrDA	72629-94-8	ND	0.746	1.49	1.99		B0K0182	22-Nov-20	0.251 L	24-Nov-20 03:56	1
11CI-PF3OUdS	763051-92-9	ND	0.746	1.49	1.99		B0K0182	22-Nov-20	0.251 L	24-Nov-20 03:56	1
PFTeDA	376-06-7	ND	0.746	1.49	1.99		B0K0182	22-Nov-20	0.251 L	24-Nov-20 03:56	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	97.3	70 - 130		B0K0182	22-Nov-20	0.251 L	24-Nov-20 03:56	1
13C2-PFDA	SURR	95.8	70 - 130		B0K0182	22-Nov-20	0.251 L	24-Nov-20 03:56	1
d5-EtFOSAA	SURR	86.1	70 - 130		B0K0182	22-Nov-20	0.251 L	24-Nov-20 03:56	1
13C3-HFPO-DA	SURR	92.8	70 - 130		B0K0182	22-Nov-20	0.251 L	24-Nov-20 03:56	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

**DATA VALIDATION SUMMARY REPORT
NAS WHIDBEY ISLAND, WASHINGTON**

Client: CH2M HILL, Inc., Corvallis, Oregon
 SDG: 2101028
 Laboratory: Vista Analytical Laboratory, El Dorado Hills, California
 Site: NAS Whidbey Island, Residential Wells, CTO-4384, Washington
 Date: January 15, 2021

PFAS			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	WI-AF-1RW25-1220	2101028-01	Water
1MS	WI-AF-1RW25-1220MS	2101028-01MS	Water
1MSD	WI-AF-1RW25-1220MSD	2101028-01MSD	Water
2	WI-AF-1FB25-1220	2101028-02	Water
3	WI-AF-3RW18-1220	2101028-03	Water
4	WI-AF-3FB18-1220	2101028-04	Water

A full data validation was performed on the analytical data for two water samples and two aqueous field blank samples collected on December 30, 2020 by CH2M Hill at the NAS Whidbey Island site in Washington. The samples were analyzed under the EPA Method “Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)”.

Specific method references are as follows:

Analysis
PFAS

Method References
USEPA Method 537.1

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method and the DoD Final General Data Validation Guidelines, November 2019, including the following Module:

- The Department of Defense (DoD) Data Validation Guidelines Module 3, Data Validation Procedure for Per- and Polyfluoroalkyl Substances Analysis by Quality Systems Manual for Environmental Laboratories (QSM) Table B-15, May 2020;
- and the reviewer's professional judgment.

The following data quality indicators were reviewed for this report:

Organics

- Date Completeness, Case Narrative & Custody Documentation

- Holding times
- Liquid Chromatography/Mass Spectrometry (LC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field QC blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

A full (Stage 2B/4) data validation was performed with this review including a recalculation of 100% of the detected results in the samples.

Data Usability Assessment

There were no serious deficiencies of data.

The data are acceptable for the intended purposes. There were no qualifications.

Perfluorinated Alkyl Substances (PFAS)

Data Completeness, Case Narrative & Custody Documentation

- The case narrative and chain-of-custody documentation were included in the data package as required. All criteria were met.

Holding Times

- All samples were extracted within 14 days for water samples and analyzed within 28 days.

LC/MS Tuning

- All criteria were met.

Initial Calibration

- All relative standard deviation (%RSD) and/or correlation coefficients criteria were met.

Continuing Calibration

- All percent difference (%D) and RRF criteria were met.

Method Blank

- The method blanks were free of contamination.

Field QC Blank

- Field QC sample results are summarized in the table below.

Blank ID	Compound	Conc. ng/L	Qualifier	Affected Samples
WI-AF-1FB25-1220	None - ND	-	-	-
WI-AF-3FB18-1220	None - ND	-	-	-

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- The MS/MSD samples exhibited acceptable percent recoveries (%R) and RPD values.

Laboratory Control Samples (LCS)

- The LCS samples exhibited acceptable percent recoveries (%R).

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- All criteria were met.

Field Duplicate Sample Precision

- Field duplicate samples were not collected.

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed: Nancy Weaver
Nancy Weaver
Senior Chemist

Dated: 1/15/21

Qualifier	Definition
U	The analyte was not detected and was reported as less than the LOD or as defined by the customer. The LOD has been adjusted for any dilution or concentration of the sample.
J	The reported result was an estimated value with an unknown bias.
J+	The result was an estimated quantity, but the result may be biased high.
J-	The result was an estimated quantity, but the result may be biased low.
N	The analysis indicates the presence of an analyte for which there was presumptive evidence to make a "tentative identification."
NJ	The analyte has been "tentatively identified" or "presumptively" as present and the associated numerical value was the estimated concentration in the sample.
UJ	The analyte was not detected and was reported as less than the LOD or as defined by the customer. However, the associated numerical value is approximate.
X	<p>The sample results (including non-detects) were affected by serious deficiencies in the ability to analyze the sample and to meet published method and project quality control criteria. The presence or absence of the analyte cannot be substantiated by the data provided.</p> <p>Acceptance or rejection of the data should be decided by the project team (which should include a project chemist), but exclusion of the data is recommended.</p>

Sample ID: WI-AF-1RW25-1220

EPA Method 537.1

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	2101028-01	Column:	BEH C18
Project:	9000NVT8	Date Collected:	30-Dec-20 11:35	Date Received:	05-Jan-21 12:32		
Location:	1RW25						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.791	1.58	2.11		B1A0028	06-Jan-21	0.237 L	07-Jan-21 18:35	1
PFHxA	307-24-4	ND	0.791	1.58	2.11		B1A0028	06-Jan-21	0.237 L	07-Jan-21 18:35	1
HFPO-DA	13252-13-6	ND	0.791	1.58	2.11		B1A0028	06-Jan-21	0.237 L	07-Jan-21 18:35	1
PFHpA	375-85-9	ND	0.791	1.58	2.11		B1A0028	06-Jan-21	0.237 L	07-Jan-21 18:35	1
ADONA	919005-14-4	ND	0.791	1.58	2.11		B1A0028	06-Jan-21	0.237 L	07-Jan-21 18:35	1
PFHxS	355-46-4	ND	0.791	1.58	2.11		B1A0028	06-Jan-21	0.237 L	07-Jan-21 18:35	1
PFOA	335-67-1	ND	0.791	1.58	2.11		B1A0028	06-Jan-21	0.237 L	07-Jan-21 18:35	1
PFNA	375-95-1	ND	0.791	1.58	2.11		B1A0028	06-Jan-21	0.237 L	07-Jan-21 18:35	1
PFOS	1763-23-1	ND	0.791	1.58	2.11		B1A0028	06-Jan-21	0.237 L	07-Jan-21 18:35	1
9Cl-PF3ONS	756426-58-1	ND	0.791	1.58	2.11		B1A0028	06-Jan-21	0.237 L	07-Jan-21 18:35	1
PFDA	335-76-2	ND	0.791	1.58	2.11		B1A0028	06-Jan-21	0.237 L	07-Jan-21 18:35	1
MeFOSAA	2355-31-9	ND	0.791	1.58	2.11		B1A0028	06-Jan-21	0.237 L	07-Jan-21 18:35	1
EtFOSAA	2991-50-6	ND	0.791	1.58	2.11		B1A0028	06-Jan-21	0.237 L	07-Jan-21 18:35	1
PFUnA	2058-94-8	ND	0.791	1.58	2.11		B1A0028	06-Jan-21	0.237 L	07-Jan-21 18:35	1
PFDoA	307-55-1	ND	0.791	1.58	2.11		B1A0028	06-Jan-21	0.237 L	07-Jan-21 18:35	1
PFTTrDA	72629-94-8	ND	0.791	1.58	2.11		B1A0028	06-Jan-21	0.237 L	07-Jan-21 18:35	1
11Cl-PF3OUdS	763051-92-9	ND	0.791	1.58	2.11		B1A0028	06-Jan-21	0.237 L	07-Jan-21 18:35	1
PFTeDA	376-06-7	ND	0.791	1.58	2.11		B1A0028	06-Jan-21	0.237 L	07-Jan-21 18:35	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	97.0	70 - 130		B1A0028	06-Jan-21	0.237 L	07-Jan-21 18:35	1
13C2-PFDA	SURR	100	70 - 130		B1A0028	06-Jan-21	0.237 L	07-Jan-21 18:35	1
d5-EtFOSAA	SURR	82.5	70 - 130		B1A0028	06-Jan-21	0.237 L	07-Jan-21 18:35	1
13C3-HFPO-DA	SURR	93.0	70 - 130		B1A0028	06-Jan-21	0.237 L	07-Jan-21 18:35	1

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW 1/15/21

Sample ID: WI-AF-1FB25-1220										EPA Method 537.1	
Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2101028-02	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	30-Dec-20 11:35		Date Received:	05-Jan-21 12:32					
Location:	1RW25										
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.739	1.48	1.97		B1A0028	06-Jan-21	0.254 L	07-Jan-21 18:46	1
PFHxA	307-24-4	ND	0.739	1.48	1.97		B1A0028	06-Jan-21	0.254 L	07-Jan-21 18:46	1
HFPO-DA	13252-13-6	ND	0.739	1.48	1.97		B1A0028	06-Jan-21	0.254 L	07-Jan-21 18:46	1
PFHpA	375-85-9	ND	0.739	1.48	1.97		B1A0028	06-Jan-21	0.254 L	07-Jan-21 18:46	1
ADONA	919005-14-4	ND	0.739	1.48	1.97		B1A0028	06-Jan-21	0.254 L	07-Jan-21 18:46	1
PFHxS	355-46-4	ND	0.739	1.48	1.97		B1A0028	06-Jan-21	0.254 L	07-Jan-21 18:46	1
PFOA	335-67-1	ND	0.739	1.48	1.97		B1A0028	06-Jan-21	0.254 L	07-Jan-21 18:46	1
PFNA	375-95-1	ND	0.739	1.48	1.97		B1A0028	06-Jan-21	0.254 L	07-Jan-21 18:46	1
PFOS	1763-23-1	ND	0.739	1.48	1.97		B1A0028	06-Jan-21	0.254 L	07-Jan-21 18:46	1
9CI-PF3ONS	756426-58-1	ND	0.739	1.48	1.97		B1A0028	06-Jan-21	0.254 L	07-Jan-21 18:46	1
PFDA	335-76-2	ND	0.739	1.48	1.97		B1A0028	06-Jan-21	0.254 L	07-Jan-21 18:46	1
MeFOSAA	2355-31-9	ND	0.739	1.48	1.97		B1A0028	06-Jan-21	0.254 L	07-Jan-21 18:46	1
EtFOSAA	2991-50-6	ND	0.739	1.48	1.97		B1A0028	06-Jan-21	0.254 L	07-Jan-21 18:46	1
PFOuA	2058-94-8	ND	0.739	1.48	1.97		B1A0028	06-Jan-21	0.254 L	07-Jan-21 18:46	1
PFDoA	307-55-1	ND	0.739	1.48	1.97		B1A0028	06-Jan-21	0.254 L	07-Jan-21 18:46	1
PFTTrDA	72629-94-8	ND	0.739	1.48	1.97		B1A0028	06-Jan-21	0.254 L	07-Jan-21 18:46	1
11CI-PF3OUdS	763051-92-9	ND	0.739	1.48	1.97		B1A0028	06-Jan-21	0.254 L	07-Jan-21 18:46	1
PFTeDA	376-06-7	ND	0.739	1.48	1.97		B1A0028	06-Jan-21	0.254 L	07-Jan-21 18:46	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	91.4	70 - 130			B1A0028	06-Jan-21	0.254 L	07-Jan-21 18:46	1	
13C2-PFDA	SURR	95.5	70 - 130			B1A0028	06-Jan-21	0.254 L	07-Jan-21 18:46	1	
d5-EtFOSAA	SURR	96.2	70 - 130			B1A0028	06-Jan-21	0.254 L	07-Jan-21 18:46	1	
13C3-HFPO-DA	SURR	87.9	70 - 130			B1A0028	06-Jan-21	0.254 L	07-Jan-21 18:46	1	

DL - Detection Limit

LOD - Limit of Detection

Results reported to the DL.

LOQ - Limit of quantitation

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

mwliszi

Sample ID: WI-AF-3RW18-1220							EPA Method 537.1				
Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2101028-03	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	30-Dec-20 11:00		Date Received:	05-Jan-21 12:32					
Location:	3RW18										
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.750	1.50	2.00		B1A0028	06-Jan-21	0.250 L	07-Jan-21 18:57	1
PFHxA	307-24-4	ND	0.750	1.50	2.00		B1A0028	06-Jan-21	0.250 L	07-Jan-21 18:57	1
HFPO-DA	13252-13-6	ND	0.750	1.50	2.00		B1A0028	06-Jan-21	0.250 L	07-Jan-21 18:57	1
PFHpA	375-85-9	ND	0.750	1.50	2.00		B1A0028	06-Jan-21	0.250 L	07-Jan-21 18:57	1
ADONA	919005-14-4	ND	0.750	1.50	2.00		B1A0028	06-Jan-21	0.250 L	07-Jan-21 18:57	1
PFHxS	355-46-4	ND	0.750	1.50	2.00		B1A0028	06-Jan-21	0.250 L	07-Jan-21 18:57	1
PFOA	335-67-1	ND	0.750	1.50	2.00		B1A0028	06-Jan-21	0.250 L	07-Jan-21 18:57	1
PFNA	375-95-1	ND	0.750	1.50	2.00		B1A0028	06-Jan-21	0.250 L	07-Jan-21 18:57	1
PFOS	1763-23-1	ND	0.750	1.50	2.00		B1A0028	06-Jan-21	0.250 L	07-Jan-21 18:57	1
9CI-PF3ONS	756426-58-1	ND	0.750	1.50	2.00		B1A0028	06-Jan-21	0.250 L	07-Jan-21 18:57	1
PFDA	335-76-2	ND	0.750	1.50	2.00		B1A0028	06-Jan-21	0.250 L	07-Jan-21 18:57	1
MeFOSAA	2355-31-9	ND	0.750	1.50	2.00		B1A0028	06-Jan-21	0.250 L	07-Jan-21 18:57	1
EtFOSAA	2991-50-6	ND	0.750	1.50	2.00		B1A0028	06-Jan-21	0.250 L	07-Jan-21 18:57	1
PFUnA	2058-94-8	ND	0.750	1.50	2.00		B1A0028	06-Jan-21	0.250 L	07-Jan-21 18:57	1
PFDaA	307-55-1	ND	0.750	1.50	2.00		B1A0028	06-Jan-21	0.250 L	07-Jan-21 18:57	1
PFTrDA	72629-94-8	ND	0.750	1.50	2.00		B1A0028	06-Jan-21	0.250 L	07-Jan-21 18:57	1
11CI-PF3OUdS	763051-92-9	ND	0.750	1.50	2.00		B1A0028	06-Jan-21	0.250 L	07-Jan-21 18:57	1
PFTeDA	376-06-7	ND	0.750	1.50	2.00		B1A0028	06-Jan-21	0.250 L	07-Jan-21 18:57	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	93.3	70 - 130			B1A0028	06-Jan-21	0.250 L	07-Jan-21 18:57	1	
13C2-PFDA	SURR	96.3	70 - 130			B1A0028	06-Jan-21	0.250 L	07-Jan-21 18:57	1	
d5-EtFOSAA	SURR	79.7	70 - 130			B1A0028	06-Jan-21	0.250 L	07-Jan-21 18:57	1	
13C3-HFPO-DA	SURR	90.7	70 - 130			B1A0028	06-Jan-21	0.250 L	07-Jan-21 18:57	1	

DL - Detection Limit

LOD - Limit of Detection

LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

nw 11/15/21

Sample ID: WI-AF-3FB18-1220											EPA Method 537.1
Client Data					Laboratory Data						
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	2101028-04	Column:	BEH C18			
Project:	9000NVT8	Date Collected:	30-Dec-20 11:00		Date Received:	05-Jan-21 12:32					
Location:	3RW18										
Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.730	1.46	1.95		B1A0028	06-Jan-21	0.257 L	07-Jan-21 19:08	1
PFHxA	307-24-4	ND	0.730	1.46	1.95		B1A0028	06-Jan-21	0.257 L	07-Jan-21 19:08	1
HFPO-DA	13252-13-6	ND	0.730	1.46	1.95		B1A0028	06-Jan-21	0.257 L	07-Jan-21 19:08	1
PFHpA	375-85-9	ND	0.730	1.46	1.95		B1A0028	06-Jan-21	0.257 L	07-Jan-21 19:08	1
ADONA	919005-14-4	ND	0.730	1.46	1.95		B1A0028	06-Jan-21	0.257 L	07-Jan-21 19:08	1
PFHxS	355-46-4	ND	0.730	1.46	1.95		B1A0028	06-Jan-21	0.257 L	07-Jan-21 19:08	1
PFOA	335-67-1	ND	0.730	1.46	1.95		B1A0028	06-Jan-21	0.257 L	07-Jan-21 19:08	1
PFNA	375-95-1	ND	0.730	1.46	1.95		B1A0028	06-Jan-21	0.257 L	07-Jan-21 19:08	1
PFOS	1763-23-1	ND	0.730	1.46	1.95		B1A0028	06-Jan-21	0.257 L	07-Jan-21 19:08	1
9Cl-PF3ONS	756426-58-1	ND	0.730	1.46	1.95		B1A0028	06-Jan-21	0.257 L	07-Jan-21 19:08	1
PFDA	335-76-2	ND	0.730	1.46	1.95		B1A0028	06-Jan-21	0.257 L	07-Jan-21 19:08	1
MeFOSAA	2355-31-9	ND	0.730	1.46	1.95		B1A0028	06-Jan-21	0.257 L	07-Jan-21 19:08	1
EtFOSAA	2991-50-6	ND	0.730	1.46	1.95		B1A0028	06-Jan-21	0.257 L	07-Jan-21 19:08	1
PFUnA	2058-94-8	ND	0.730	1.46	1.95		B1A0028	06-Jan-21	0.257 L	07-Jan-21 19:08	1
PFDoA	307-55-1	ND	0.730	1.46	1.95		B1A0028	06-Jan-21	0.257 L	07-Jan-21 19:08	1
PFTTrDA	72629-94-8	ND	0.730	1.46	1.95		B1A0028	06-Jan-21	0.257 L	07-Jan-21 19:08	1
11Cl-PF3OUdS	763051-92-9	ND	0.730	1.46	1.95		B1A0028	06-Jan-21	0.257 L	07-Jan-21 19:08	1
PFTeDA	376-06-7	ND	0.730	1.46	1.95		B1A0028	06-Jan-21	0.257 L	07-Jan-21 19:08	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	93.5	70 - 130			B1A0028	06-Jan-21	0.257 L	07-Jan-21 19:08	1	
13C2-PFDA	SURR	102	70 - 130			B1A0028	06-Jan-21	0.257 L	07-Jan-21 19:08	1	
d5-EtFOSAA	SURR	88.3	70 - 130			B1A0028	06-Jan-21	0.257 L	07-Jan-21 19:08	1	
13C3-HFPO-DA	SURR	90.2	70 - 130			B1A0028	06-Jan-21	0.257 L	07-Jan-21 19:08	1	

DL - Detection Limit

LOD - Limit of Detection

LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

W1115121

Attachment 4 Trend Graphs

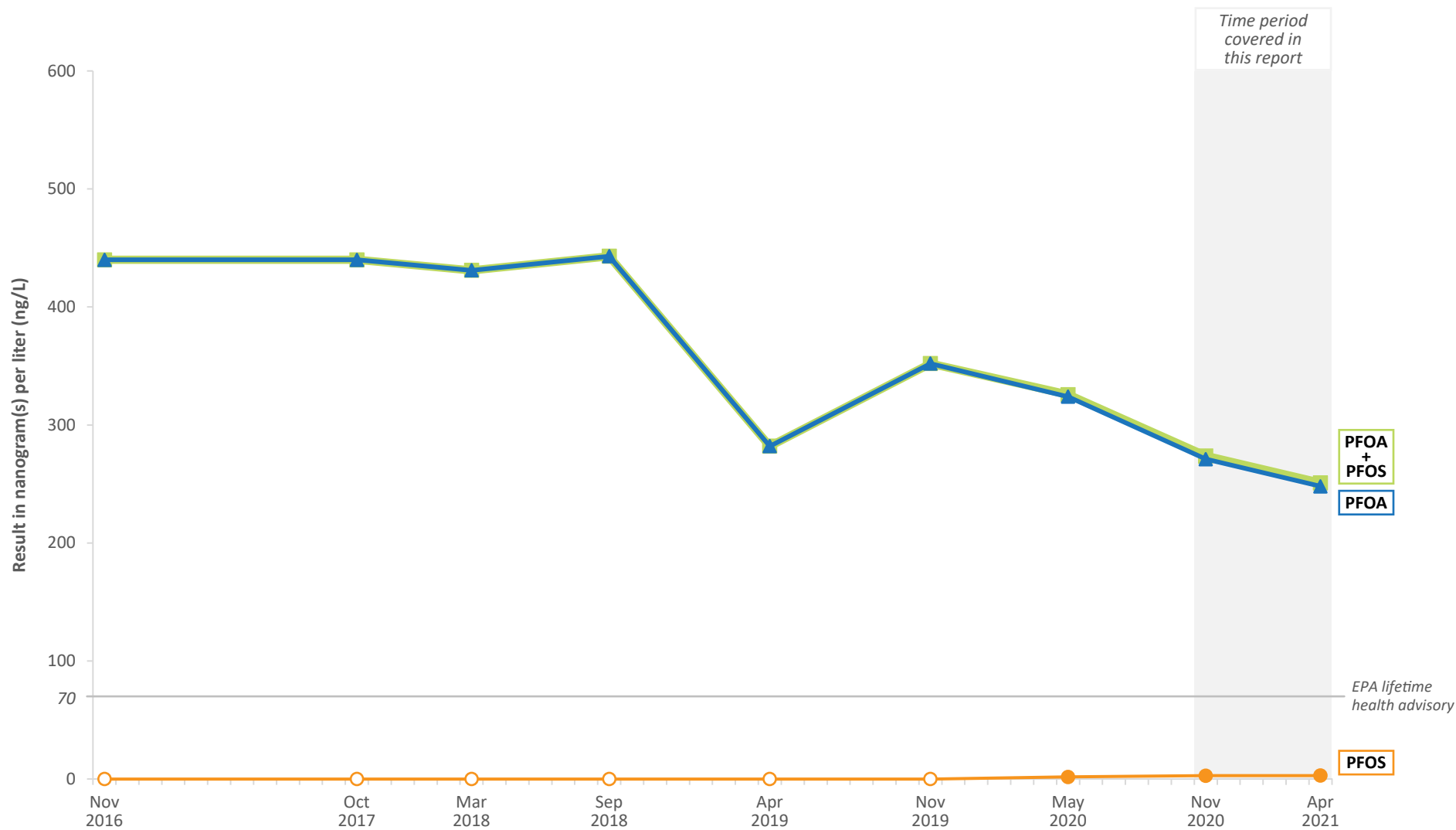


Figure A4-1.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-1RW01
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.



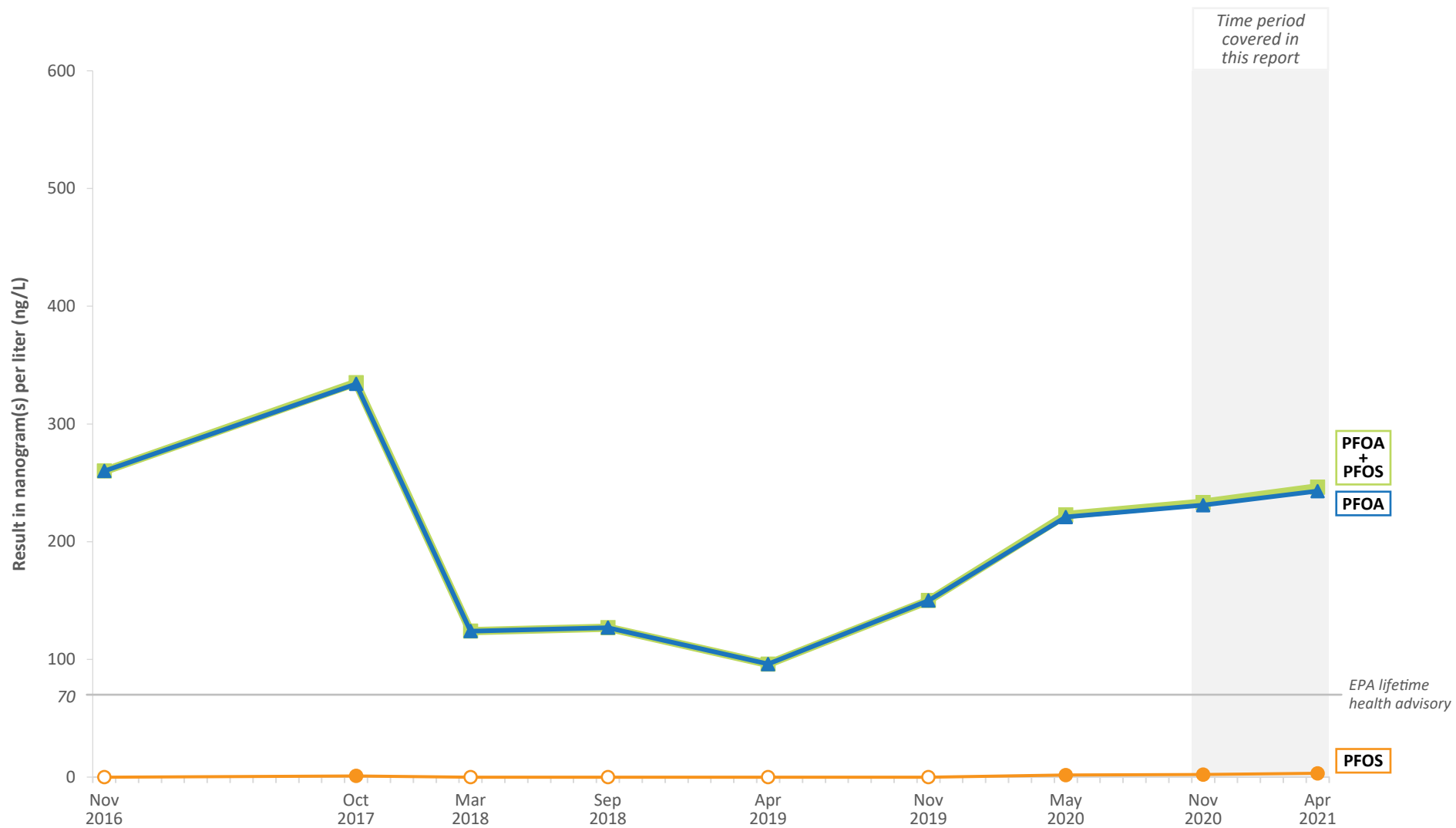


Figure A4-2.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-1RW07
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.

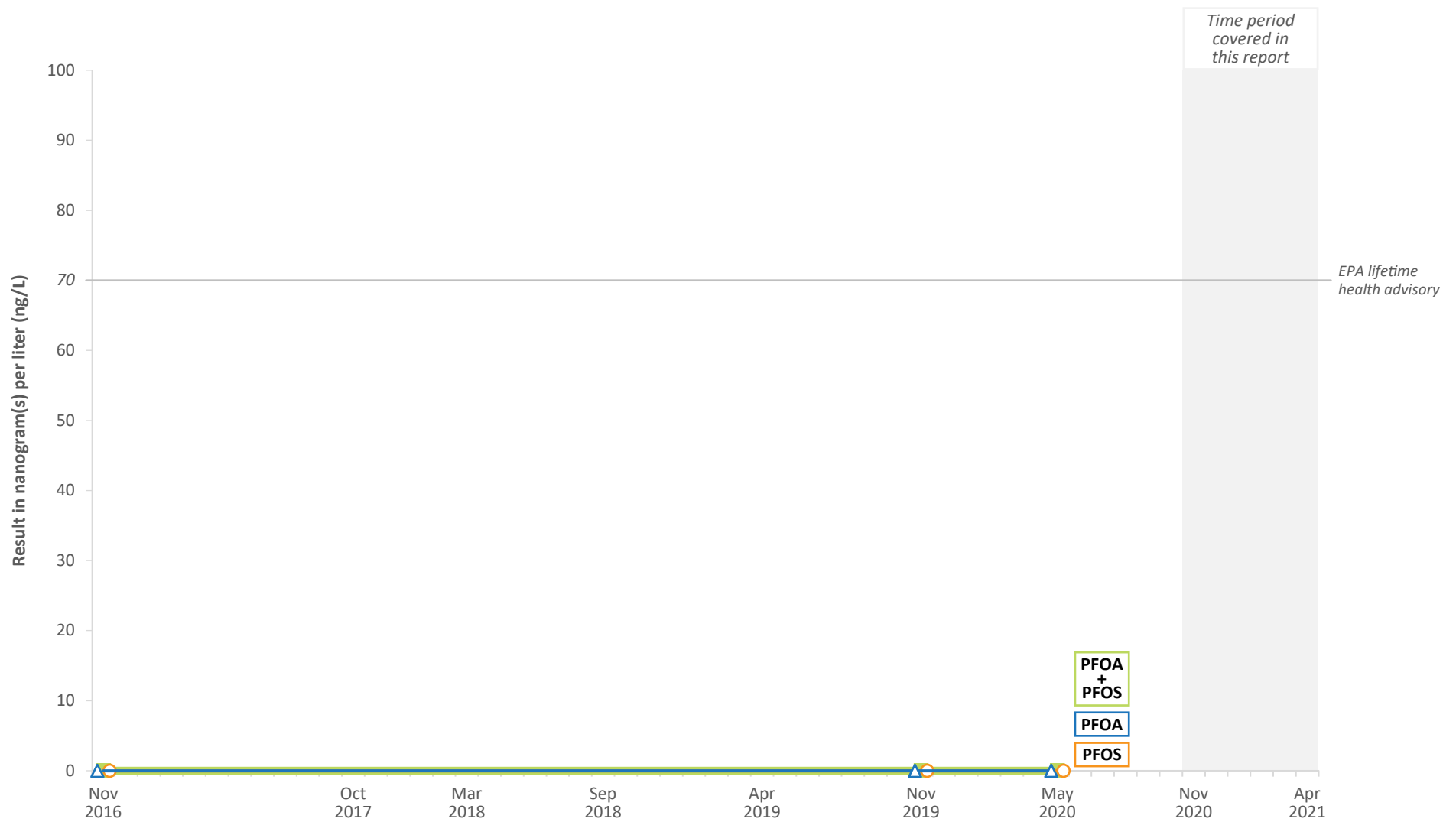


Figure A4-3.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-1RW09
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.

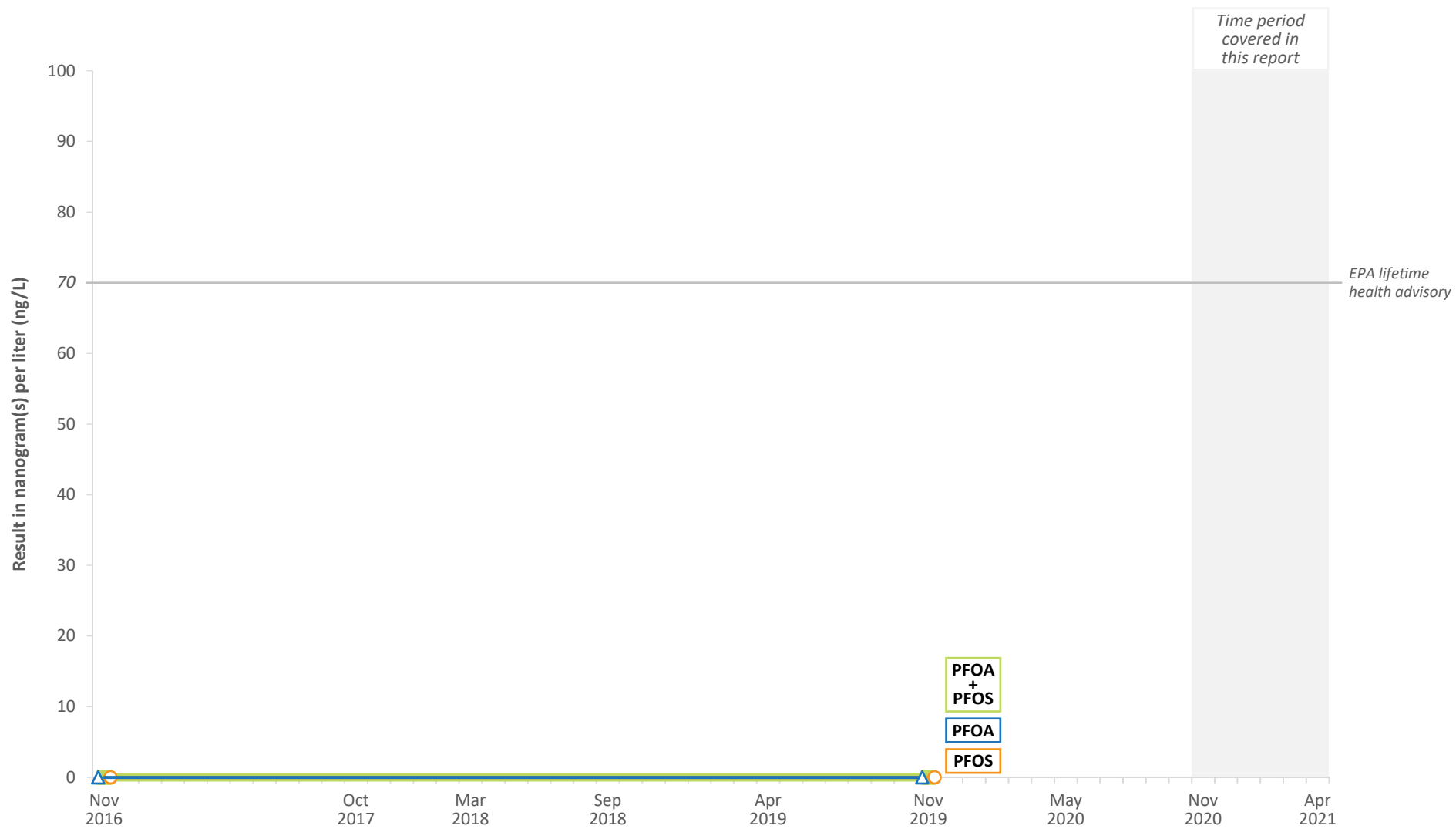


Figure A4-4.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-1RW10
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.

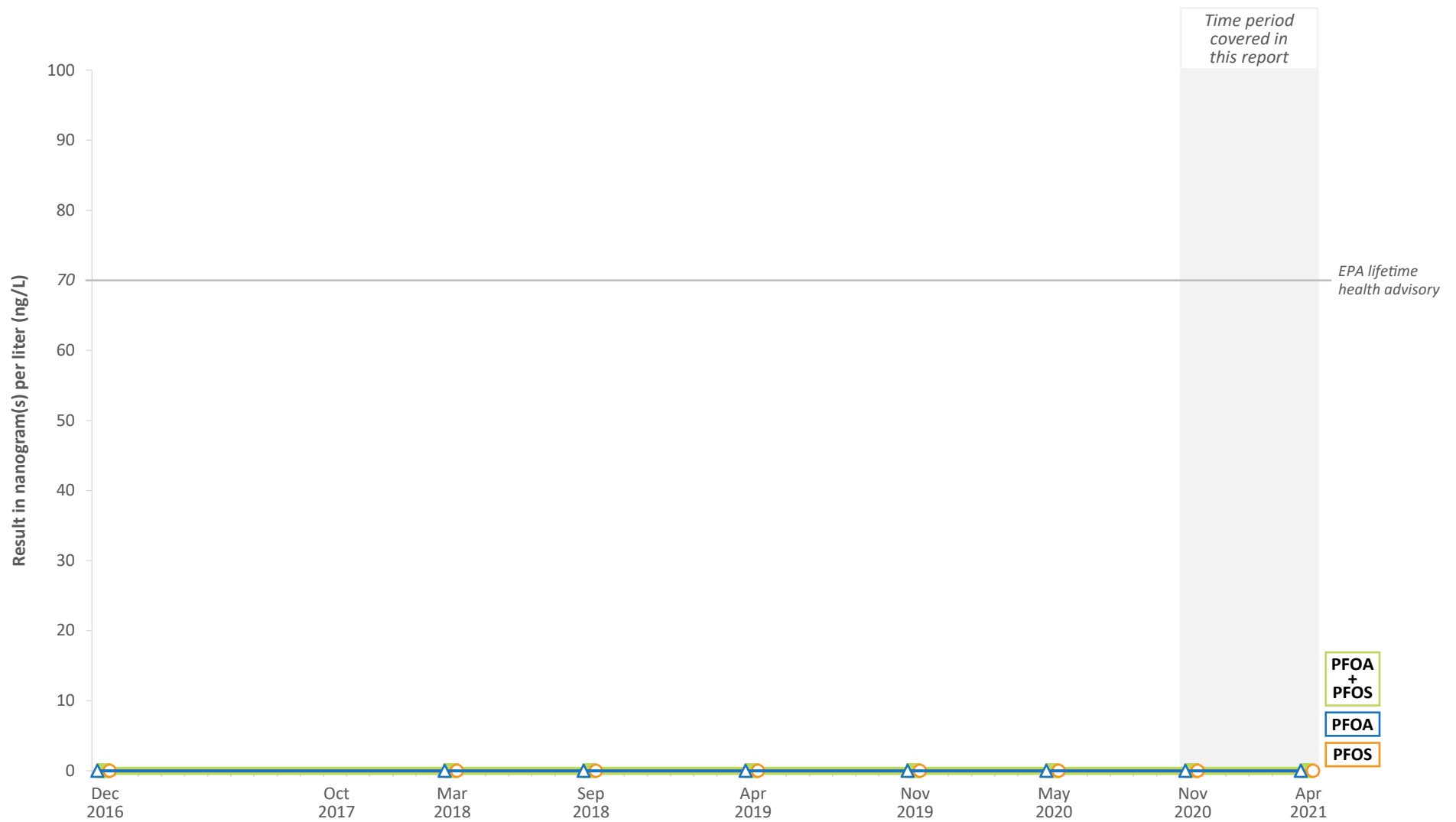


Figure A4-5.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-1RW14
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.



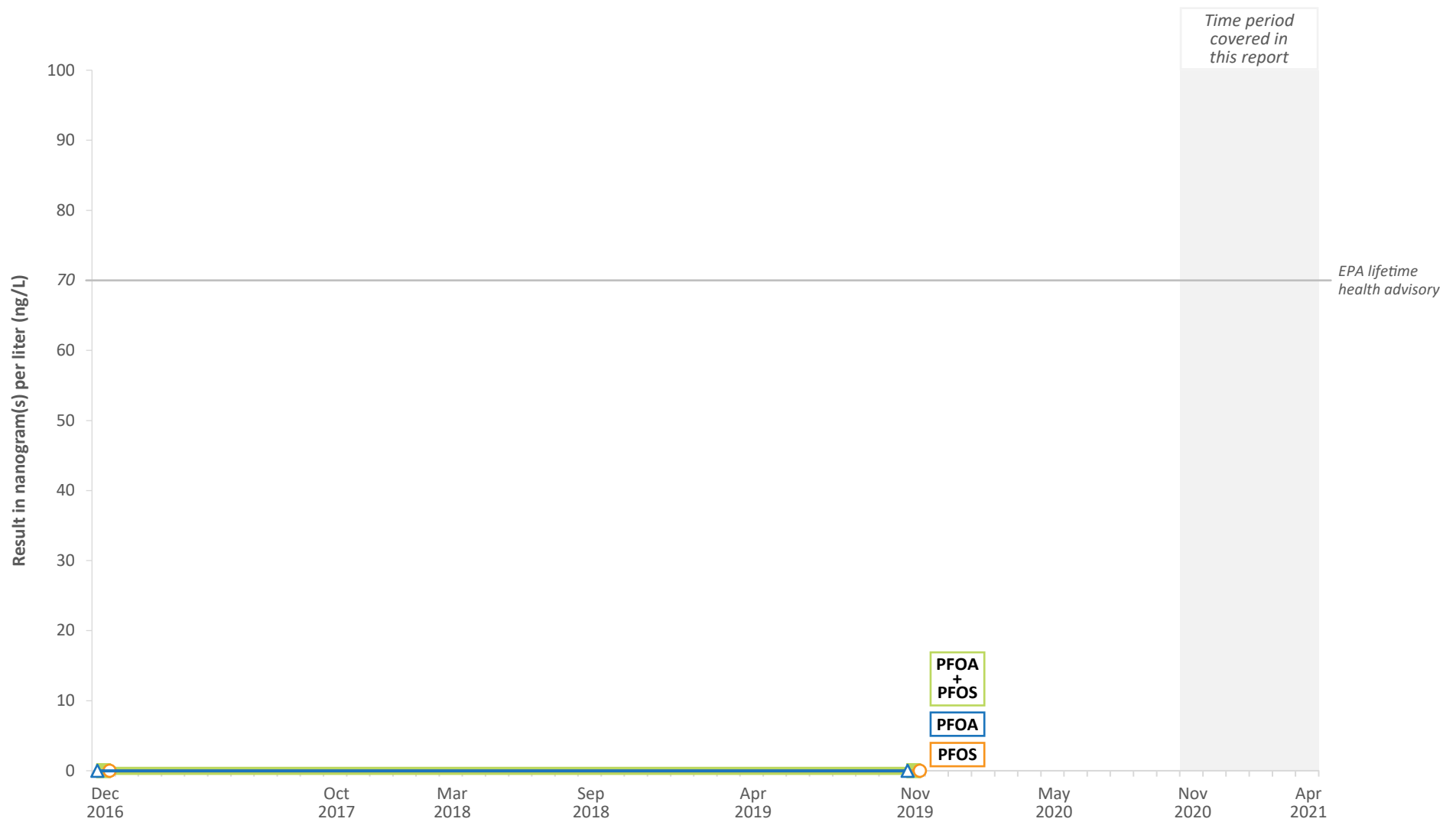


Figure A4-6.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-1RW20
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.



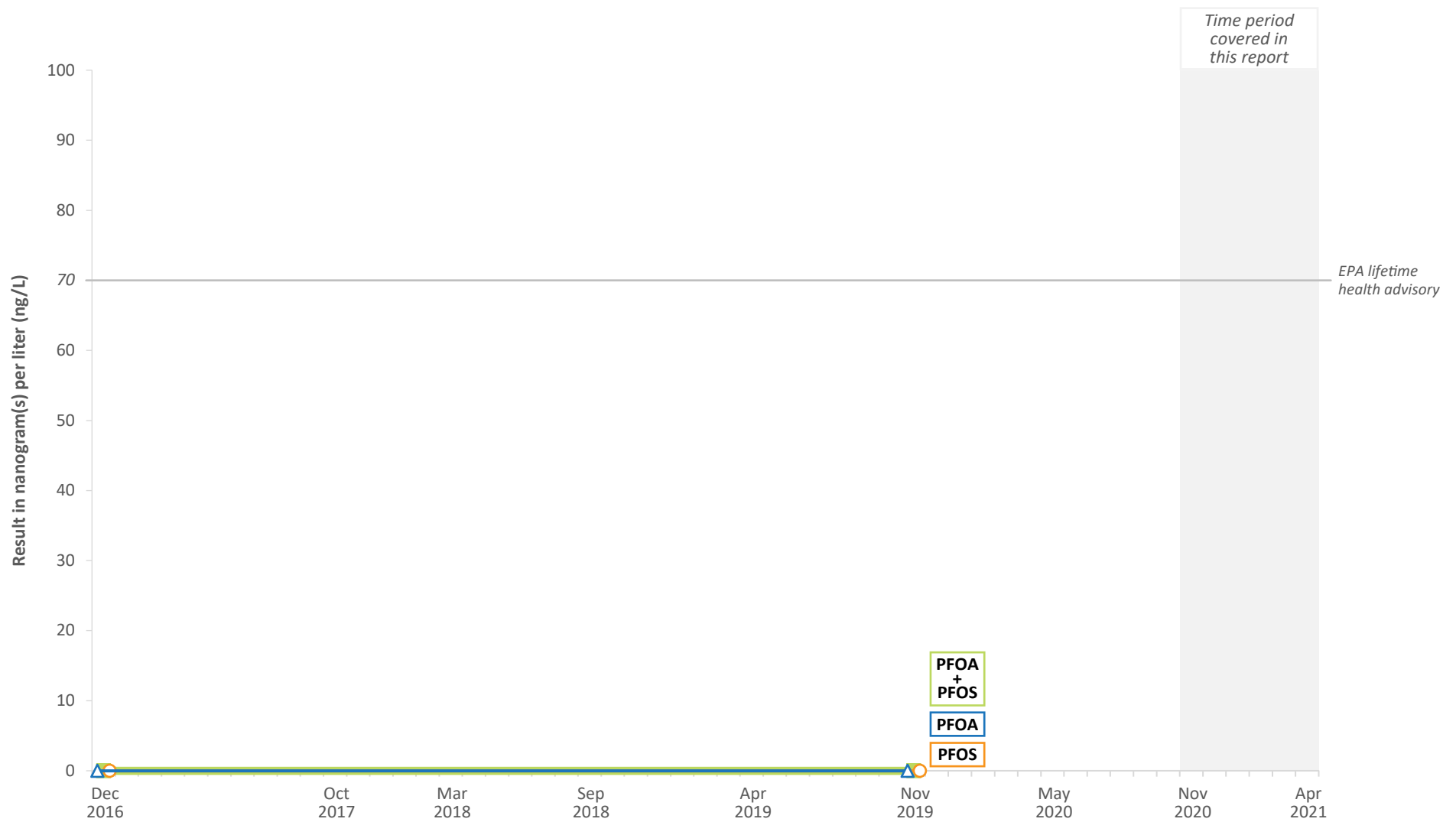


Figure A4-7.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-1RW21
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.



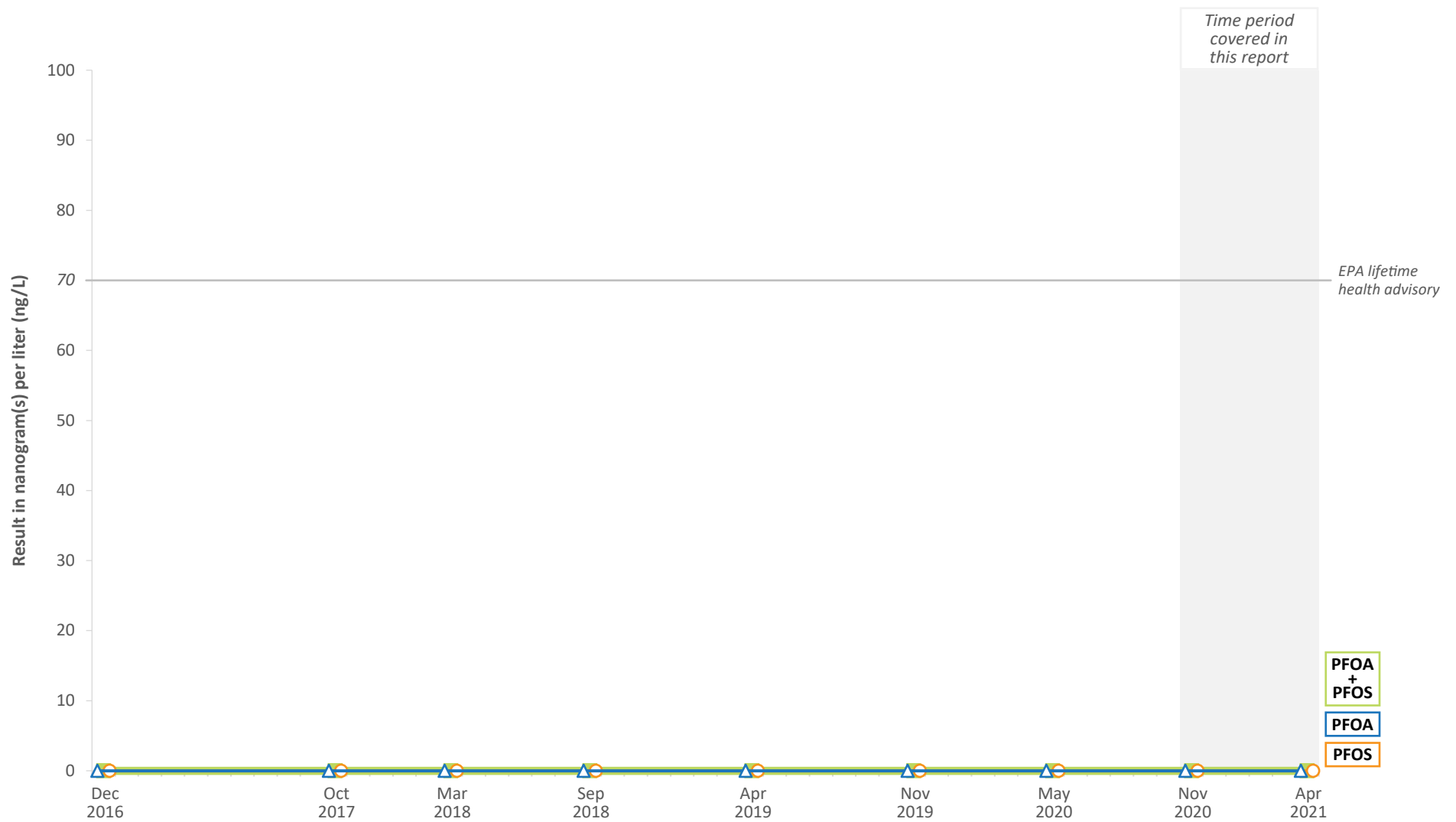


Figure A4-8.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-1RW22
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.

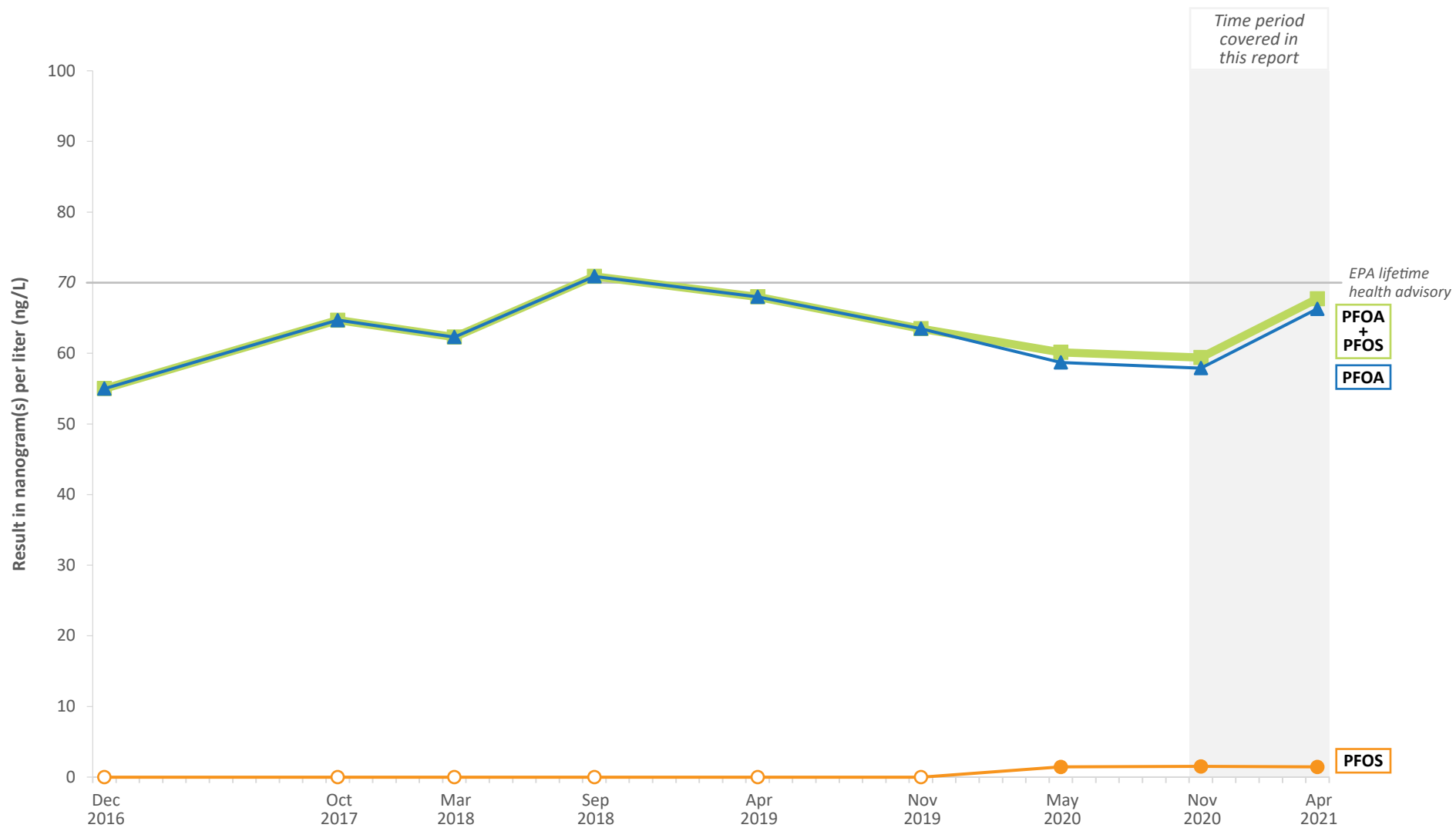


Figure A4-9.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-1RW23
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.

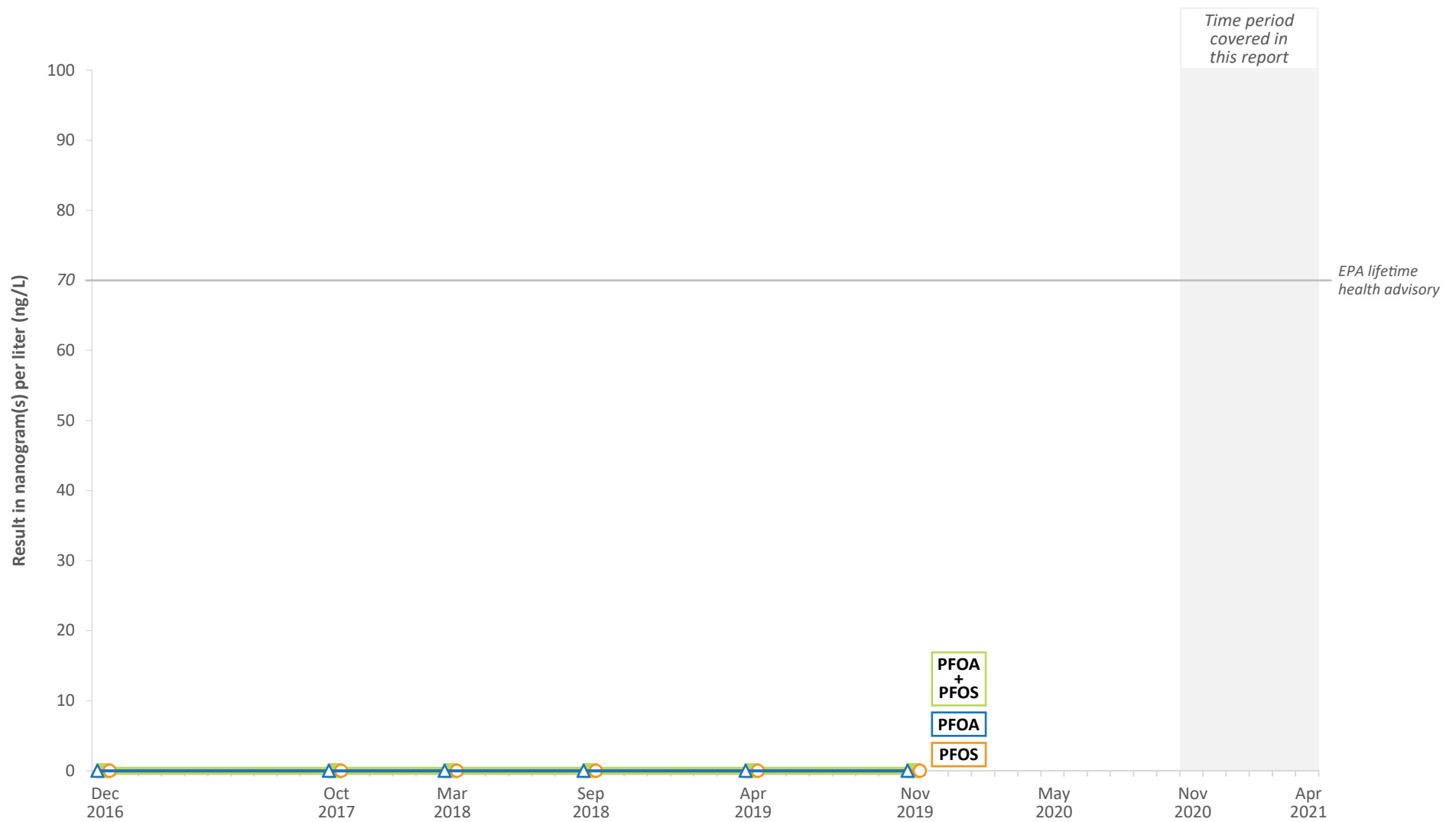


Figure A4-10.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-1RW24
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.



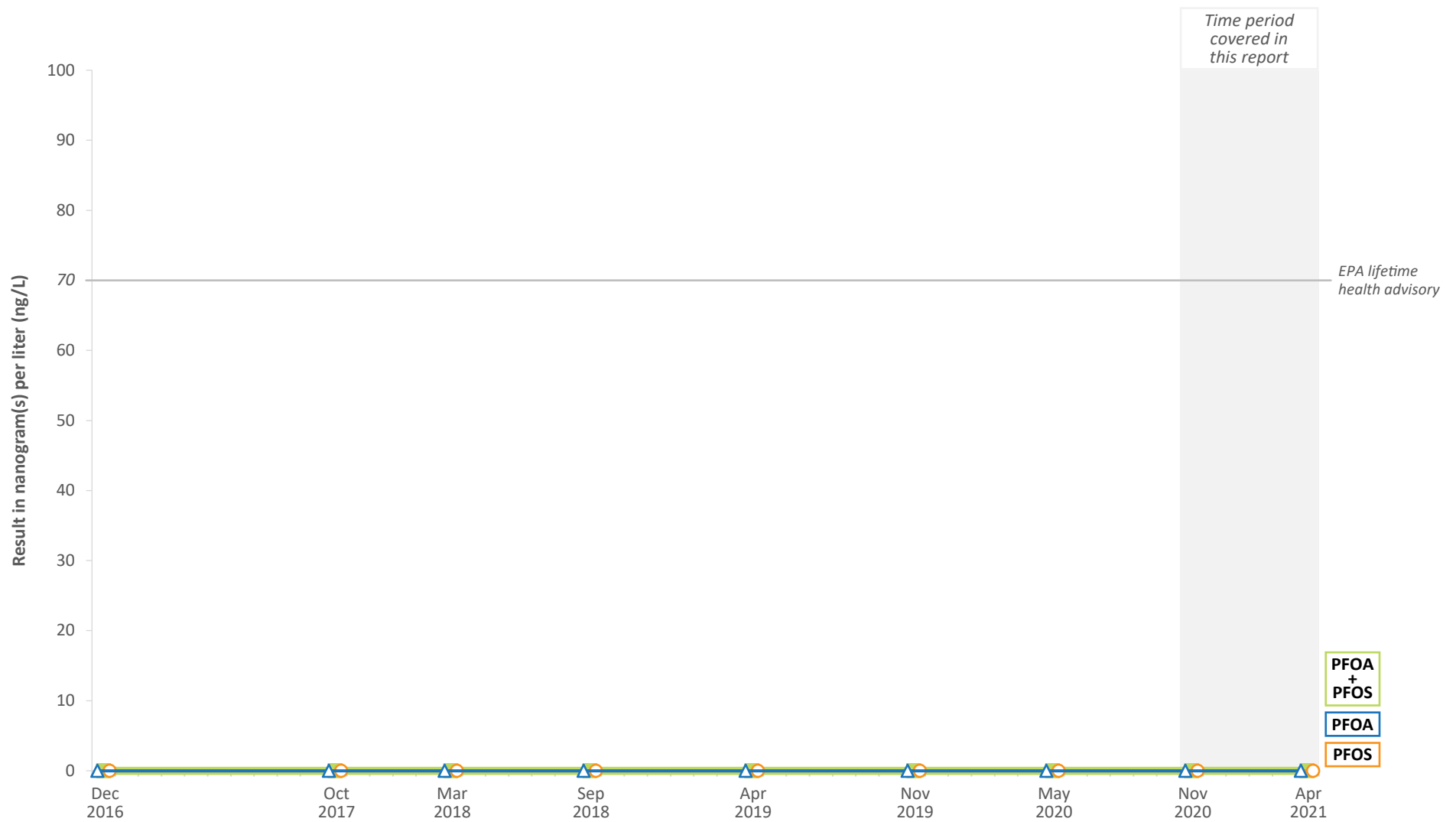


Figure A4-11.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-1RW25
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.



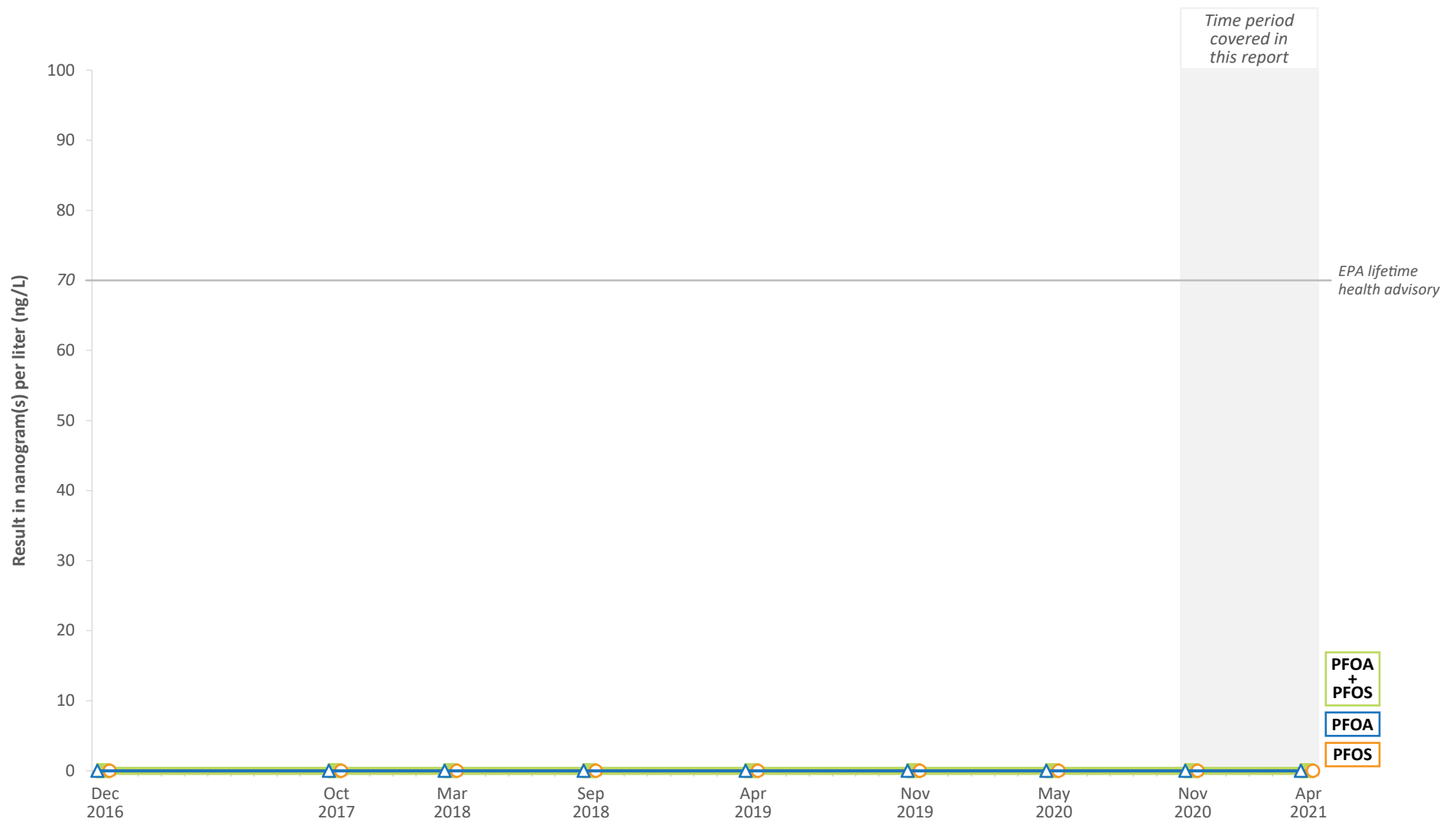


Figure A4-12.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-1RW26
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.

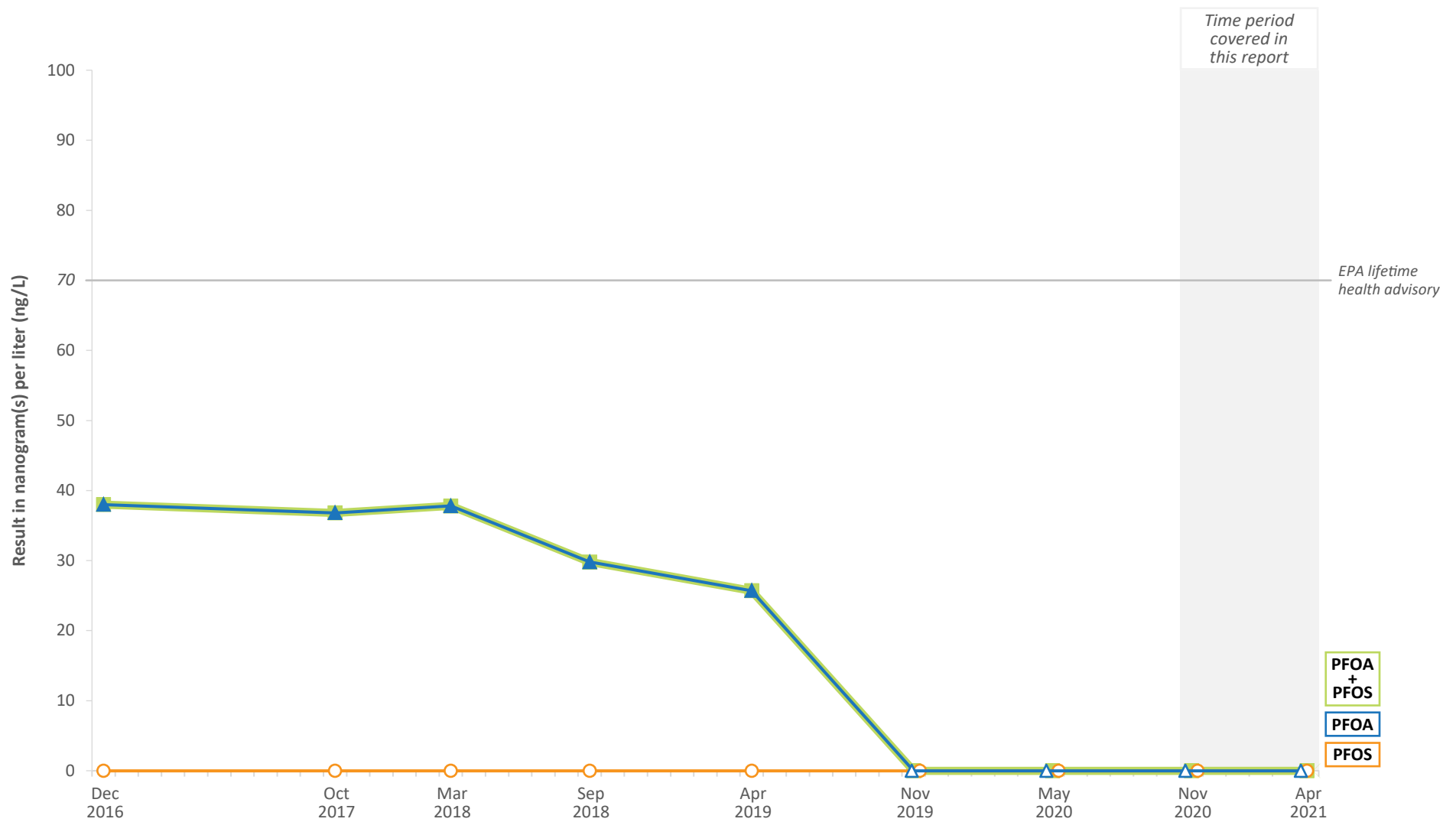


Figure A4-13.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-1RW27
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.

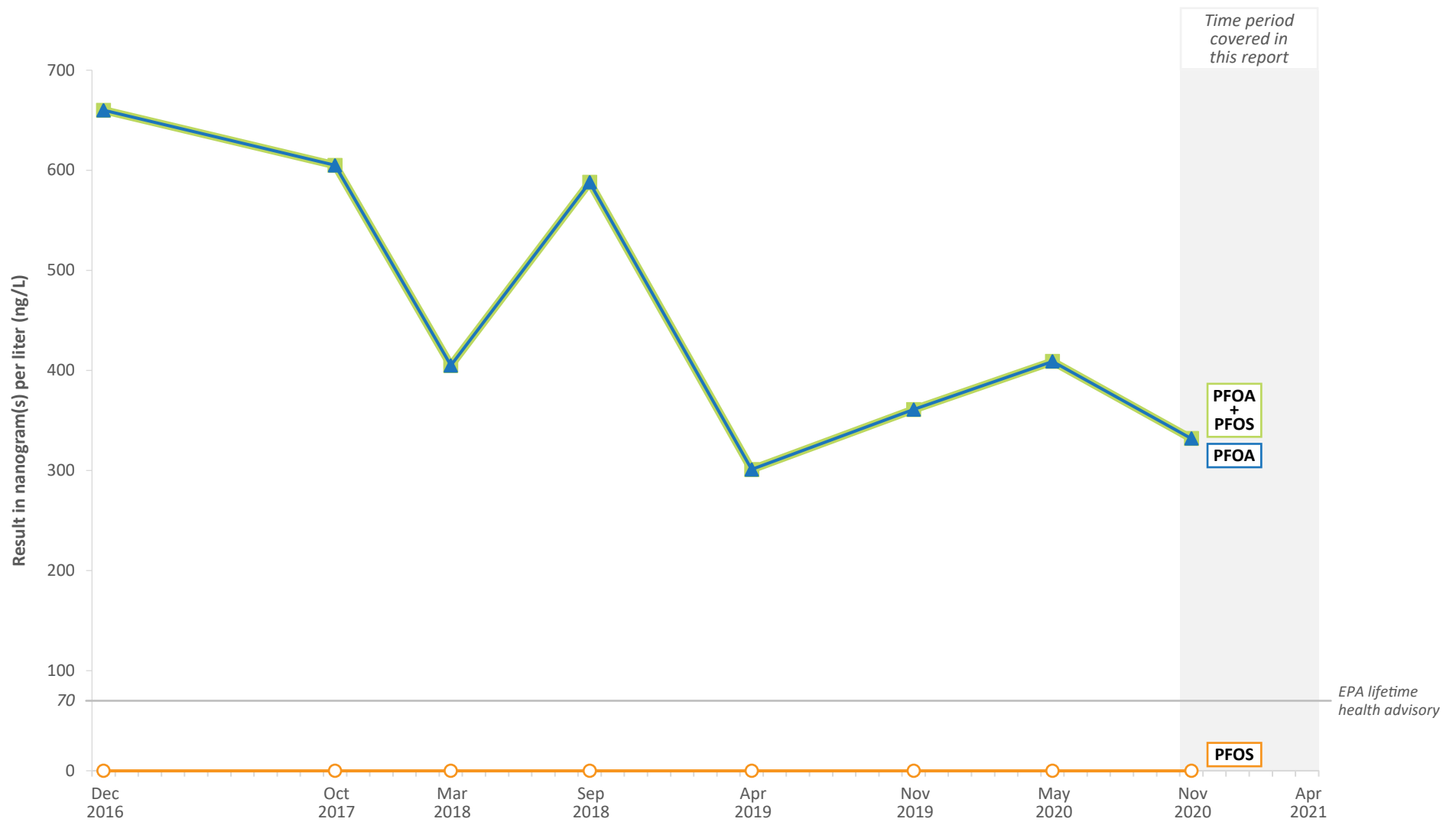


Figure A4-14.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-1RW34
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.



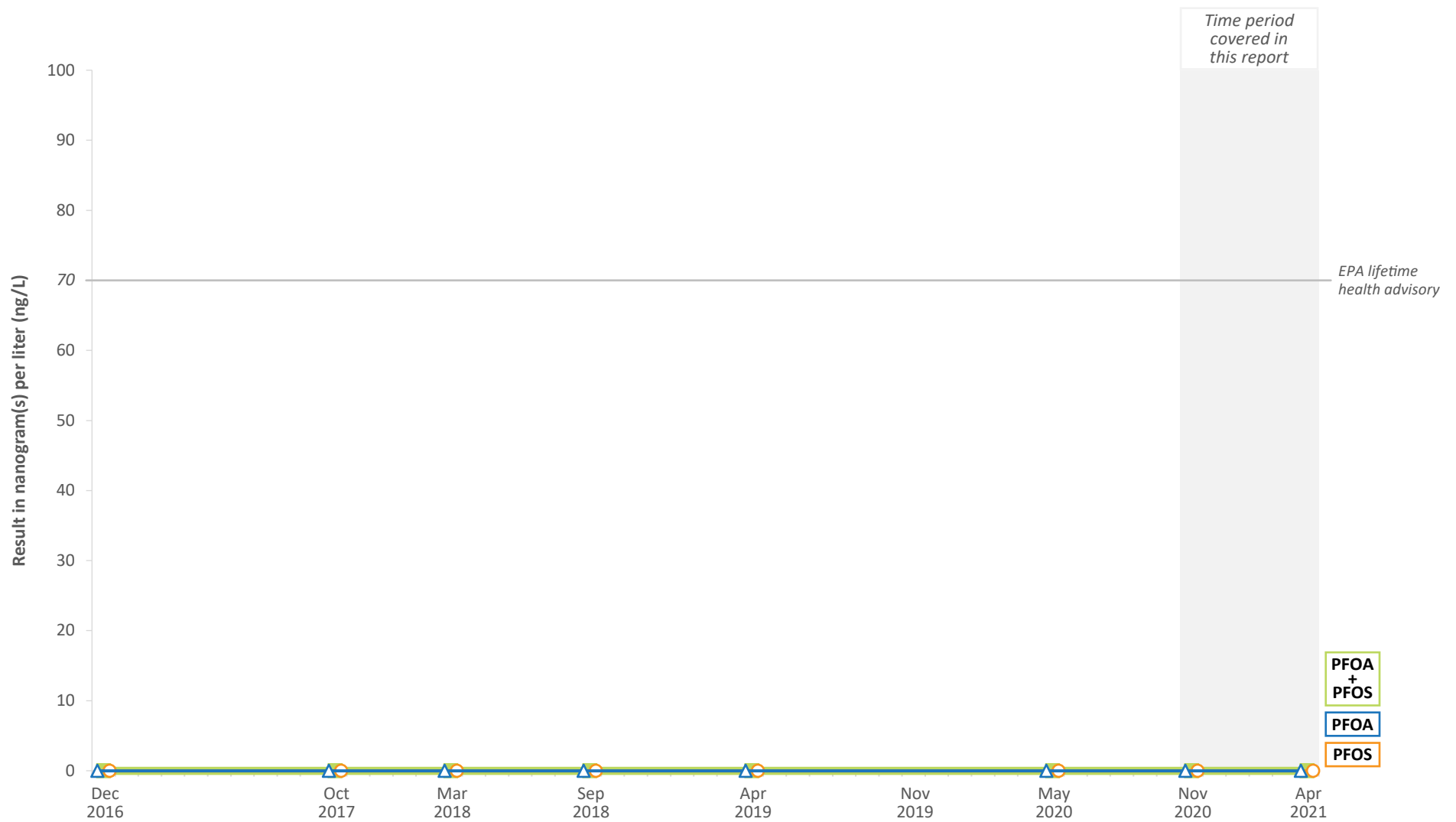


Figure A4-15.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-1RW37
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.

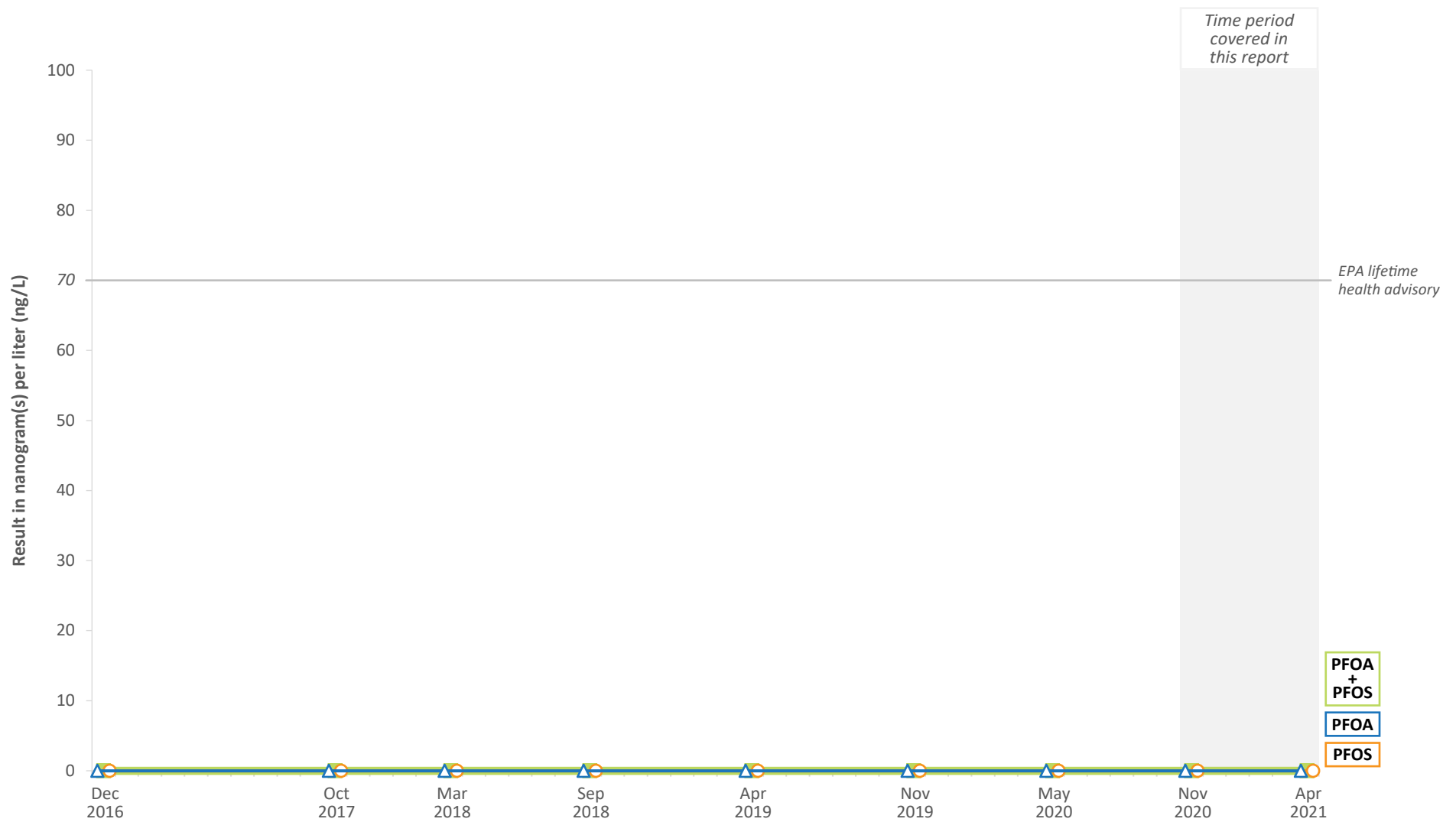


Figure A4-16.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-1RW40
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.



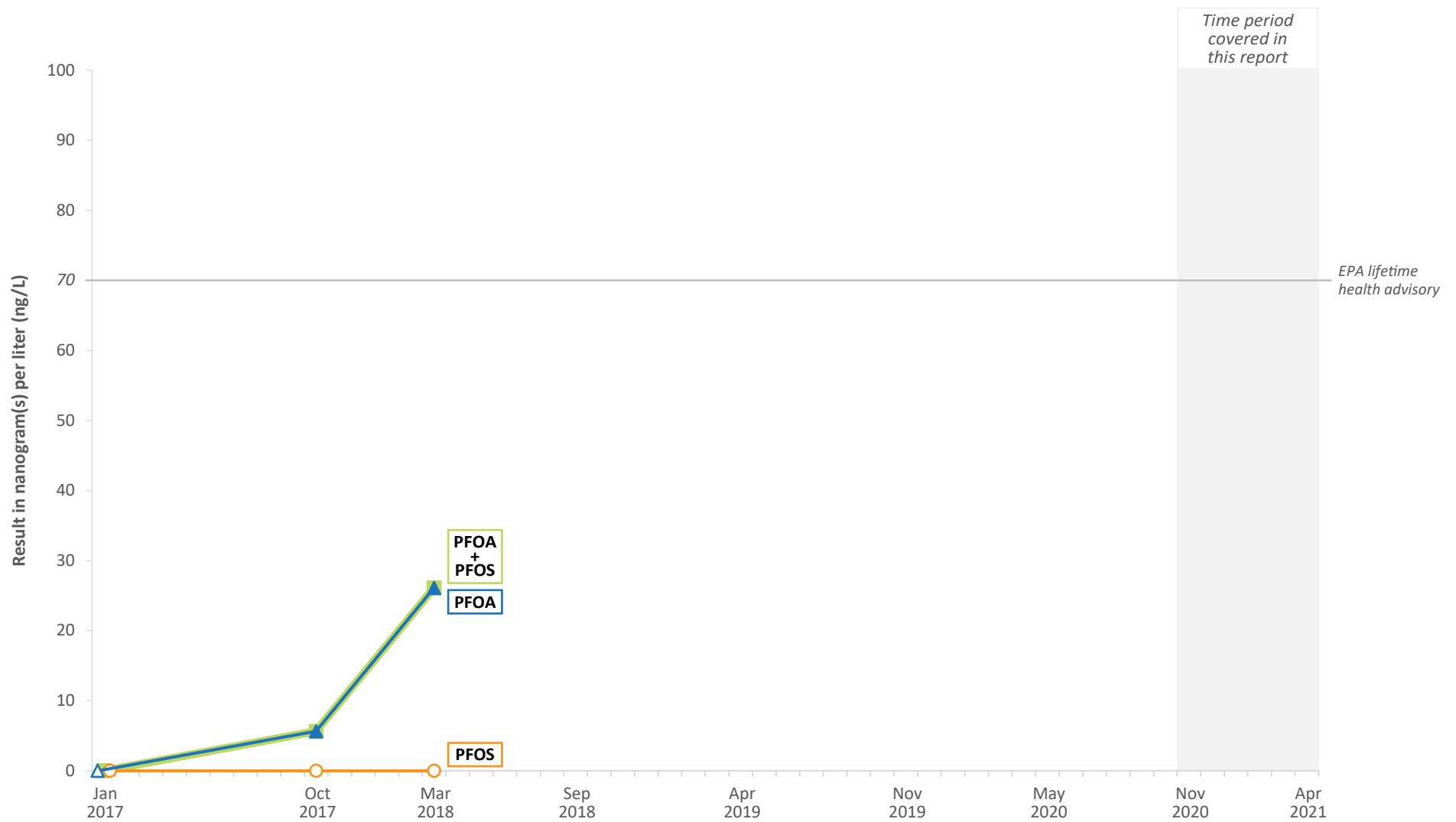


Figure A4-17.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-1RW60
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.
3. The WI-CV-1RW60 well sampling location was taken off-line after the March 2018 sampling event.

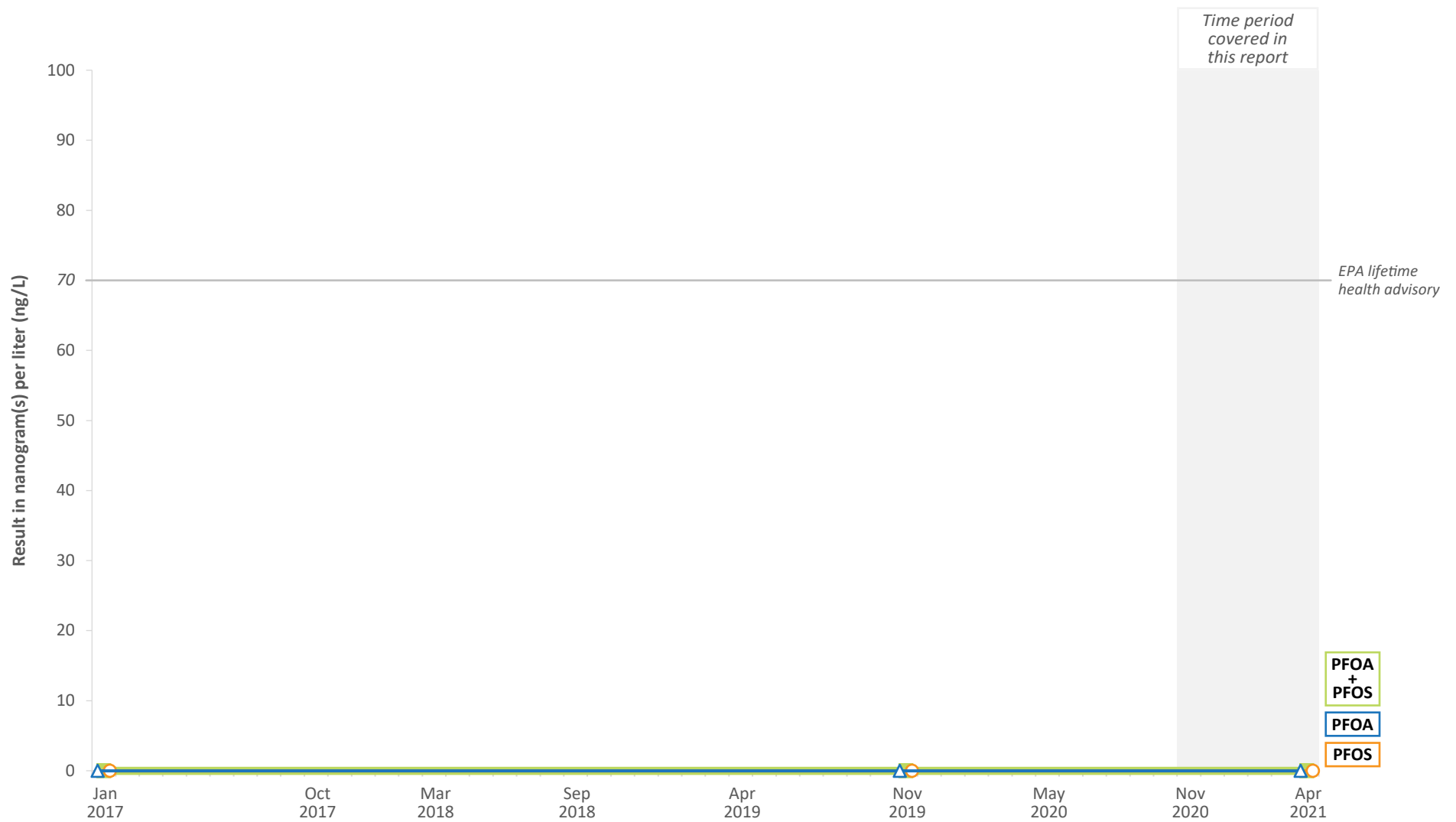


Figure A4-18.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-1RW67
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.

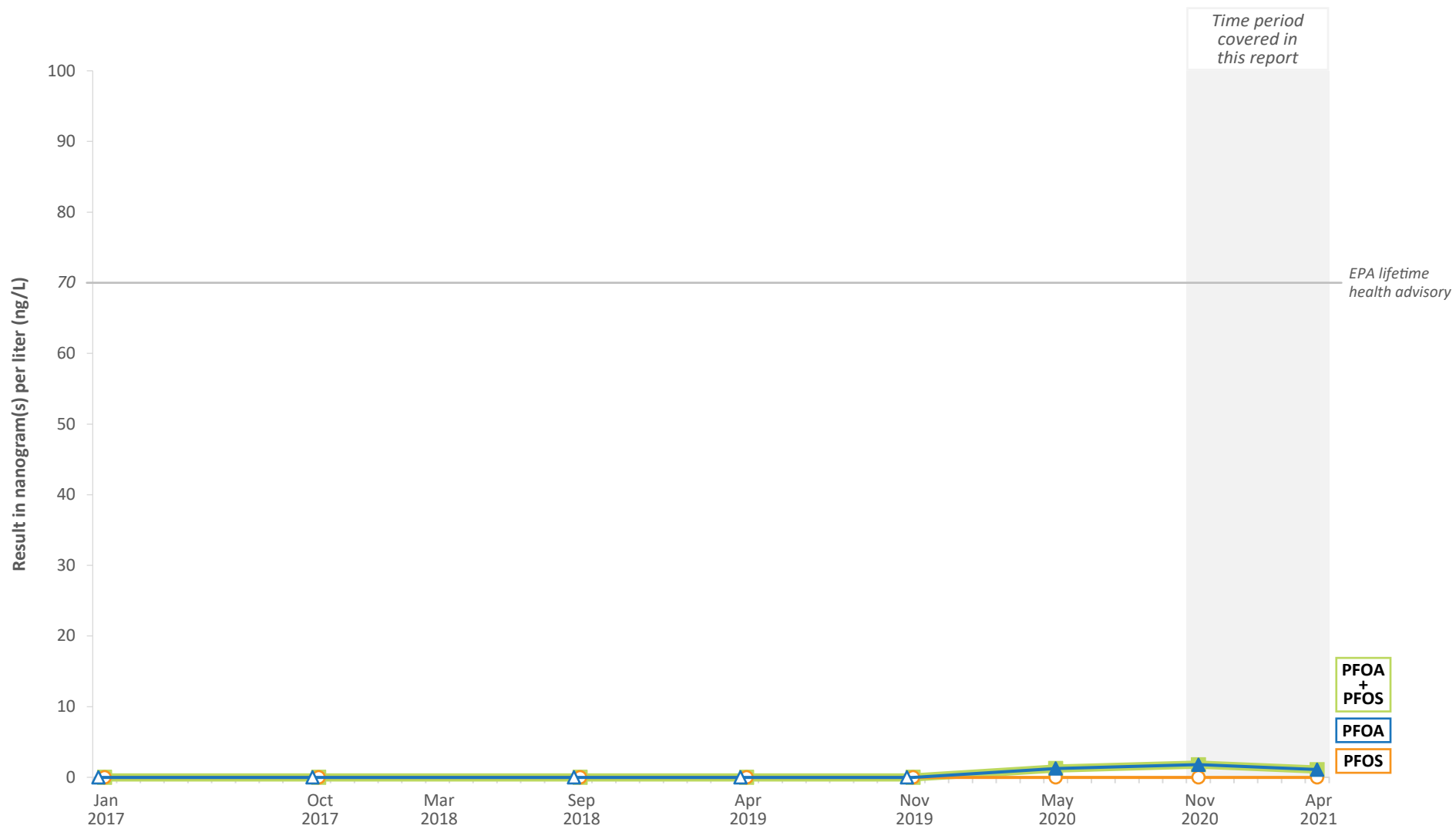


Figure A4-19.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-1RW72
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.



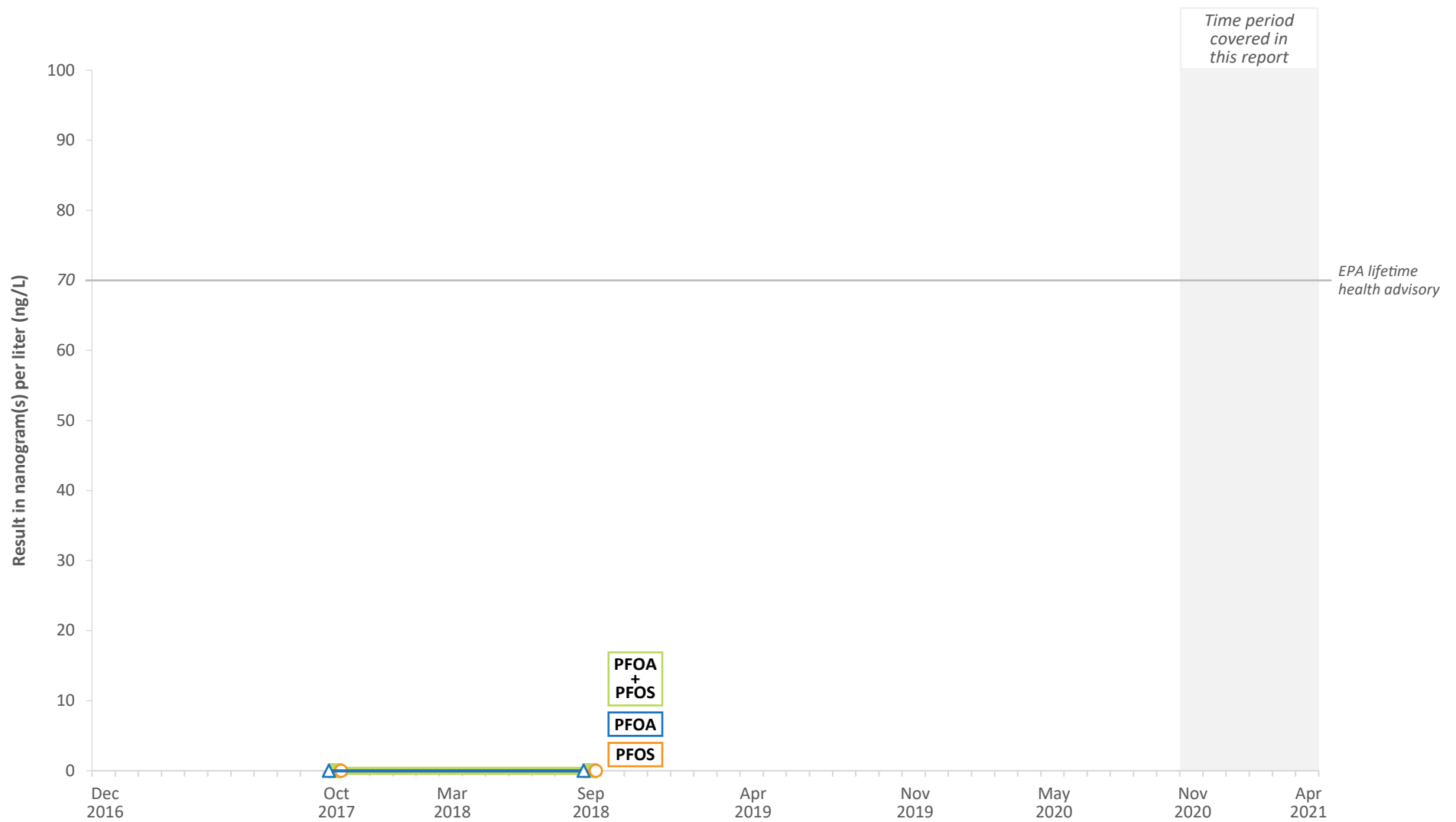


Figure A4-20.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-1RW89
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.



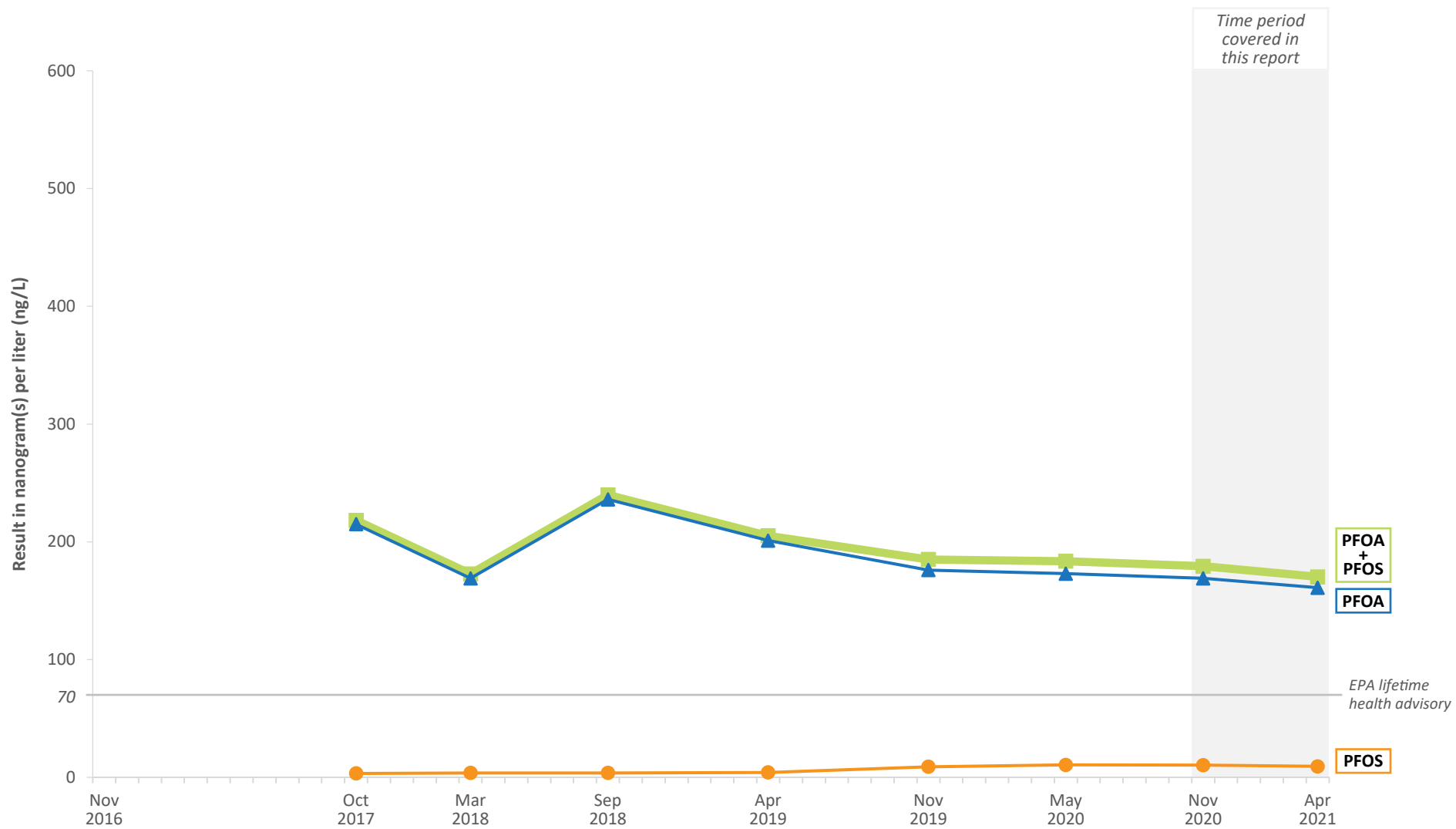


Figure A4-21.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-1RW90
Naval Air Station Whidbey Island
Coupeville, Washington

Note:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.



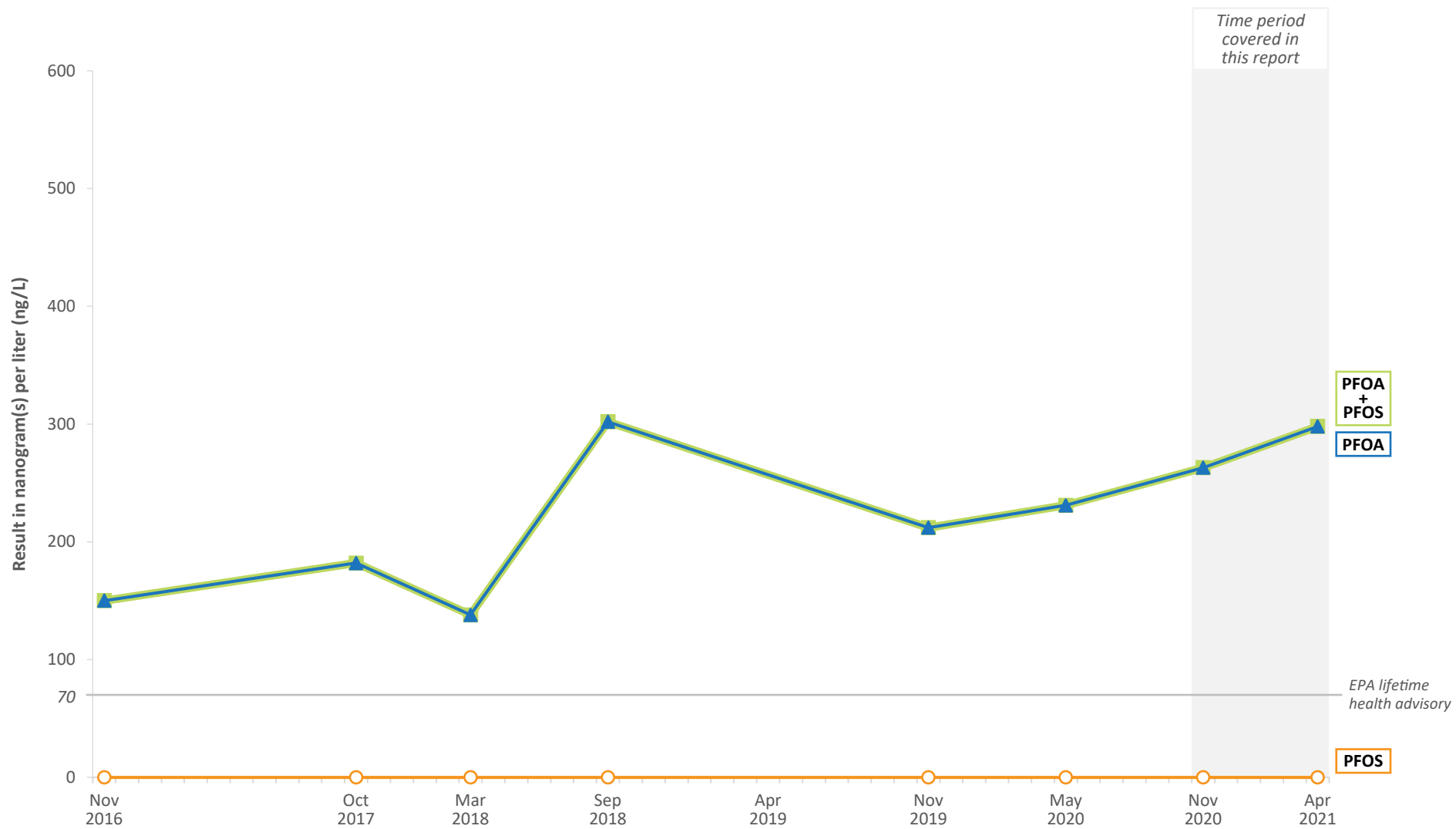


Figure A4-22.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-2RW02
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.



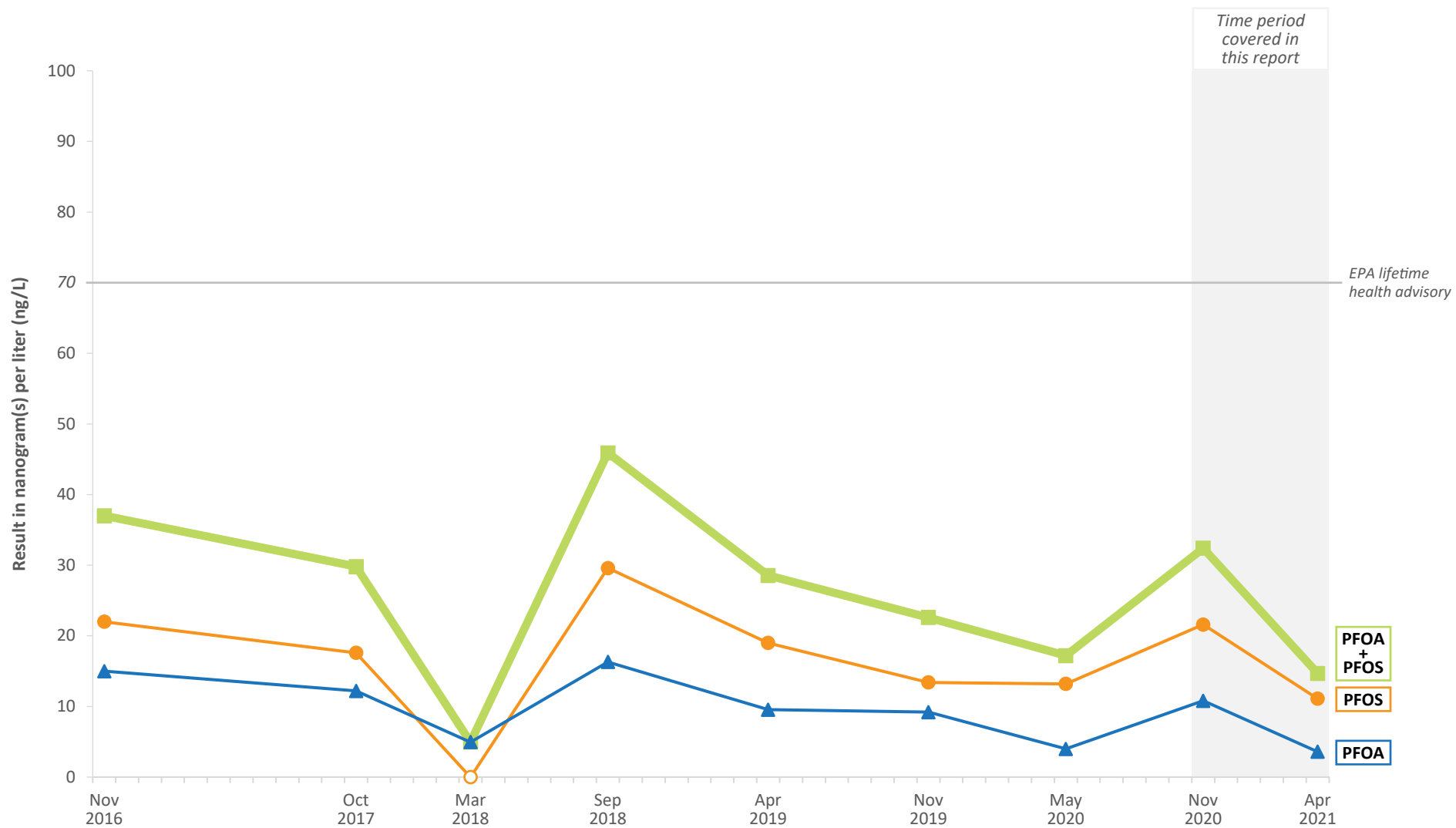


Figure A4-23.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-2RW04
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.

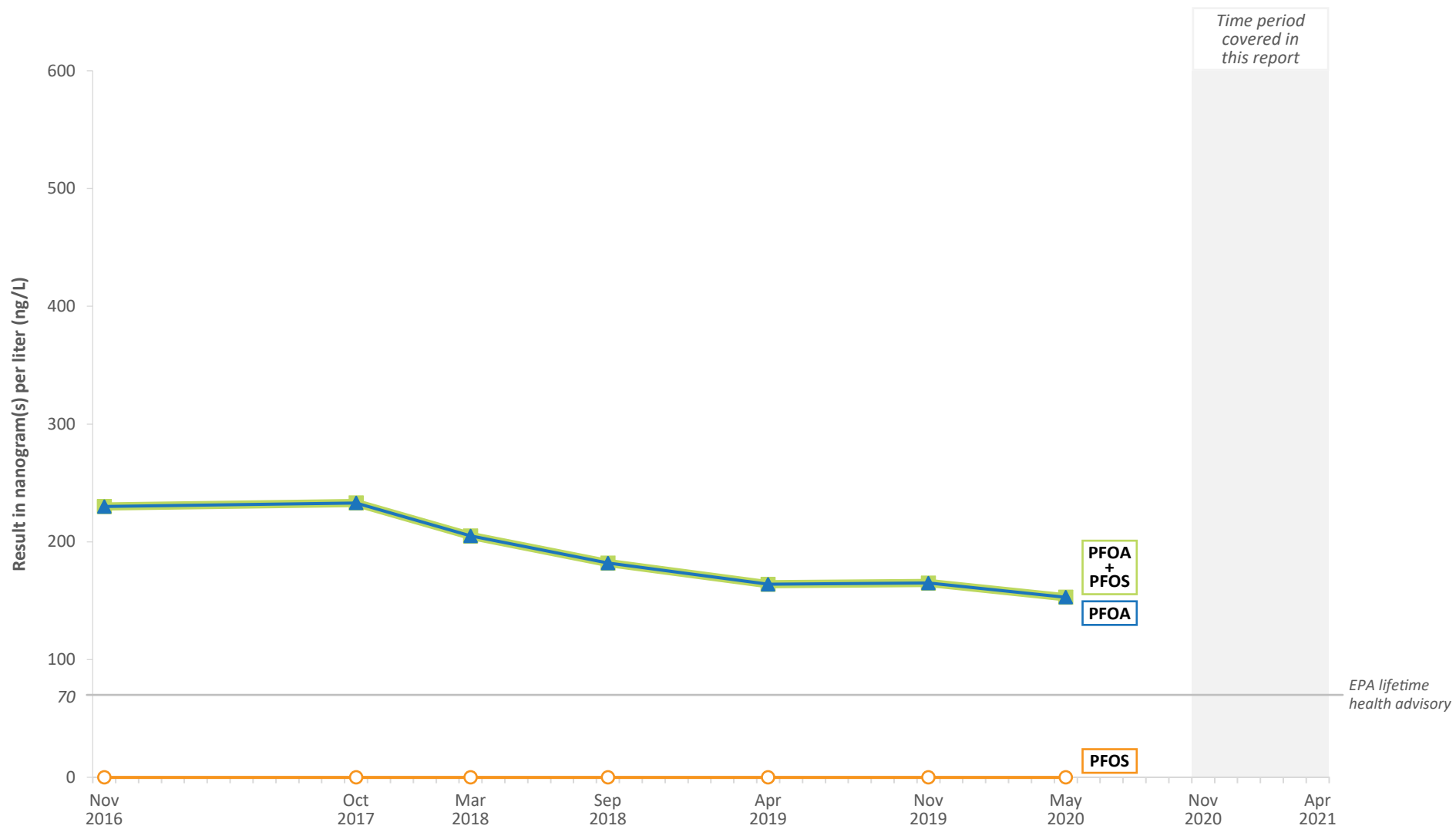


Figure A4-24.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-2RW06
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.



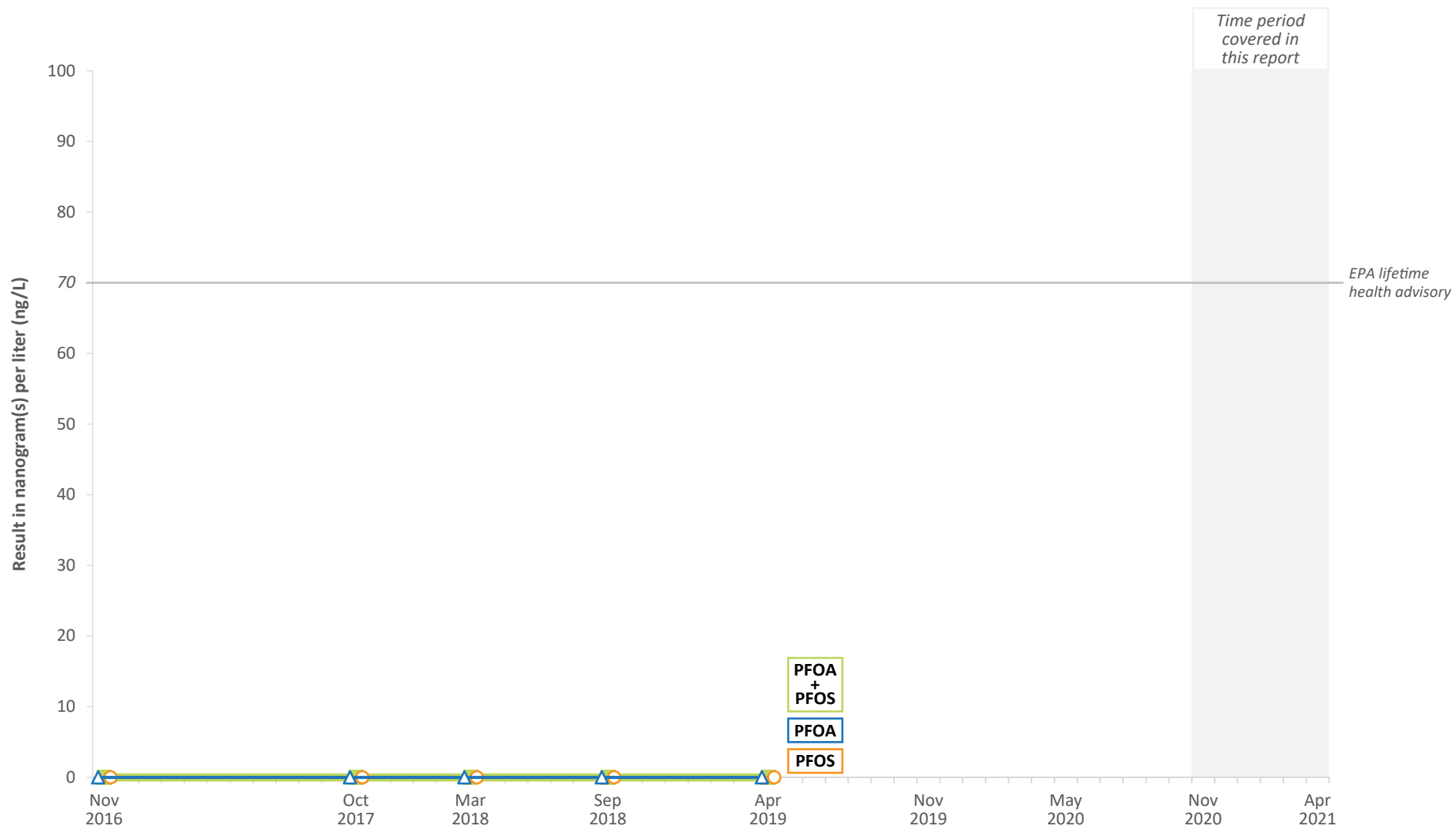


Figure A4-25.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-3RW04
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.



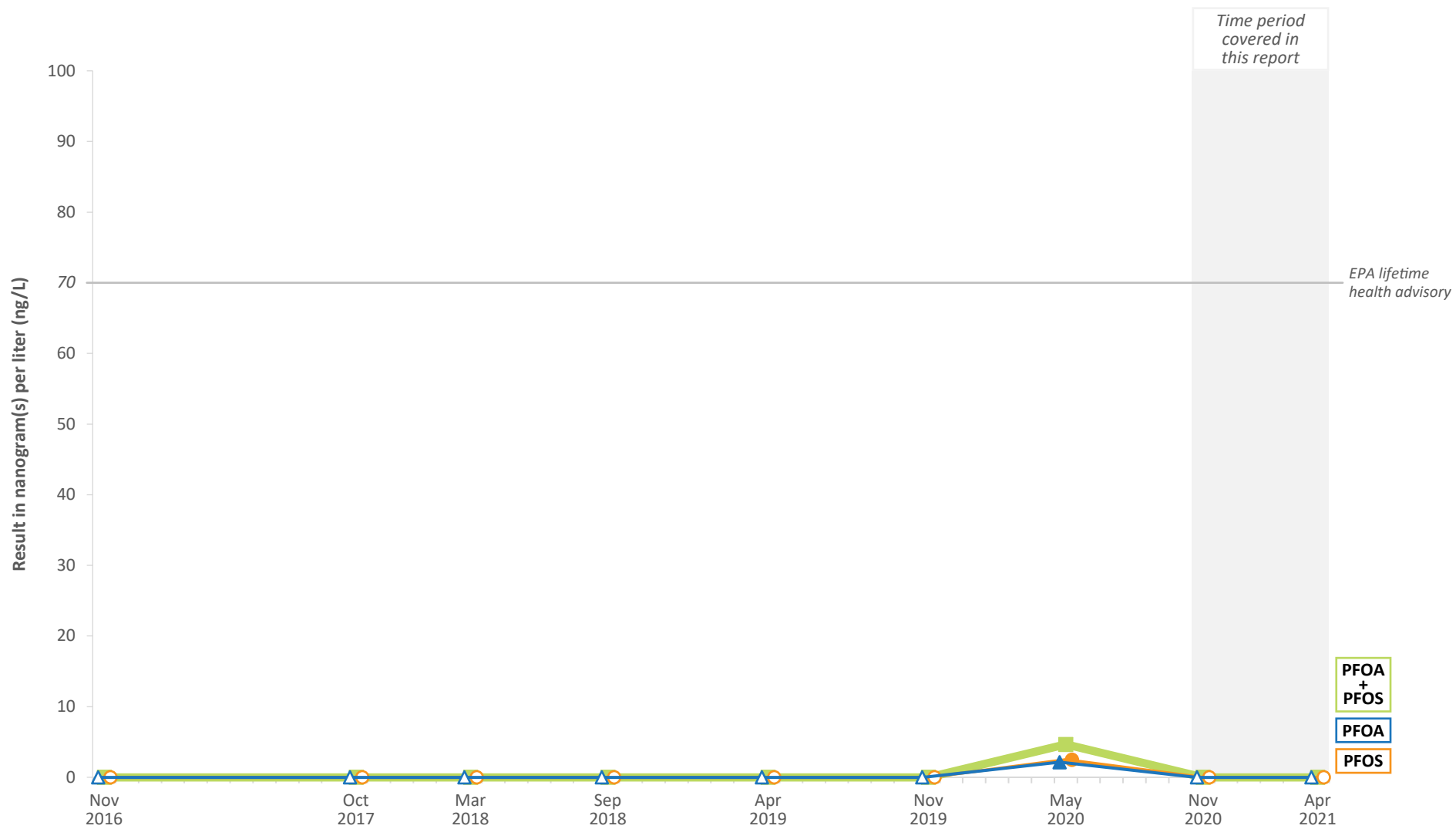


Figure A4-26.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-3RW07
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.

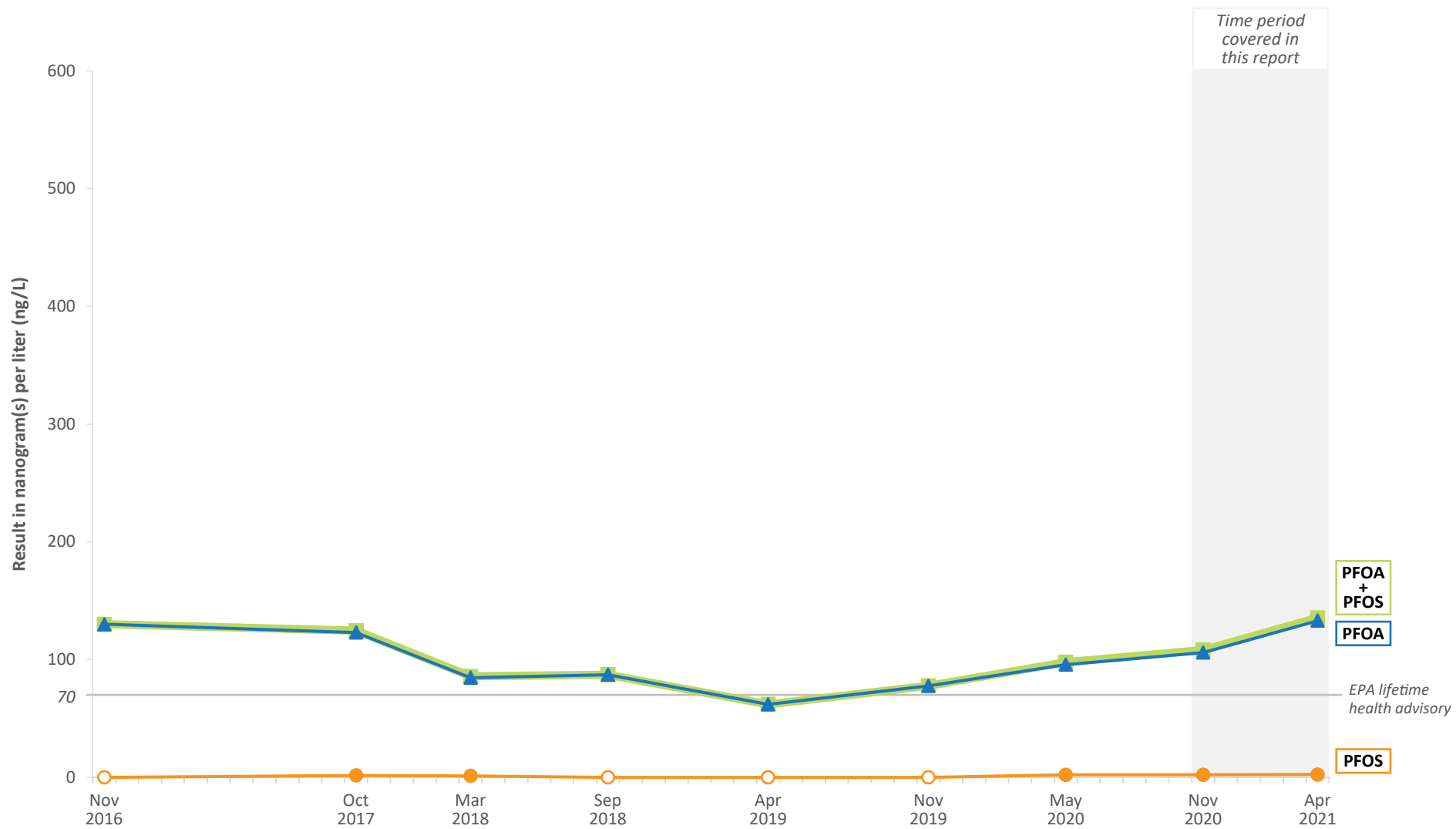


Figure A4-27.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-3RW10
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.



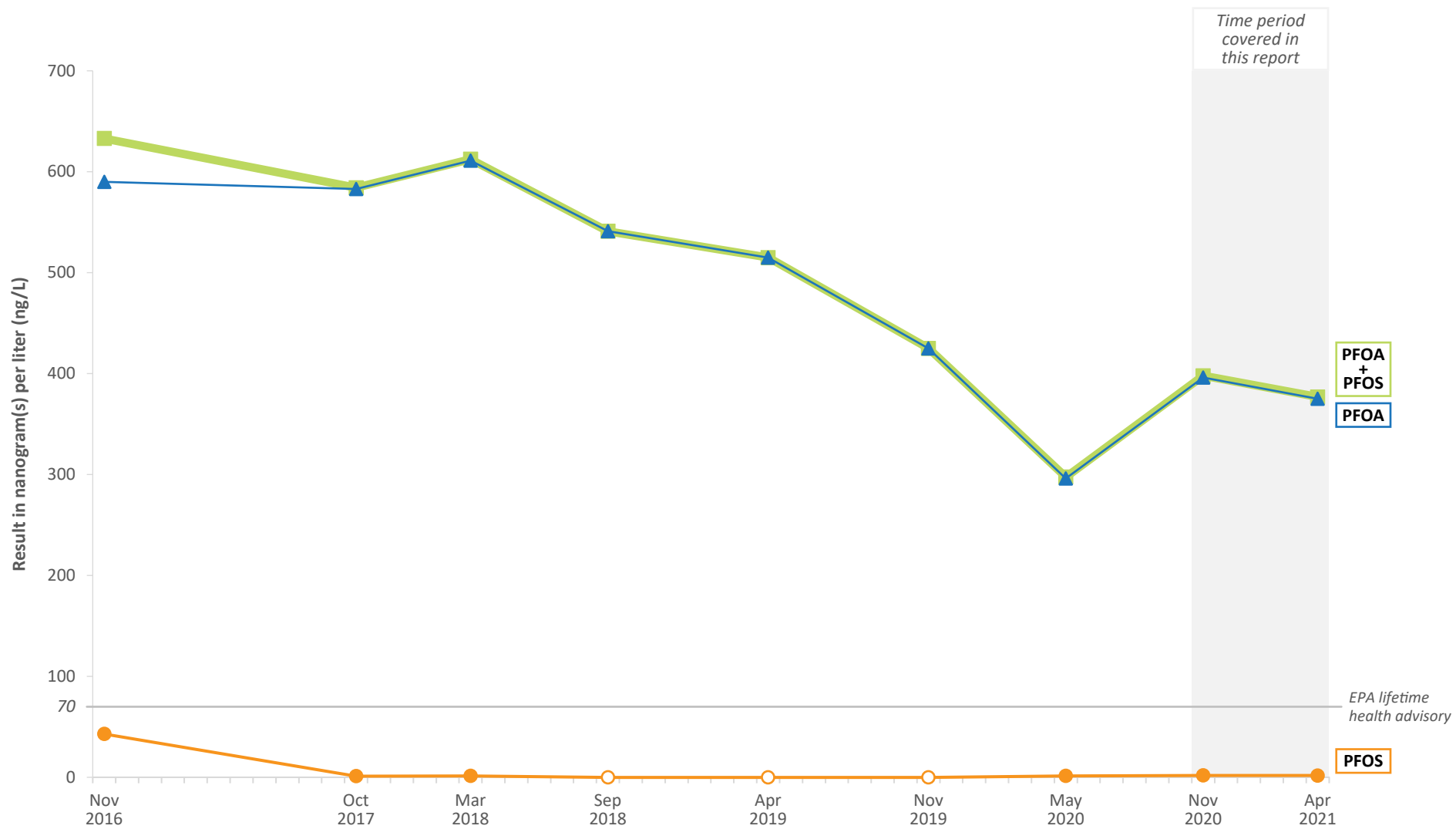


Figure A4-28.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-3RW11
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.

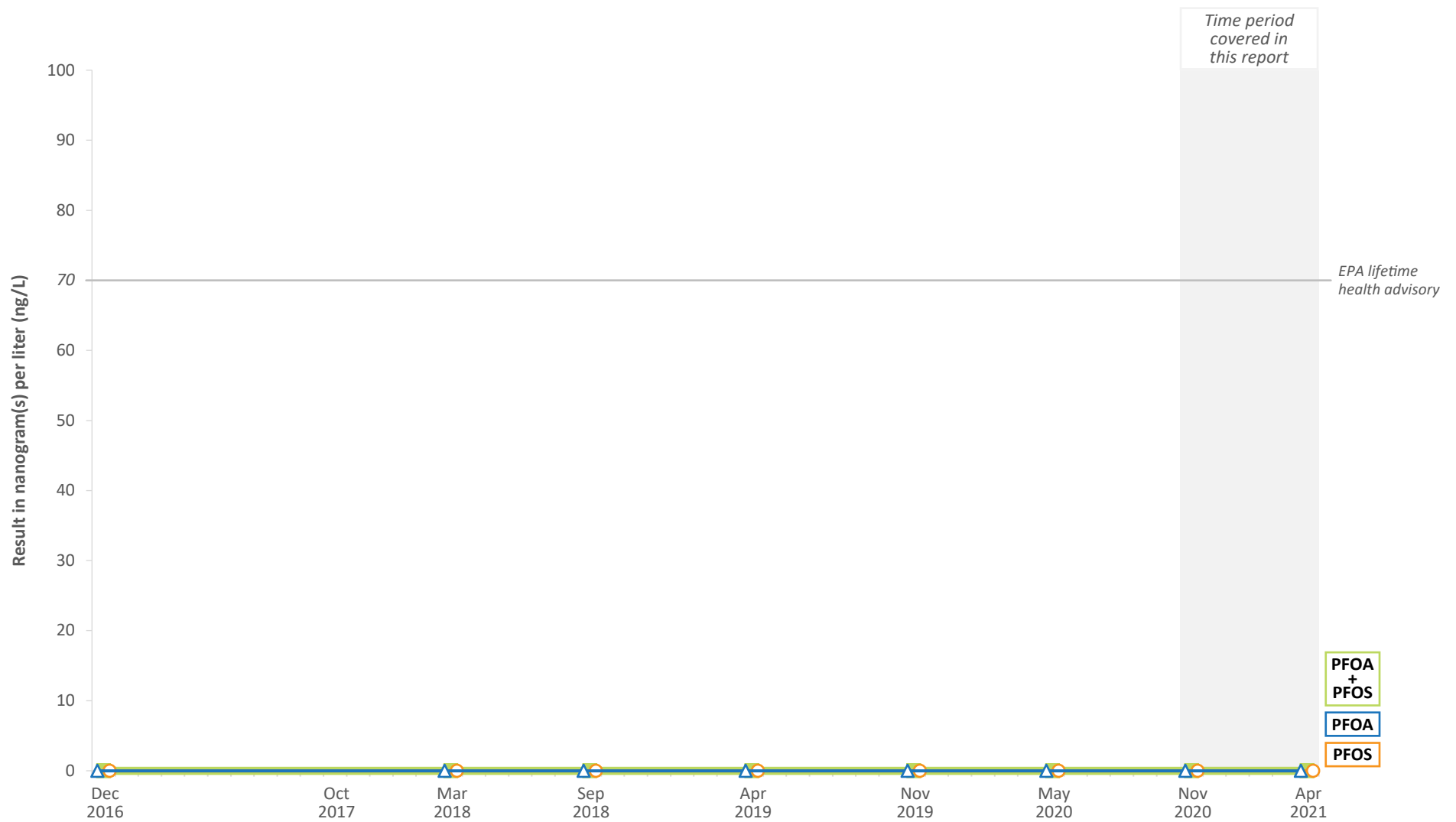


Figure A4-29.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-3RW17
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.



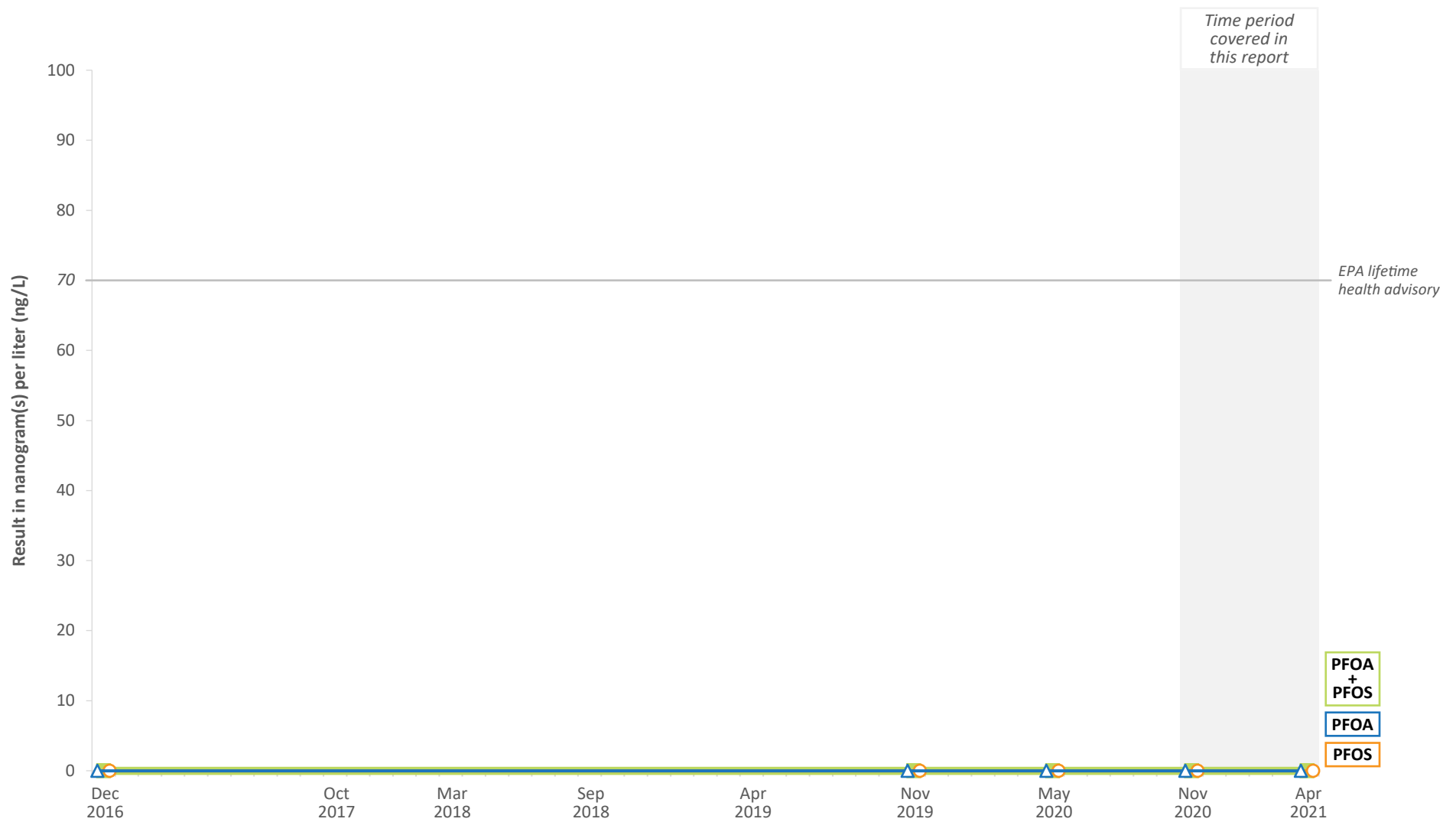


Figure A4-30.
PFOS and PFOA in Drinking Water
at Sample Location WI-CV-3RW18
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.

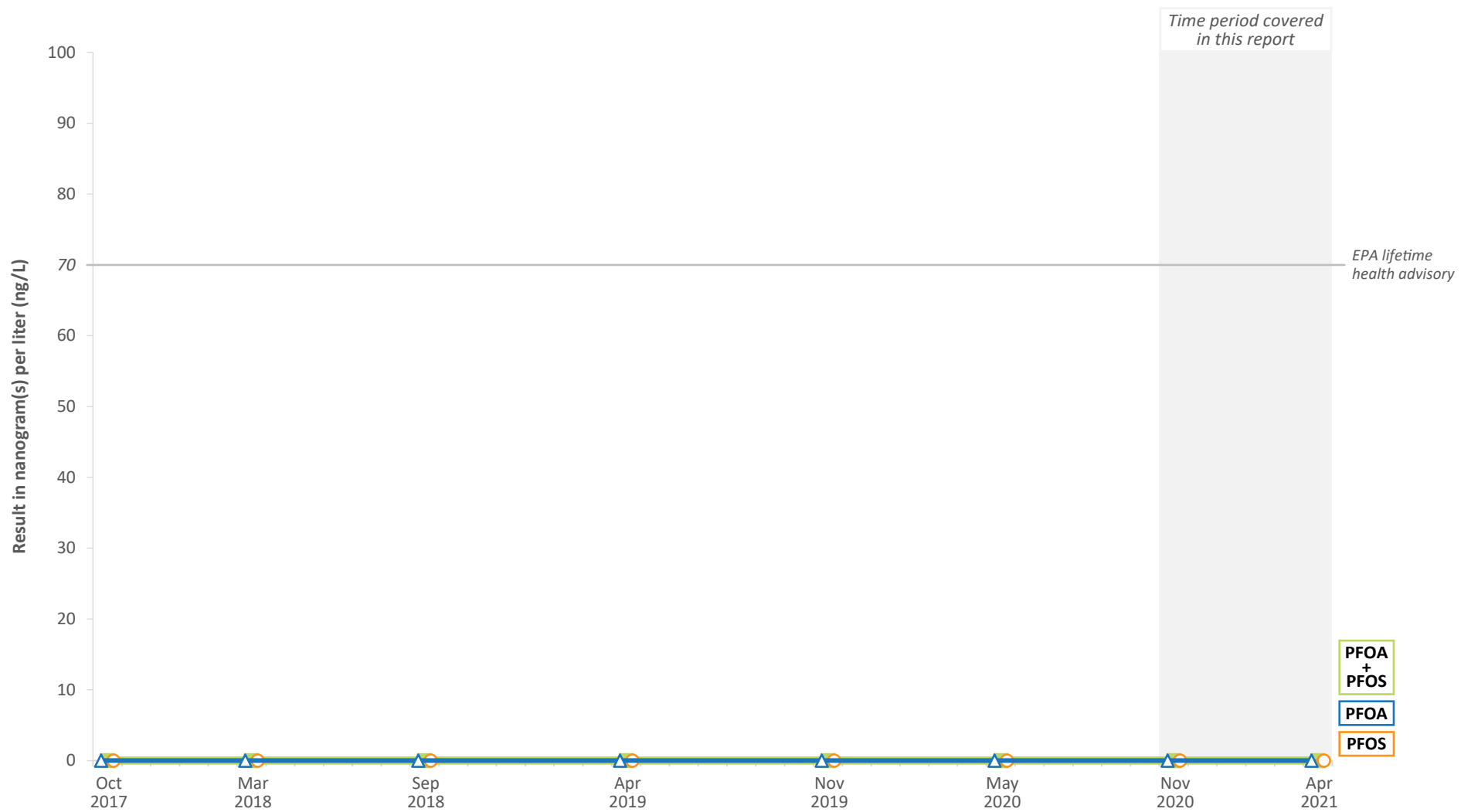


Figure A4-31.
PFOS and PFOA in Drinking Water
at Sample Location WI-AF-1RW01
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.





Figure A4-32.
PFOS and PFOA in Drinking Water
at Sample Location WI-AF-1RW11
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.

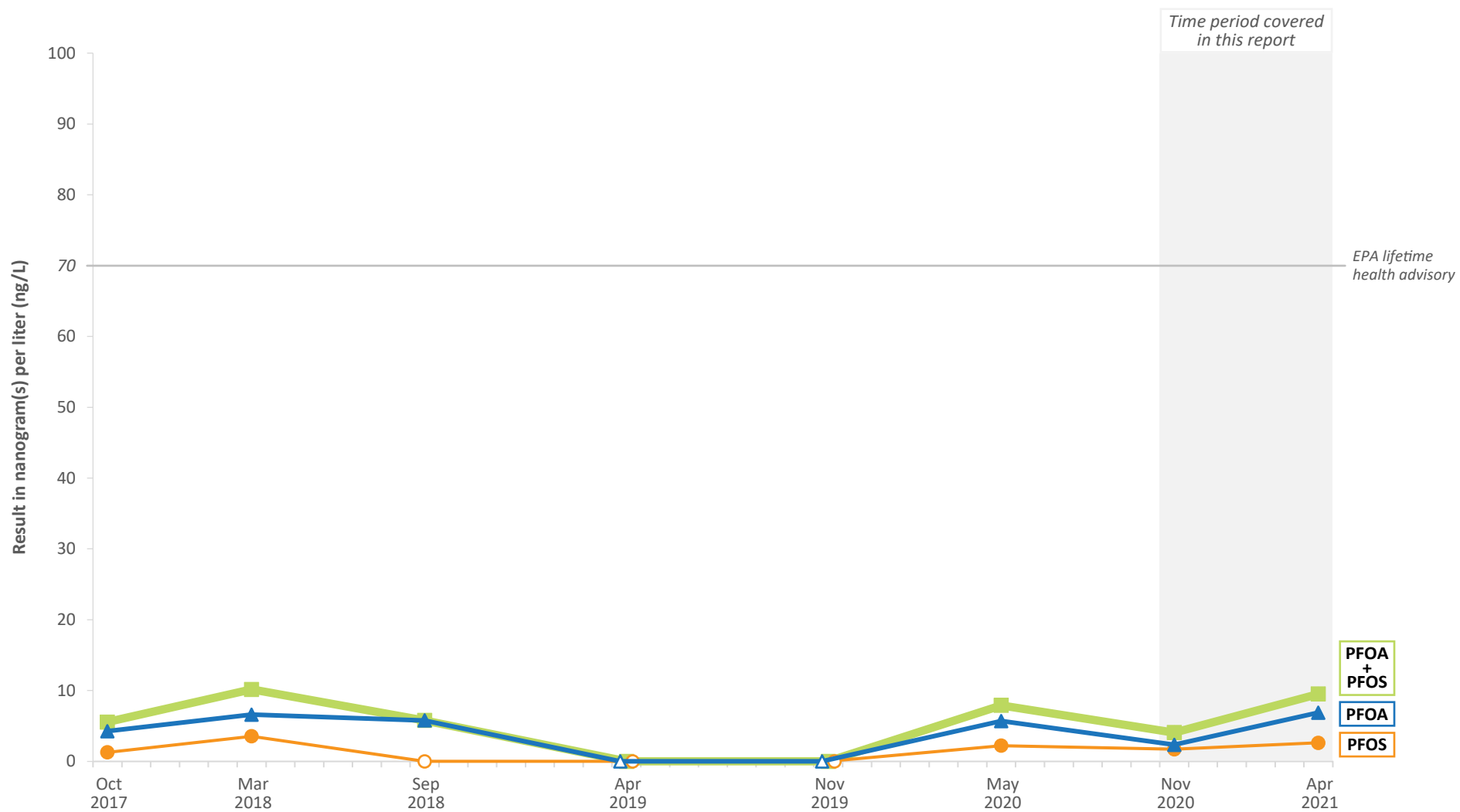


Figure A4-33.
PFOS and PFOA in Drinking Water
at Sample Location WI-AF-1RW12
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.



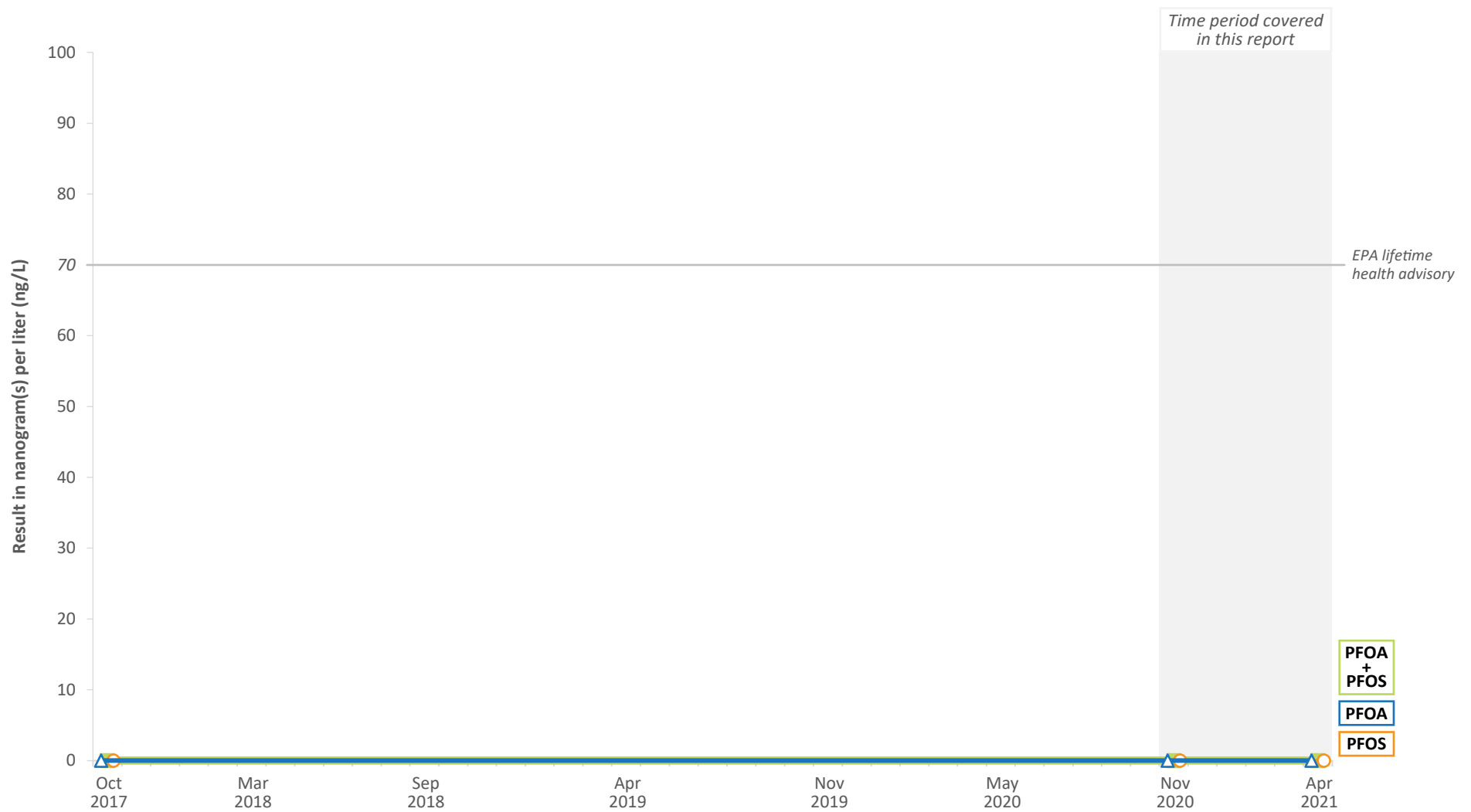


Figure A4-34.
PFOS and PFOA in Drinking Water
at Sample Location WI-AF-1RW25
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.



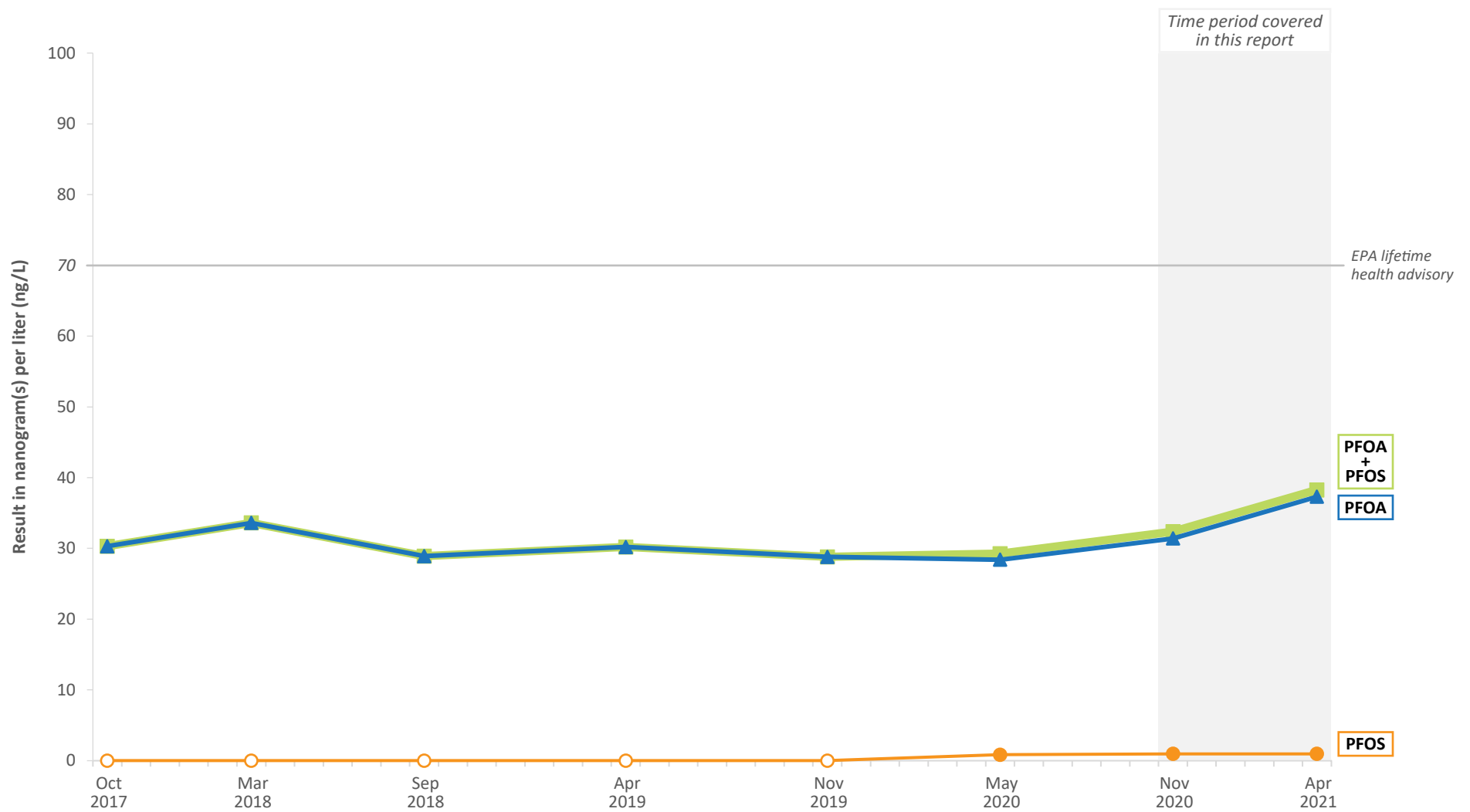


Figure A4-35.
PFOS and PFOA in Drinking Water
at Sample Location WI-AF-1RW28
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.



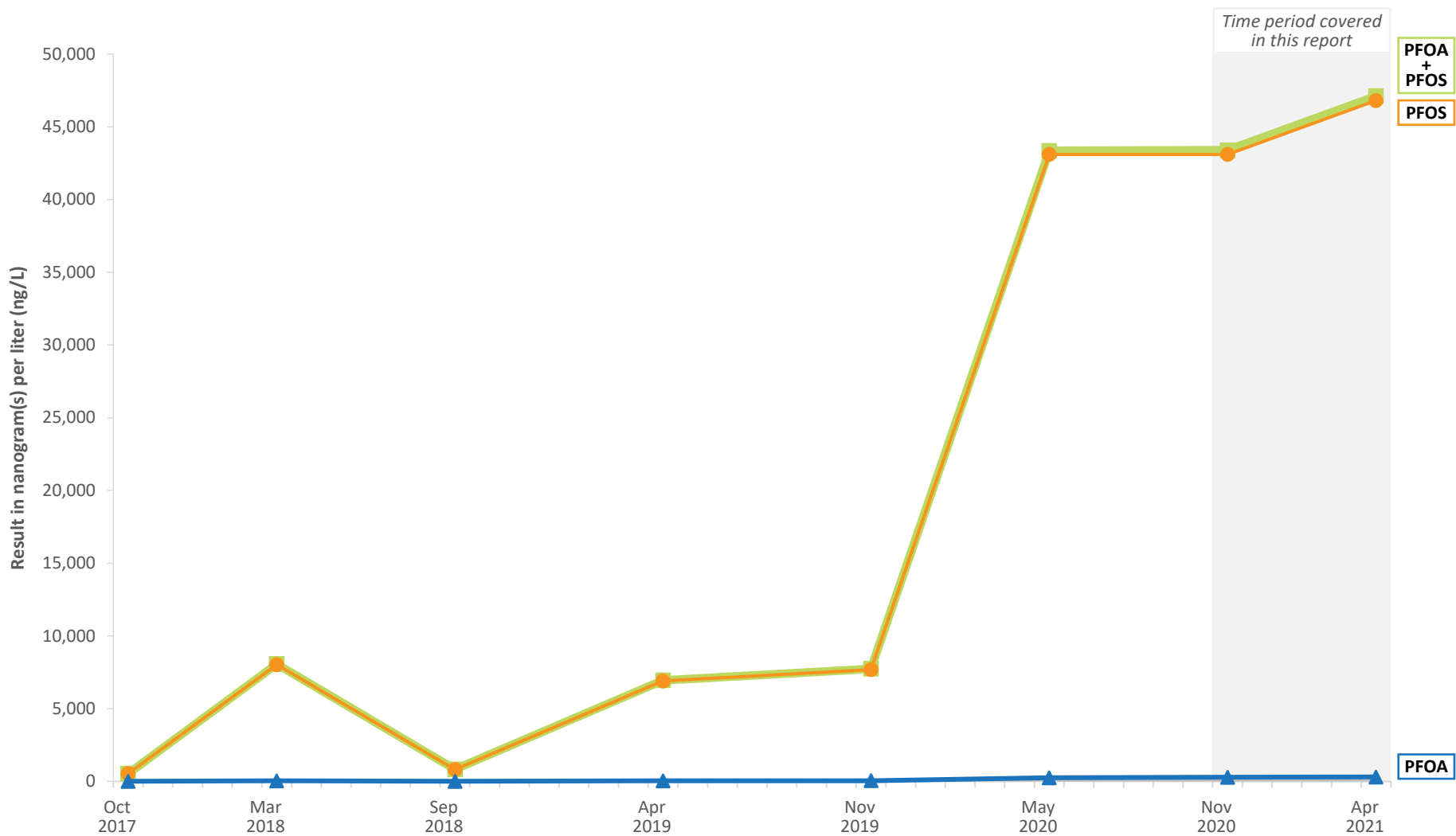


Figure A4-36.
PFOS and PFOA in Drinking Water
at Sample Location WI-AF-1RW32
Naval Air Station Whidbey Island
Coupeville, Washington

Note:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.

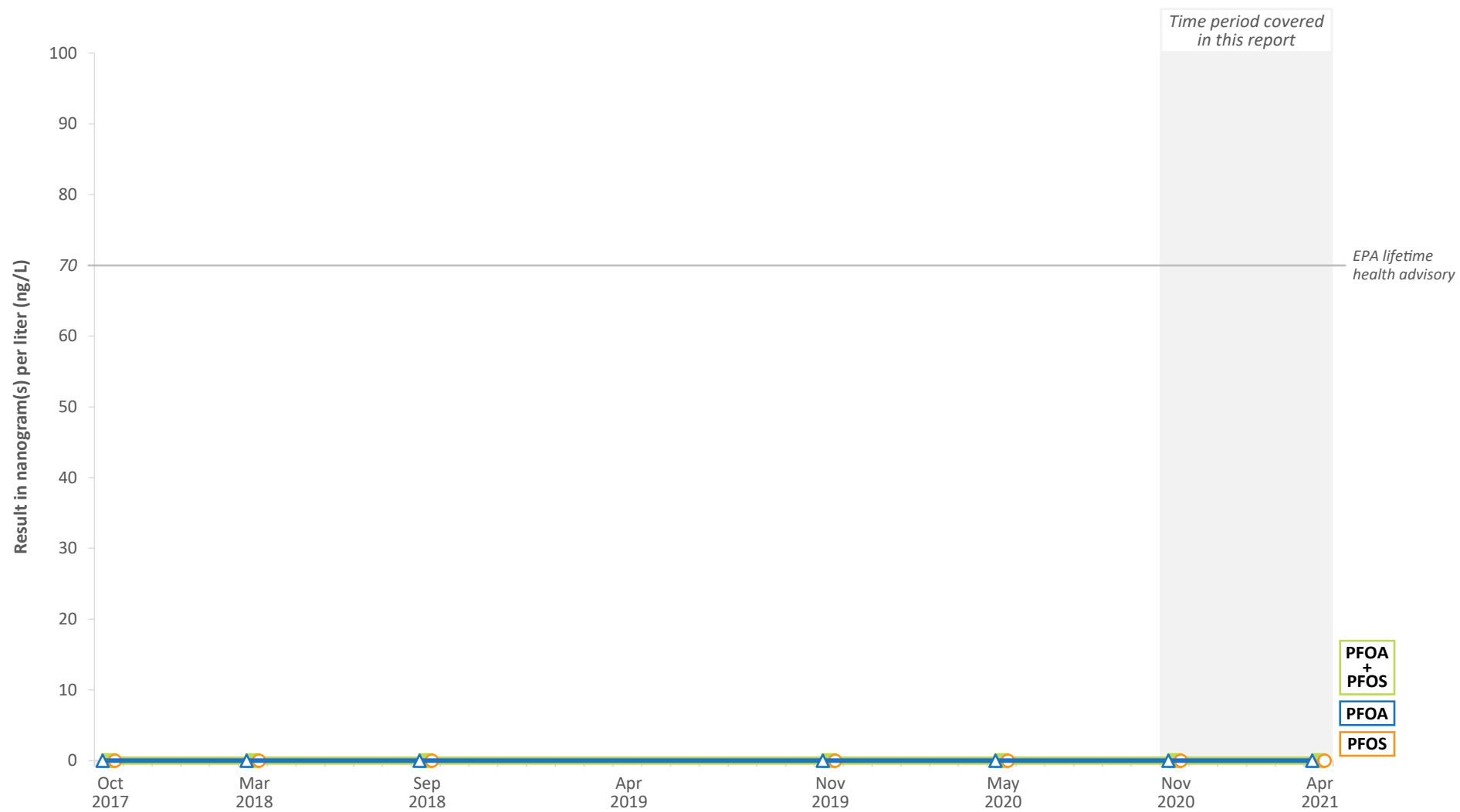


Figure A4-37.
PFOS and PFOA in Drinking Water
at Sample Location WI-AF-1RW33
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.

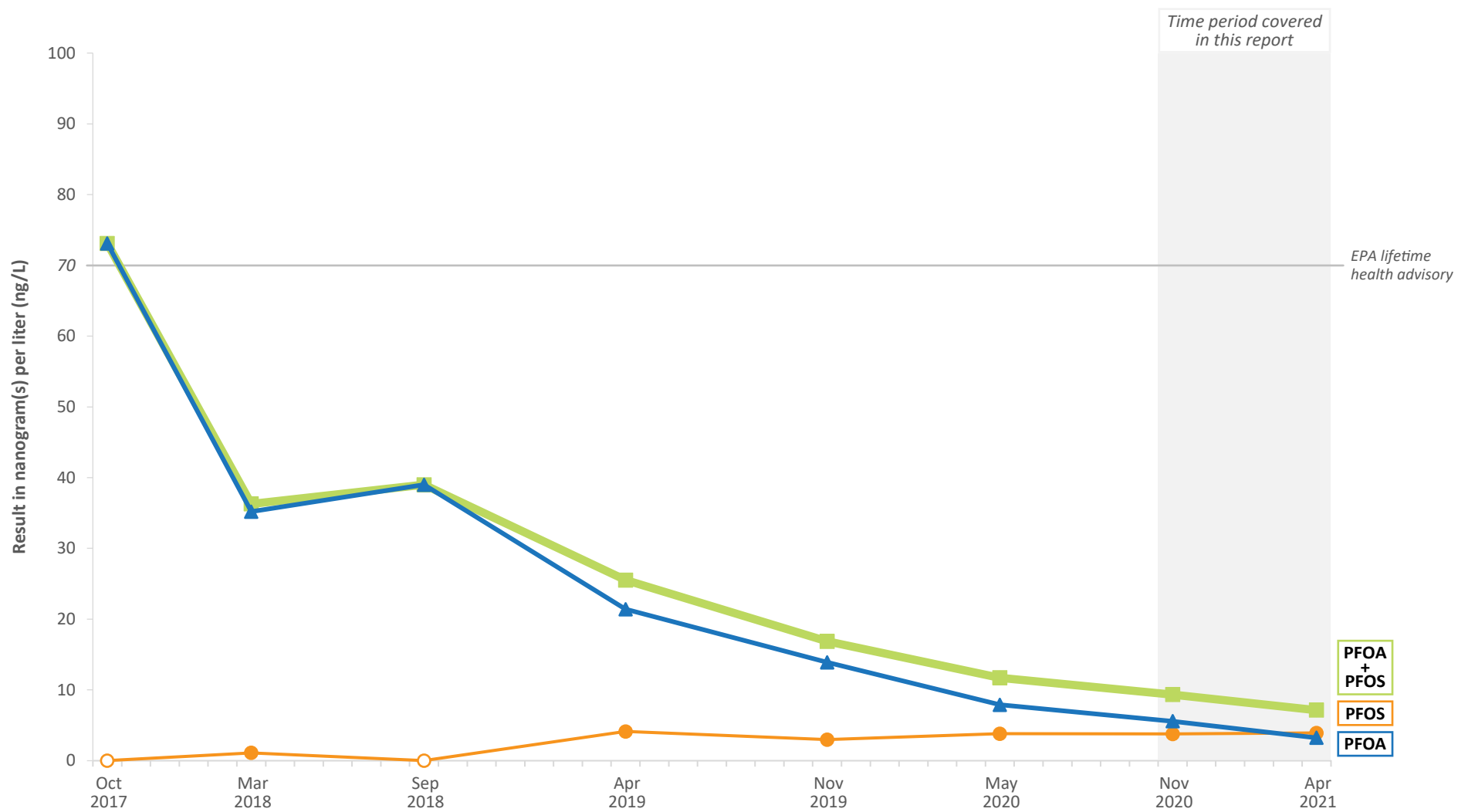


Figure A4-38.
PFOS and PFOA in Drinking Water
at Sample Location WI-AF-1RW40
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.

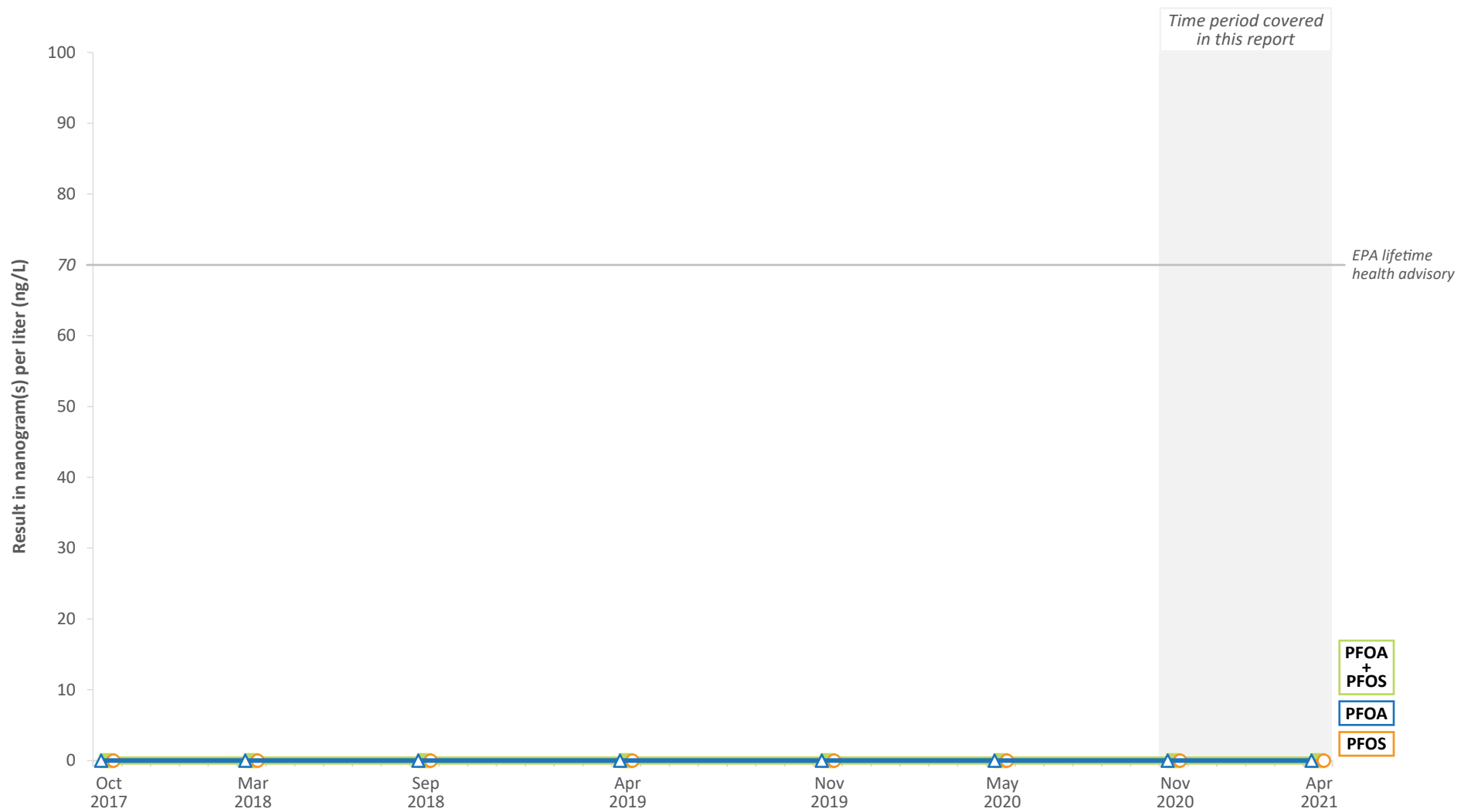


Figure A4-39.
PFOS and PFOA in Drinking Water
at Sample Location WI-AF-1RW51
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.



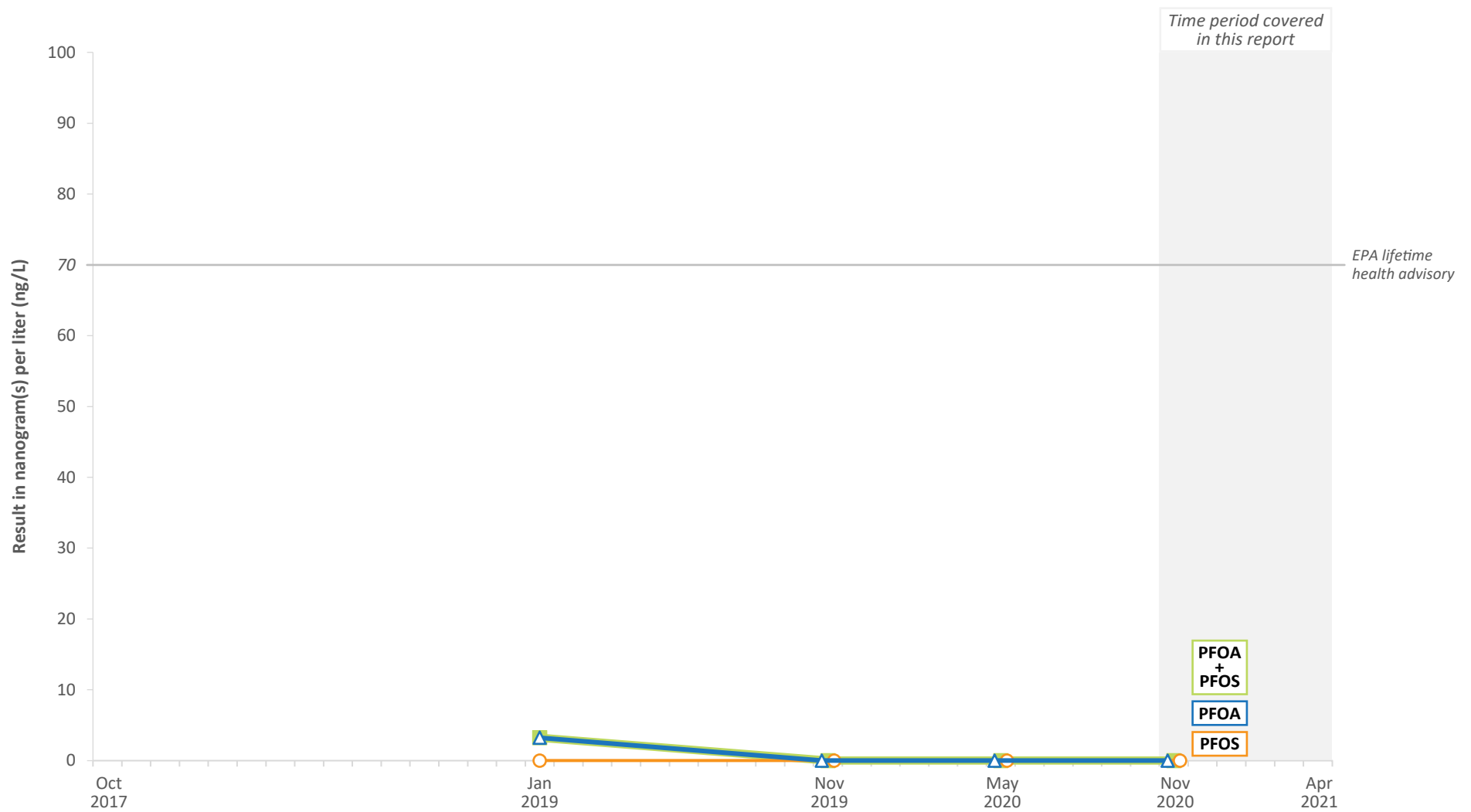


Figure A4-40.
PFOS and PFOA in Drinking Water
at Sample Location WI-AF-1RW68
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.



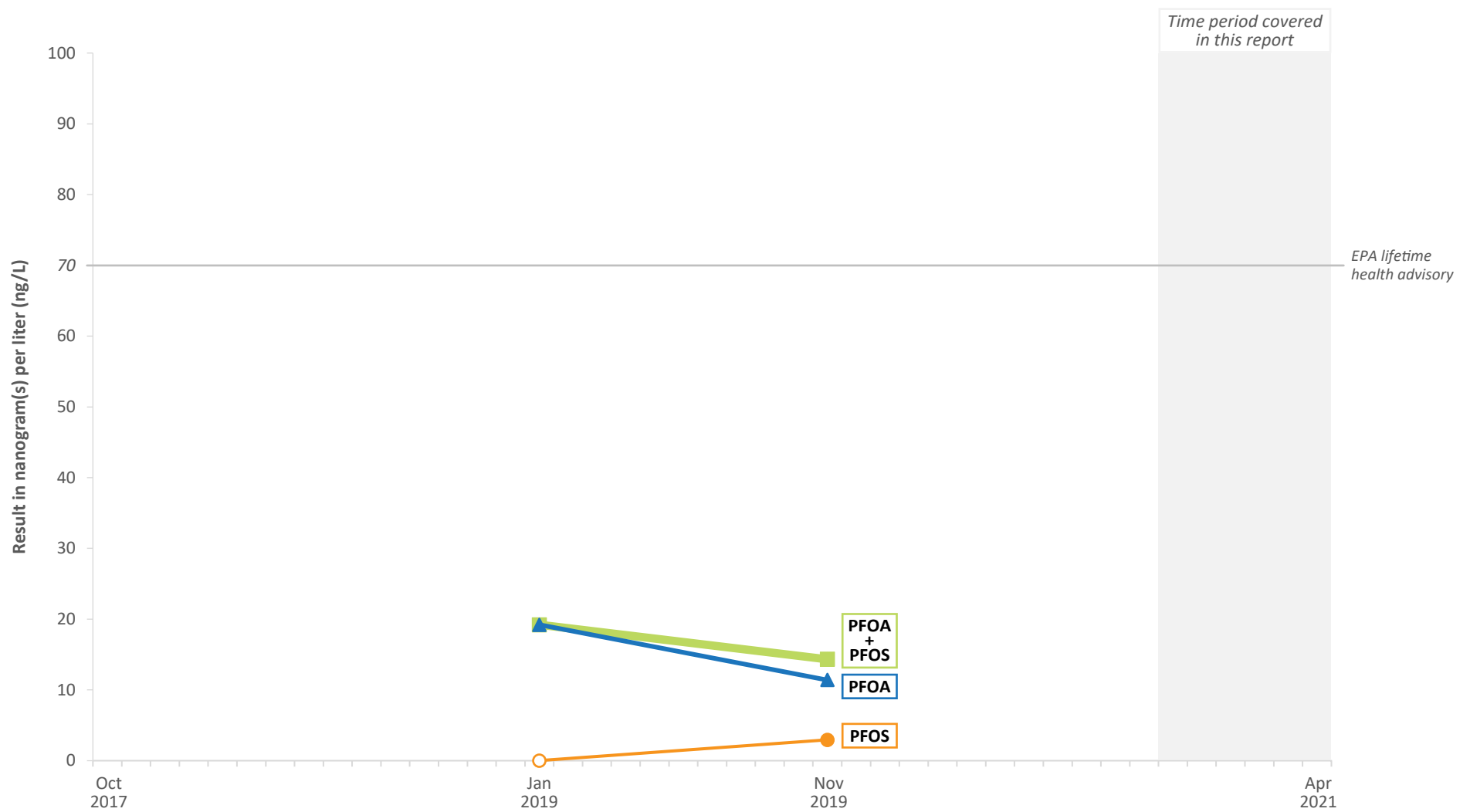


Figure A4-41.
PFOS and PFOA in Drinking Water
at Sample Location WI-AF-1RW77
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.

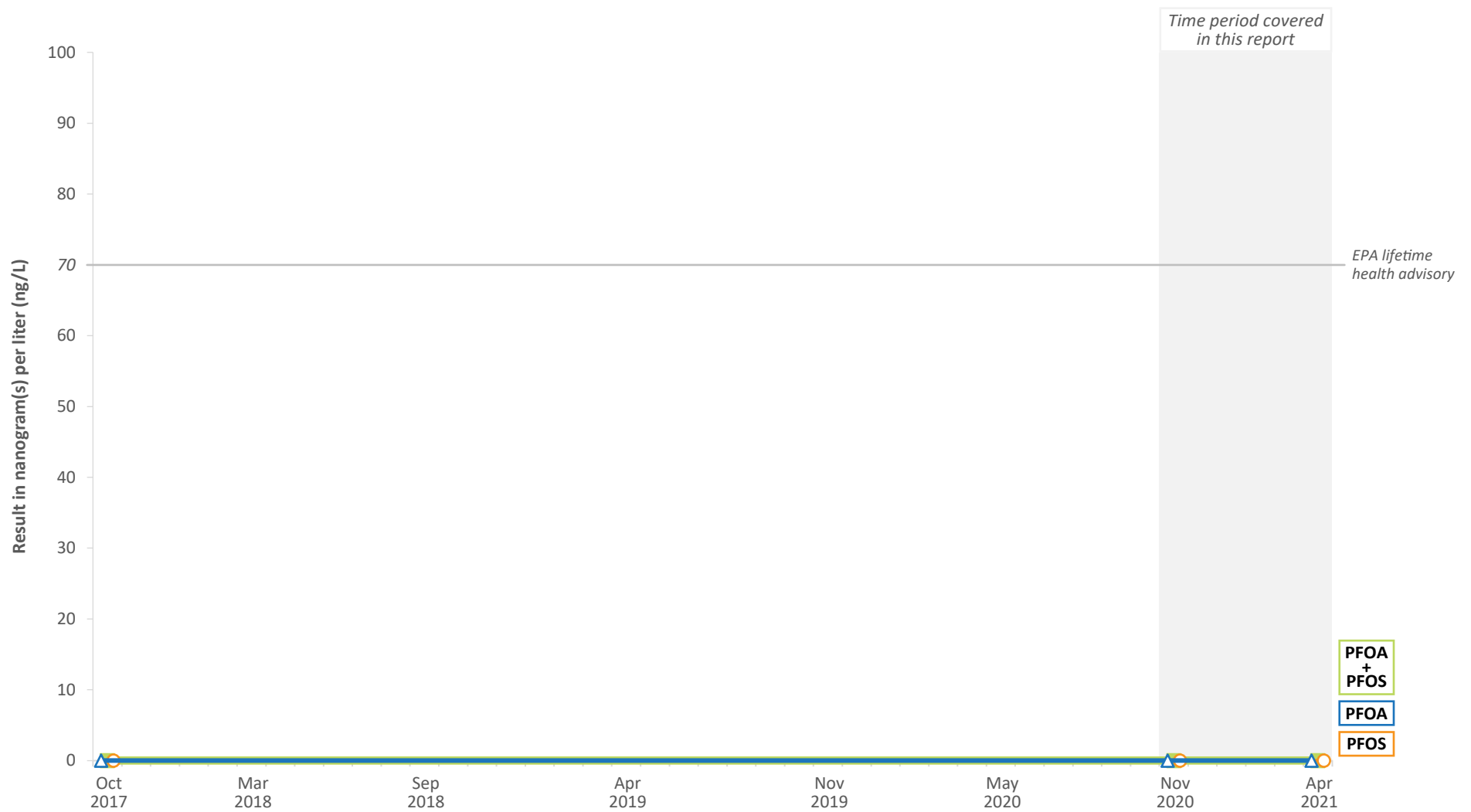


Figure A4-42.
PFOS and PFOA in Drinking Water
at Sample Location WI-AF-3RW18
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.



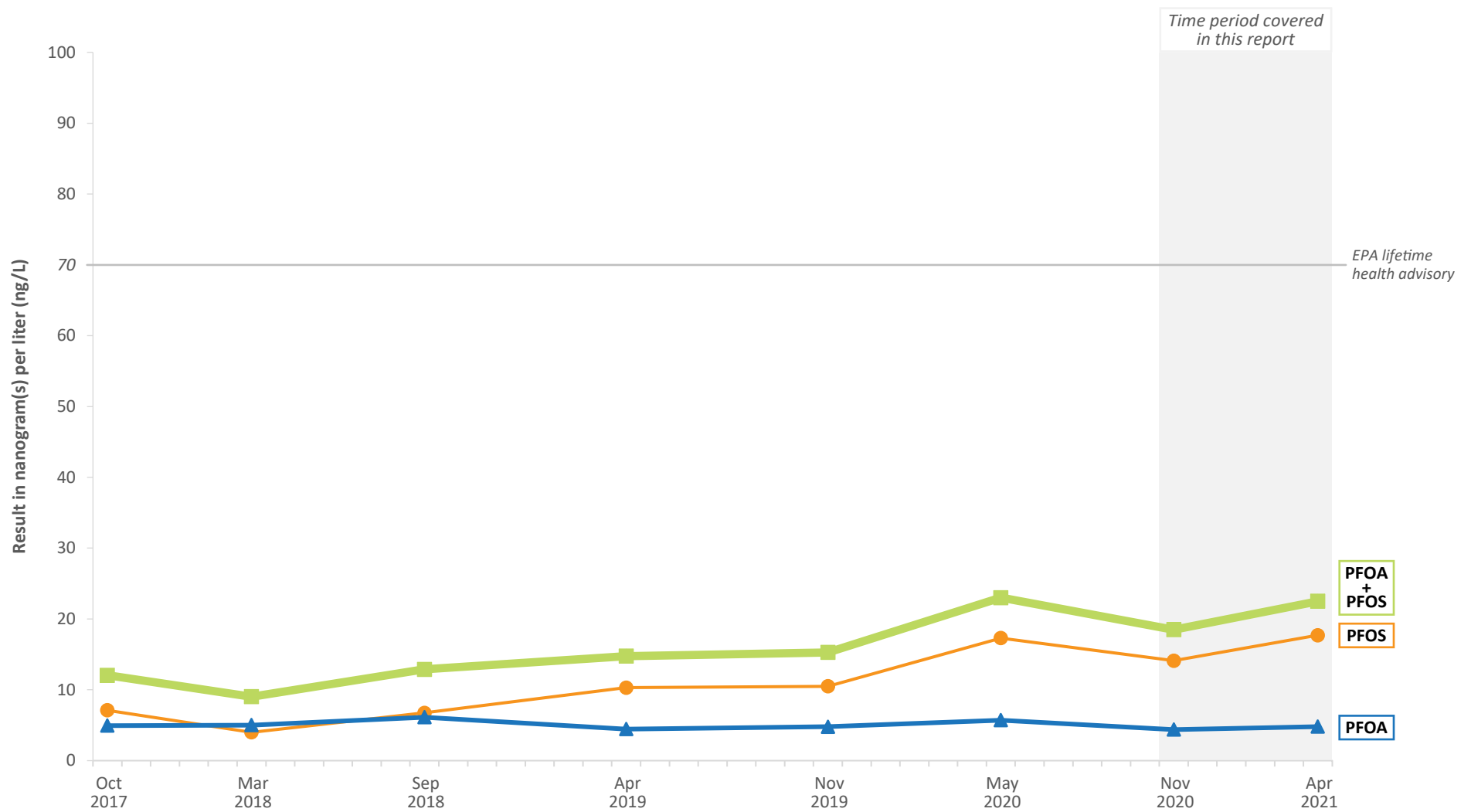


Figure A4-43.
PFOS and PFOA in Drinking Water
at Sample Location WI-AF-3RW41
Naval Air Station Whidbey Island
Coupeville, Washington

Note:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.



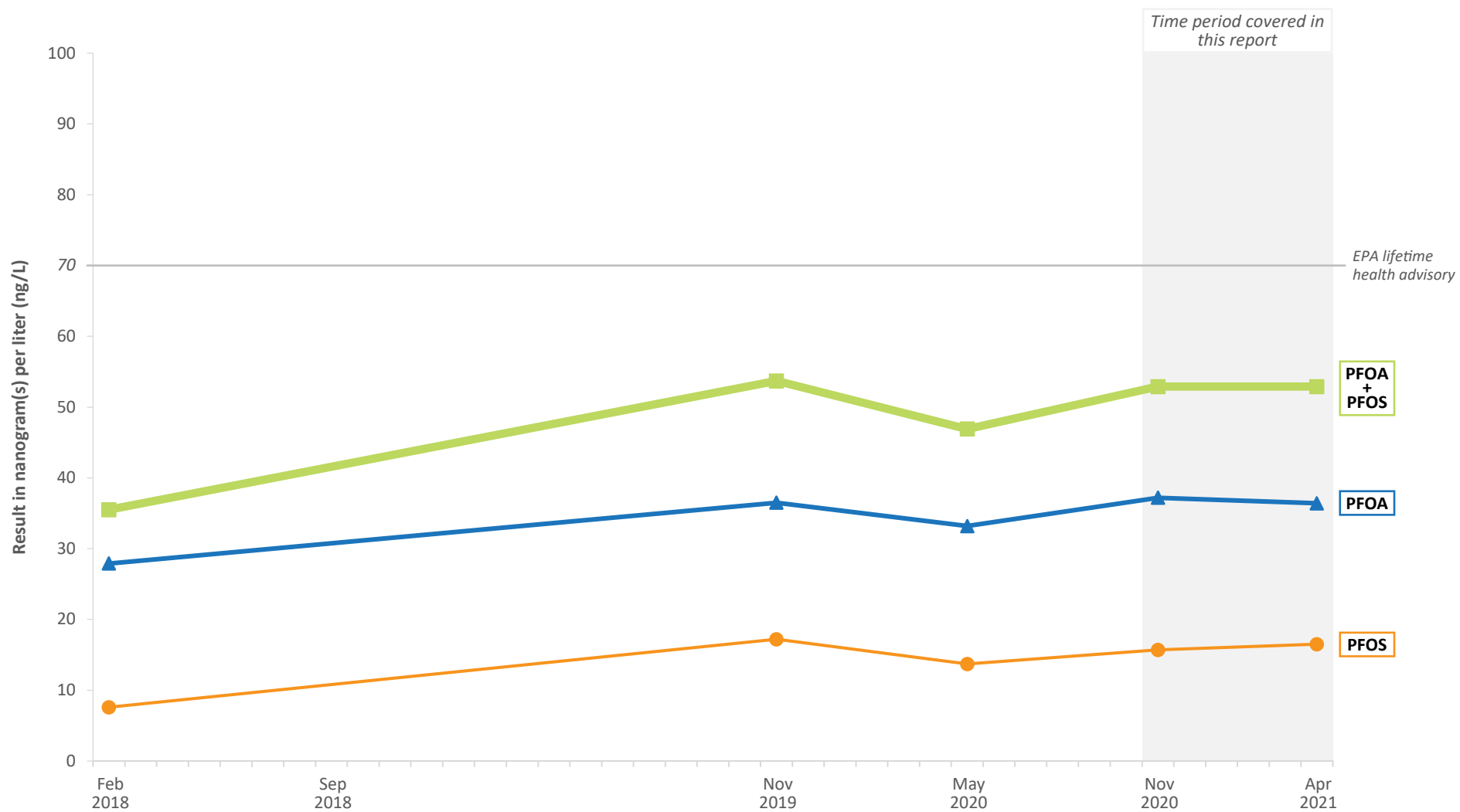


Figure A4-44.
PFOS and PFOA in Drinking Water
at Sample Location WI-A06-RW03
Naval Air Station Whidbey Island
Coupeville, Washington

Note:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.



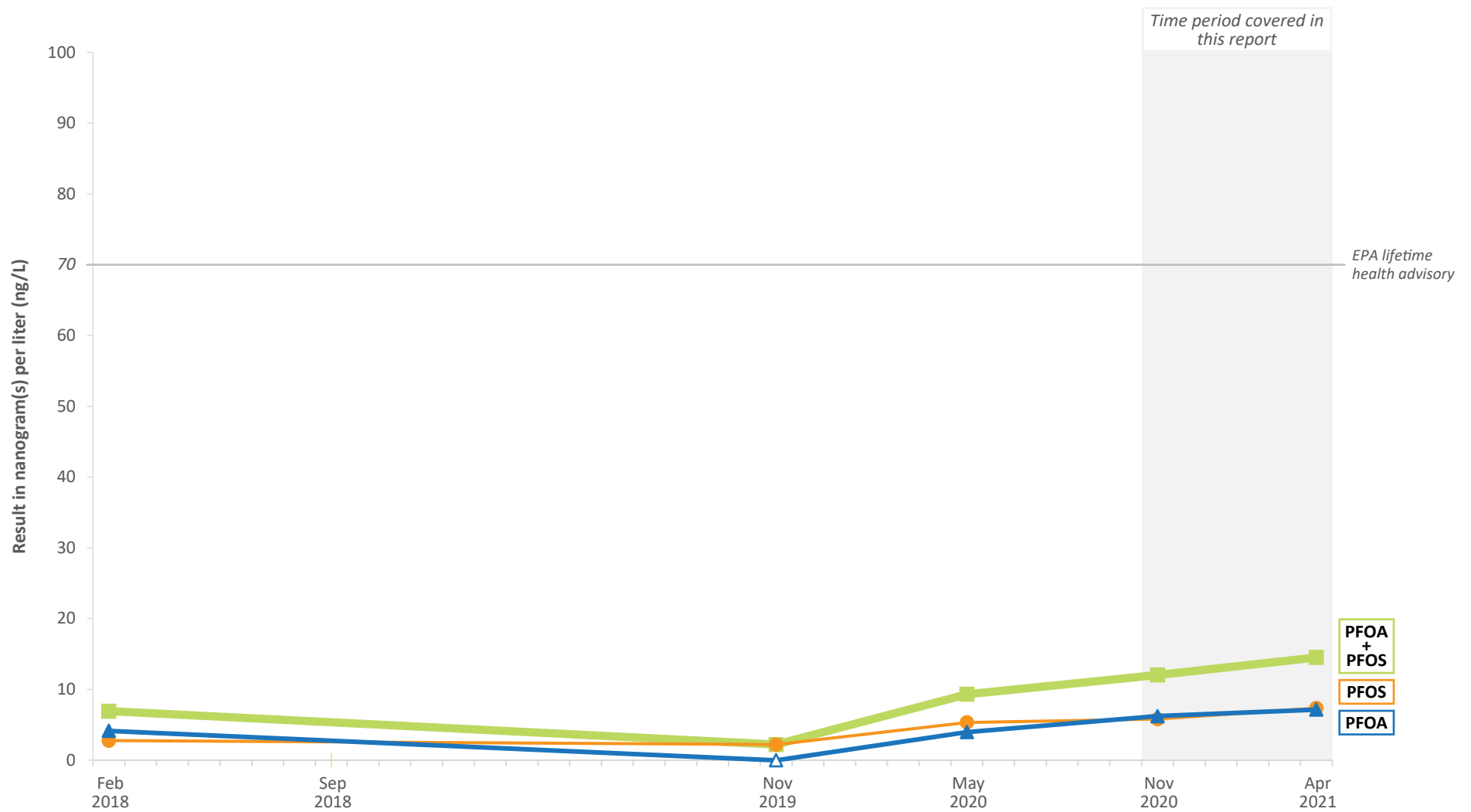


Figure A4-45.
PFOS and PFOA in Drinking Water
at Sample Location WI-A06-RW04
Naval Air Station Whidbey Island
Coupeville, Washington

Notes:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.
2. Empty data points indicate non-detect values.

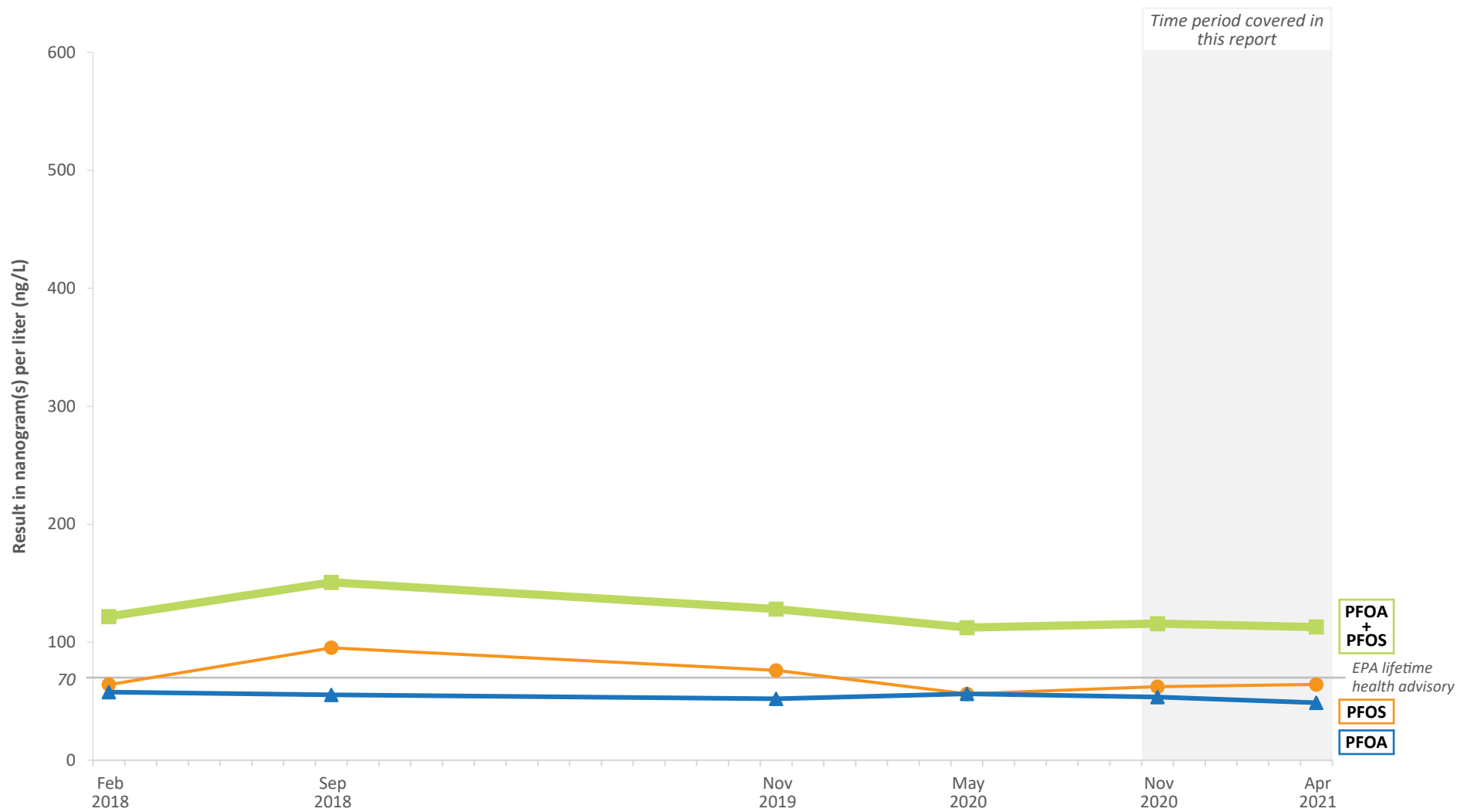


Figure A4-46.
PFOS and PFOA in Drinking Water
at Sample Location WI-A06-RW05
Naval Air Station Whidbey Island
Coupeville, Washington

Note:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.



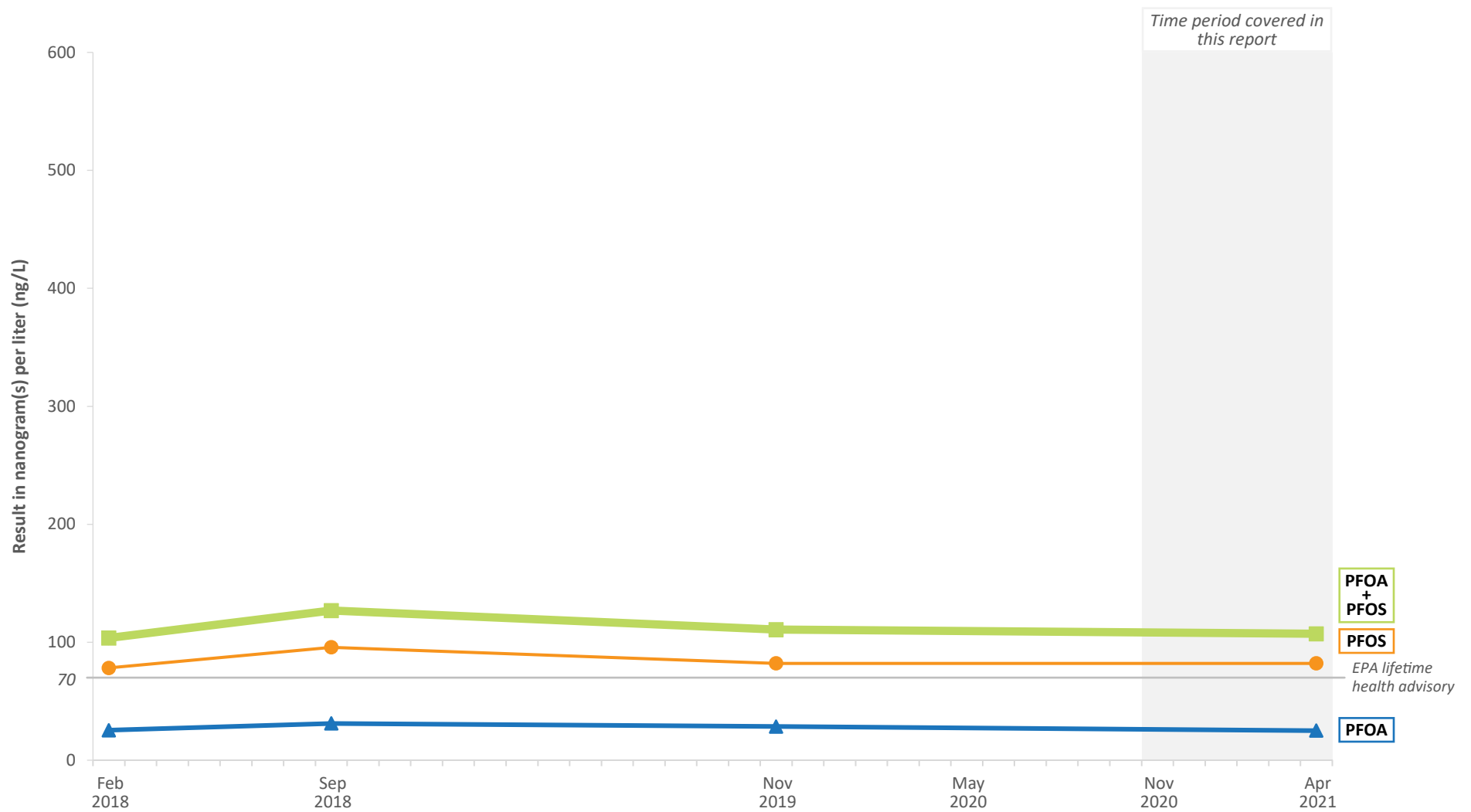


Figure A4-47.
PFOS and PFOA in Drinking Water
at Sample Location WI-A06-RW08
Naval Air Station Whidbey Island
Coupeville, Washington

Note:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.



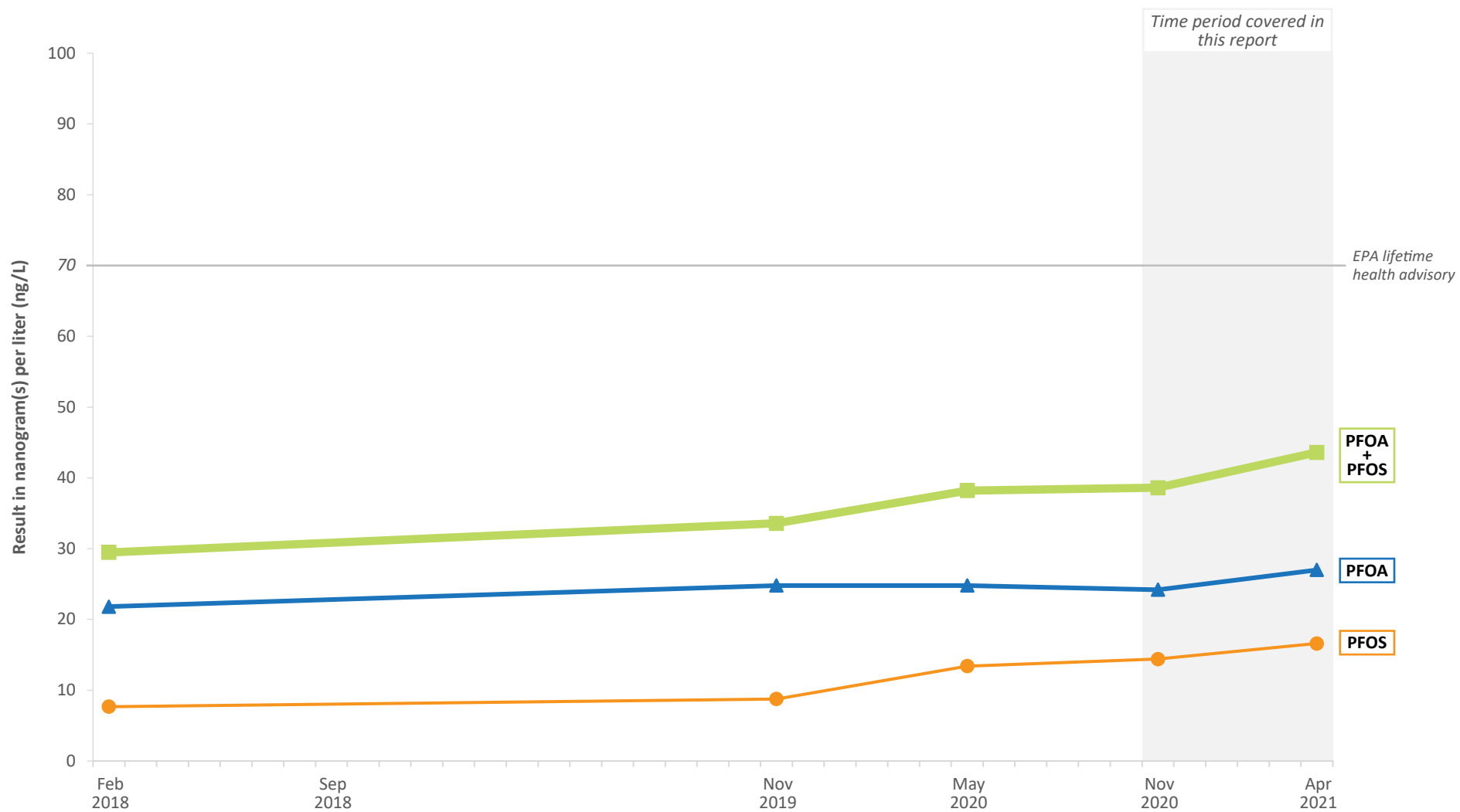


Figure A4-48.
PFOS and PFOA in Drinking Water
at Sample Location WI-A06-RW14
Naval Air Station Whidbey Island
Coupeville, Washington

Note:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.



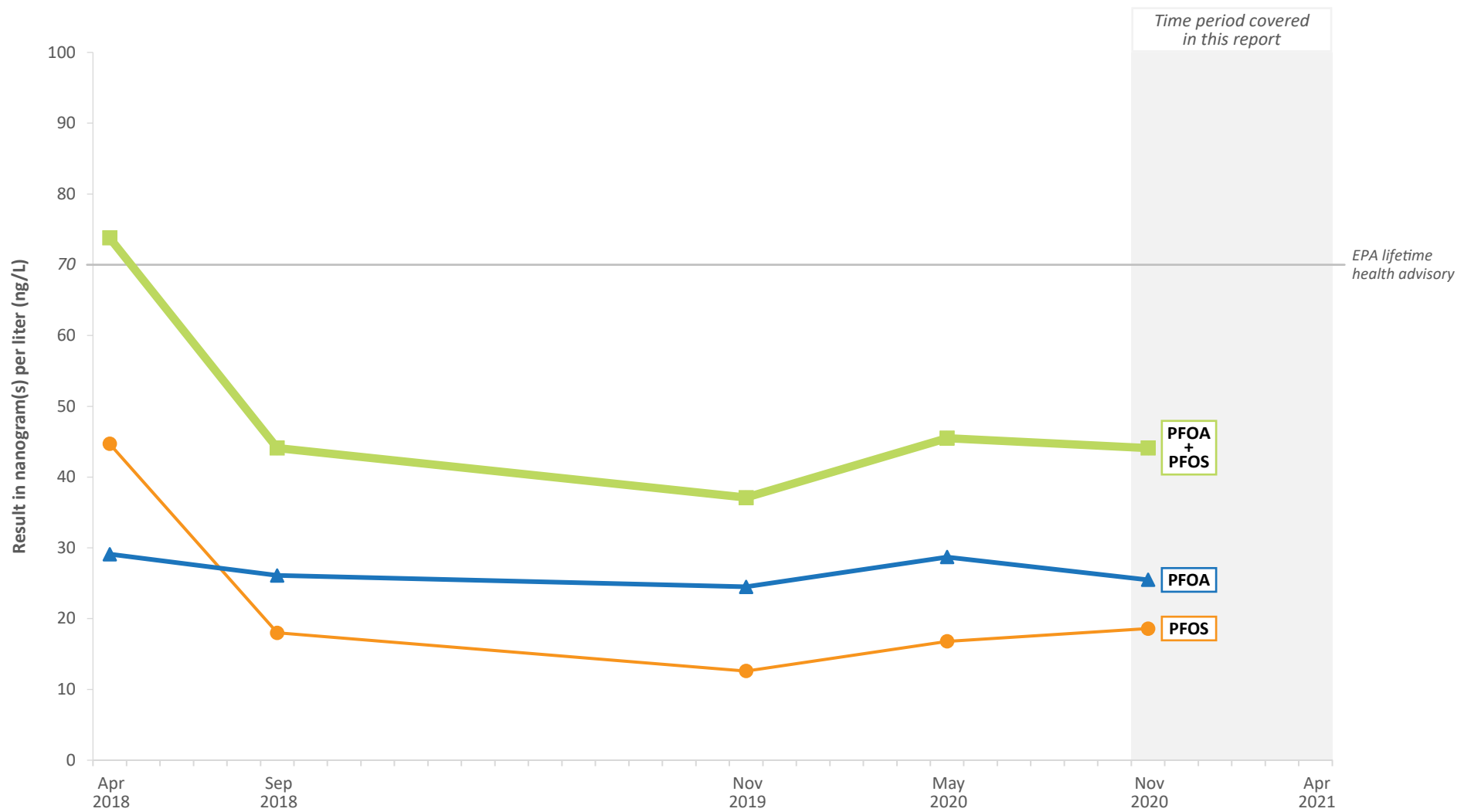


Figure A4-49.
PFOS and PFOA in Drinking Water
at Sample Location WI-A06-RW18
Naval Air Station Whidbey Island
Coupeville, Washington

Note:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.



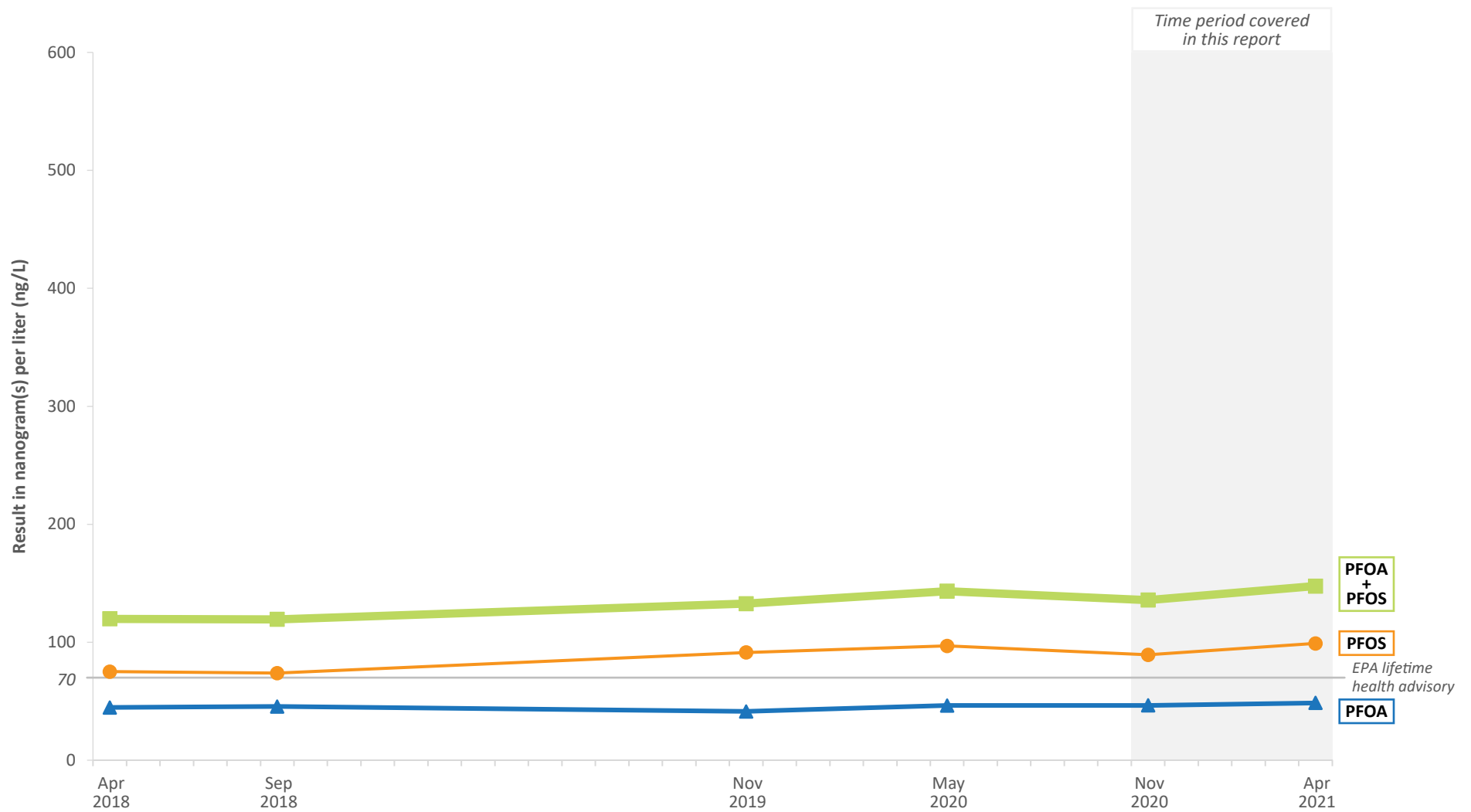


Figure A4-50.
PFOS and PFOA in Drinking Water
at Sample Location WI-A06-RW19
Naval Air Station Whidbey Island
Coupeville, Washington

Note:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.



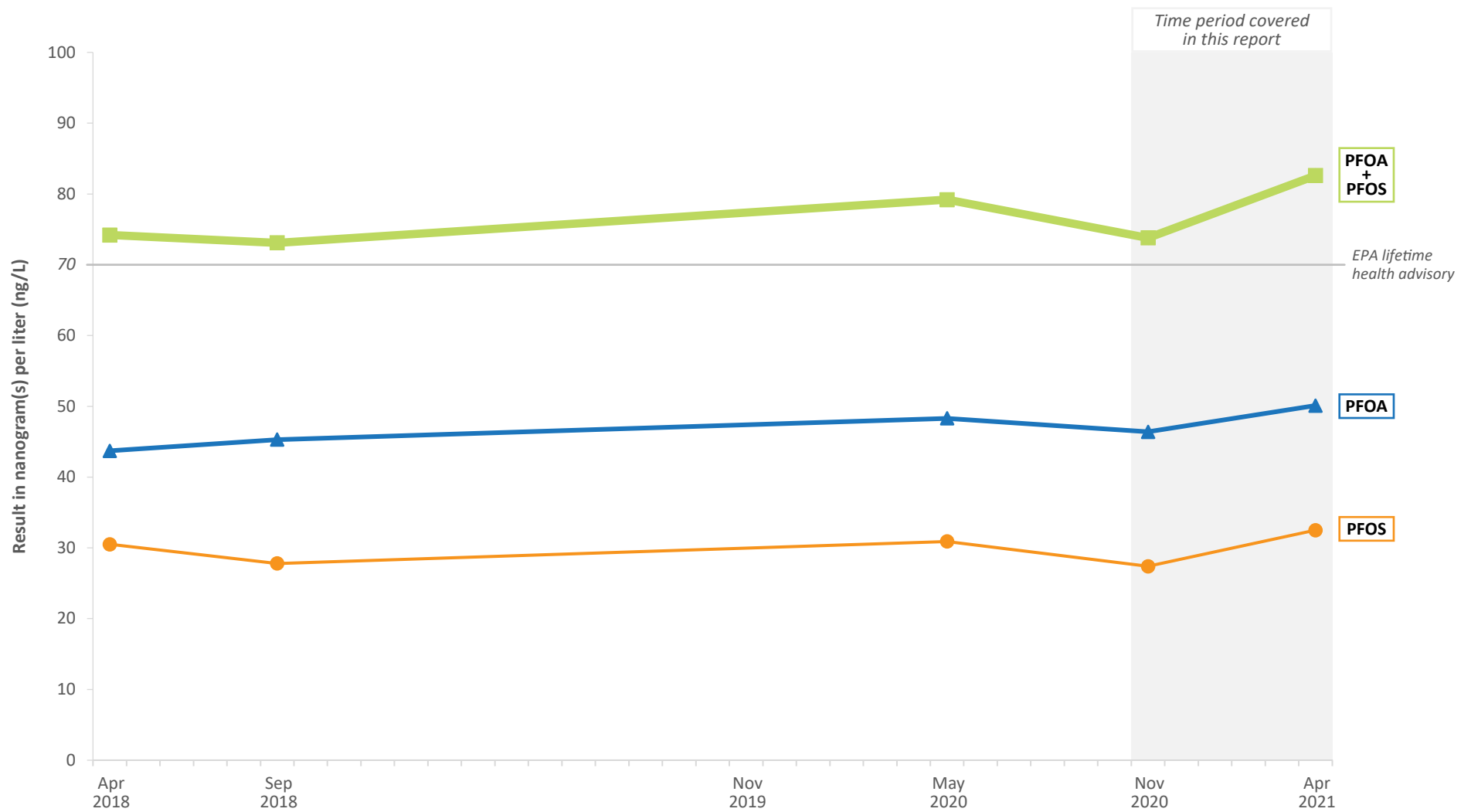


Figure A4-51.
PFOS and PFOA in Drinking Water
at Sample Location WI-A06-RW20
Naval Air Station Whidbey Island
Coupeville, Washington

Note:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.



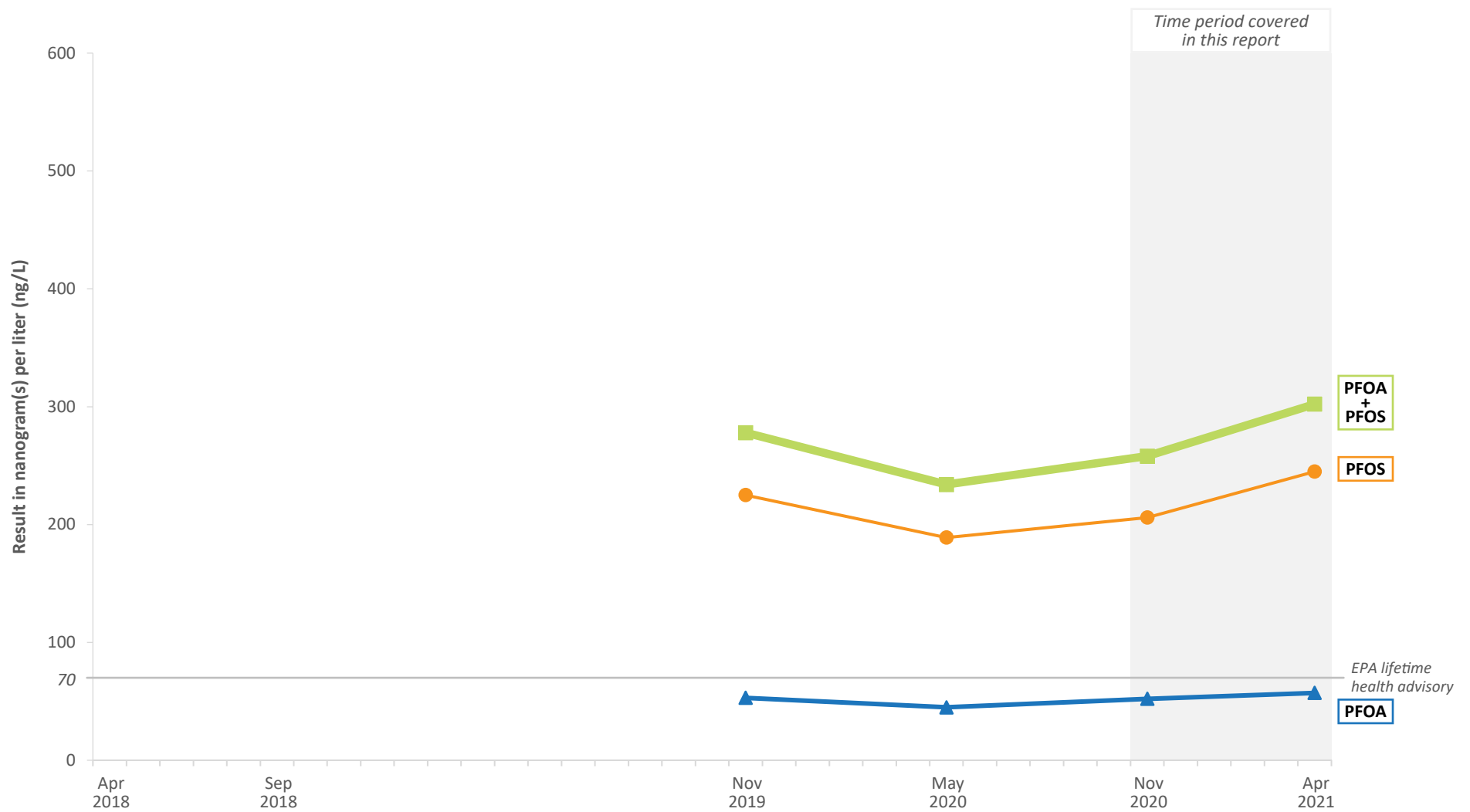


Figure A4-52.
PFOS and PFOA in Drinking Water
at Sample Location WI-A06-RW24
Naval Air Station Whidbey Island
Coupeville, Washington

Note:

1. The U.S. Environmental Protection Agency lifetime health advisory for combined PFOA and PFOS is 70 nanograms per liter.



Attachment 5
Mann-Kendall Trend Evaluation

Trend Evaluation

The Mann-Kendall test (Mann 1945; Kendall 1975; Gilbert 1987) is a statistical test widely used for the analysis of trend in the environmental sciences. The test is a nonparametric procedure used to assess if there is a monotonic upward or downward trend of the variable of interest over time. A monotonic upward (downward) trend means that the variable consistently increases (decreases) through time, but the trend may or may not be linear. The data values are evaluated as an ordered time series. Each data value is compared to all subsequent data values. Thus, the test can be viewed as a nonparametric test for zero slope of the linear regression of time-ordered data versus time, as illustrated by Hollander and Wolfe (1973, p. 201).

The Mann-Kendall test compares the relative magnitudes of sample data rather than the data values themselves. One benefit of this is that the data need not conform to any particular distribution. Additionally, the test has a low sensitivity to abrupt breaks due to nonhomogeneous time series. Data reported as nondetects can be included by assigning them a common value that is less than the smallest measured value in the data set (USEPA 2009).

The Mann-Kendall test statistic (S) is found by counting the number of "concordant observations", where the later-in-time observation has a larger value for the series, and subtracting the number of "discordant observations", where the later-in-time observation has a smaller value for the series. This is done for all pairs of observations in the data set. The total difference is denoted S . Positive values of S indicate an increase in constituent concentrations over time, whereas negative values indicate a decrease in constituent concentrations over time. The strength of the trend is proportional to the magnitude of the S (i.e., the larger the absolute value of S , the stronger the evidence for a real increasing or decreasing trend).

The null hypothesis in the Mann-Kendall test assumes that there is no trend (the data are independent and randomly ordered) and this is tested against the alternative hypothesis, which assumes that there is a trend. The calculated probability (p -value) of the test represents the probability that any observed trend would occur purely by chance (given the variability and sample size of the data set). A significance level of 0.05 (i.e., 95 percent confidence) was used to test the null hypothesis that there is no trend in the data. The significance level is the probability that a test erroneously detects a trend when none is present. Only p -values less than 0.05 indicate a statistically significant trend. The result could be a significantly increasing or decreasing trend, or a nonsignificant result (no trend).

To gauge the magnitude of the trend, the Theil-Sen slope was calculated for wells exhibiting a statistically significant trend in constituent concentrations. Although nonparametric, the Theil-Sen slope estimator does not use data ranks but rather the concentrations themselves. The method is nonparametric because the median pairwise slope is utilized, thus ignoring extreme values that might otherwise skew the slope estimate. Consequently, the Theil-Sen line estimates the change in median concentration over time and not the mean as in linear regression. The Theil-Sen method handles nondetects in the same manner as the Mann-Kendall test; it assigns each nondetect a common value less than any detected measurement (USEPA 2009). Unlike the Mann-Kendall test, however, the actual concentration values are important in computing the slope estimate in the Theil-Sen procedure. Therefore, the approach is not appropriate when more than 50 percent of the concentration measurements are nondetects (ITRC 2013).

Where there was insufficient evidence for identifying a significant, non-zero trend at the 95 percent confidence level, concentrations were deemed stable if the coefficient of variation (CV) was less than 1.0. The CV is recognized as an acceptable measure of intrinsic variability in positive-valued data sets (USEPA 2009) and can be used as an indication of stability. The CV is a relative measure of variation described by the ratio of the sample standard deviation to the sample mean. Values less than or near 1.0 indicate that the data form a relatively close group about the mean value. Values larger than 1.0 indicate that the data show a greater degree of scatter about the mean. It should be noted that the CV is a relative measure of variation in groundwater concentration data and can be affected by the magnitude of concentration (USEPA 2009). As such, relatively higher concentrations can include significant variation while exhibiting a small CV. For nondetects, the Kaplan-Meier product-limit estimator (Kaplan and Meier 1958) was used to compute the mean and standard deviation. USEPA (2009)

recommends the use of the KM method when dealing with environmental data sets containing multiple censored observations.

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Interstate Technology & Regulatory Council (ITRC). 2013. *Groundwater Statistics and Monitoring Compliance: Statistical Tools for the Project Life Cycle*. GSMC-1. December.

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Kendall, M.G. 1975. *Rank Correlation Techniques, 4th ed.* Charles Griffen. London.

Mann, H.B. 1945. Nonparametric Tests Against Trend. *Econometrica*, 13, 245-259.

United States Environmental Protection Agency (EPA). 2009. *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities: Unified Guidance*. EPA-530-R-09-007. Office of Resource Conservation and Recovery, U.S. Environmental Protection Agency. March.

Attachment 6
Trend Analysis Figures



***Technical Memorandum
Results of Investigation of Per- and Polyfluoroalkyl Substances in
Off-Base Drinking Water—Ault Field, Area 6, and
Outlying Landing Field Coupeville, November 2020 to April 2021
Naval Air Station Whidbey Island
Washington***

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