

Evaluation of Per- and Polyfluoroalkyl Substances in Groundwater, Ault Field, Naval Air Station Whidbey Island, Oak Harbor, Washington

PREPARED BY: CH2M

DATE: March 2019

Introduction

This evaluation describes the Phase 1 site inspection (SI) for per and polyfluoroalkyl substances (PFAS) at Ault Field, Naval Air Station (NAS) Whidbey Island, in Oak Harbor, Washington. The second phase of the SI for PFAS will occur after the Preliminary Assessment for Ault Field is complete. The objectives of Phase 1 SI were: (a) refine the understanding of groundwater flow at Ault Field; (b) confirm the presence of PFAS in groundwater and characterize their nature, if present; and (c) support evaluation of the long-term solution for two off-Base residential drinking water wells near Ault Field. CH2M HILL, Inc. (CH2M) prepared this document under the Department of the Navy (Navy), Naval Facilities Engineering Command, Comprehensive Long-term Environmental Action—Navy 9000 Contract N62470-16-D-9000, Contract Task Order 4041.

Site Background

Ault Field is located on Whidbey Island near Oak Harbor, WA (**Figure 1**), and is one of three NAS Whidbey Island installations. Ault Field was commissioned on September 21, 1942. Currently, 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 (CNIC, 2017).

PFAS are compounds found in a variety of commercial and industrial sources and have been widely used since the 1970s, including in the generation of aqueous film-forming foam (AFFF), which was utilized by the Navy for fire training exercises, fire suppression systems, and suppressing aircraft fires or other fires. Areas located within Ault Field may have used, stored, or disposed of AFFF during historical operations. Based on a desktop review of available data and previous investigations, there are eight potential source areas at Ault Field where AFFF has been utilized: Area 16 (Ault Field Runway Ditches), Area 31 (former Runway Fire Training School), all hangars (collection and storage of AFFF), Area 29 (Clover Valley Fire School), Area 30 (Fire School Can Disposal Area), Area 27 (temporary fire school), Area 28 (Chapel Fire School), and the Current Firefighting School. The Phase 1 SI focused on areas around the Current Firefighting School, Area 29, and Area 30, and Navy's property between potential on-Base PFAS source areas and the two off-Base drinking water wells near Ault Field that have exceedances of the Lifetime Health Advisory of 70 parts per trillion (ppt) (Figure 2).

Field Activities Summary

The following field activities were performed as part of this inspection:

- Monitoring well installation
- Soil sample collection
- Groundwater sample collection
- Groundwater level survey
- Archaeological survey

The following sections detail the field activities that were completed between January 3, 2018 and March 2, 2018.

Monitoring Well Installation

Eleven groundwater wells (nine on-Base monitoring wells and two potential off-Base replacement residential drinking water wells) were installed between January 6, 2018 and February 23, 2018, ranging in depth from approximately 55 feet below ground surface (bgs) to 170 feet bgs. Newly installed groundwater wells were named in the field using the following nomenclature: "WI-AF-MW-6XX" and will be referred to as "MW-6XX" throughout this memorandum, associated tables, and figures.

The nine monitoring wells were installed using sonic drilling techniques in accordance with the Standard Operating Procedure (SOP) *Installation of Monitoring Wells by Sonic Drilling,* included in the Sampling and Analysis Plan (SAP) (CH2M, 2018). The two off-Base wells were installed using sonic drilling techniques in accordance with State of Washington drinking water regulations as described in Section 10, Table 2, in Washington Administrative Code (WAC) 173-160-201. Locations of groundwater monitoring wells are shown on **Figures 3, 4,** and **5**. Soil boring logs and well construction details for these wells can be found in **Attachment 1**.

Because of the potential for groundwater contamination in the shallow aquifer zones, it was deemed necessary to install isolation casings to limit potential cross-contamination during well construction. For each well location, an 8-inch-diameter isolation casing was installed to extend through the first encountered groundwater zone and was advanced through the water-bearing zone into underlying lower permeability materials. The depth of the isolation seal was determined based on geology and consultation with the senior technical consultant, selecting to seal off the uppermost water-bearing unit. A seal comprised of hydrated bentonite pellets was installed within the isolation casing, after which the remainder of the borehole was drilled from the depth of the isolation casing using 6-inch-diameter casing to the target screen depth. Continuous soil cores were collected for lithologic classification, screened for volatile organic compounds (VOCs) using a photoionization detector (PID), and up to four soil samples were collected at each boring location.

Eight of the nine monitoring wells were constructed of 2-inch inside-diameter Schedule 80 polyvinyl chloride (PVC) riser with centralizers at varying intervals, connected to a 2-inch inside-diameter, 10-foot-long, factory-slotted, PVC screen with a 5-foot solid casing sump. One monitoring well (MW-614) was constructed of 2-inch inside-diameter PVC riser with centralizers at varying intervals. MW-614 was constructed without a sump. Well construction information is included in **Table 1** and **Attachment 1**.

The two potential replacement residential drinking water wells were constructed of 6-inch inside-diameter steel casing from ground surface to 20 feet bgs, connected to a 6-inch inside-diameter PVC riser with centralizers at varying depths. The risers for each well were connected to 20-foot, 6-inch inside-diameter factory-slotted, stainless steel screens with 5-foot Schedule 80 PVC sumps.

For all wells, a silica sand filter pack was placed around the annular space of the well screen from the bottom of the boring and extended to a minimum height of 2 feet above the top of the well screen. A bentonite seal, at least 2 feet thick, was placed above the top of the sand pack. After the bentonite had been hydrated, bentonite grout was placed in the remaining annular space.

The lithology throughout the site was not well known prior to this field inspection. Therefore, the precise screened intervals were determined based on subsurface lithology encountered during drilling. Two of the well clusters were located in areas with little to no information on subsurface lithology. To address this uncertainty, one boring in each well cluster (MW-607 and MW-610) was extended beyond the target depth for the screened interval. Lithology collected from these deeper borings was used to improve understanding of subsurface lithology at each location. The extended portions of the boreholes were backfilled with bentonite chips prior to constructing the wells. Individual well details are presented in **Attachment 1.**

All wells were finished with flush-mount completions that included a metal well vault and concrete pad. A locking watertight cap was placed on the riser and the wells were labeled on the exterior of the well vault with a metal stamp indicating the well identification.

Groundwater monitoring wells were developed concurrently with installation starting January 29, 2018 and ending on February 26, 2018. Wells were developed using surge and purge methods using a stainless-steel bailer and submersible pump. Select water quality parameter (WQP) measurements (pH, temperature, conductivity, and turbidity) and observations were recorded periodically to monitor development. Wells were considered developed once water quality parameters stabilized or until 4 hours of development was completed, whichever occurred first. All wells were developed based on the above criteria with the exception of wells that experienced insufficient recharge during development. MW-610 was not fully developed to the criteria specified due to high turbidity and insufficient recharge. Well development logs are included as **Attachment 2**.

Monitoring wells were surveyed by a professional land surveyor licensed in Washington. The survey report is included as **Attachment 3**.

Soil Sample Collection

Soil samples were collected between January 5, 2018 and February 20, 2018 during borehole advancement for monitoring well installation of MW-605 through MW-615 (Figures 3 and 4). Soil samples were collected from MW-605 through MW-615 at varying intervals based on field observations (visual, olfactory, PID readings) and senior technical input using a clean, stainless steel spoon and appropriate laboratory containers. Soil sampling IDs (WI-AF-SB605 through WI-AF-SB615) can be correlated to these monitoring well locations. Soil sample collection details are provided in **Attachment 4.**

Quality control (QC) samples were collected at a rate of one field duplicate sample for every 10 samples and one matrix spike/matrix spike duplicate sample for every 20 samples collected. One equipment rinsate blank sample was collected each day of sampling from decontaminated equipment.

Soil samples were shipped on ice under chain-of-custody protocols to Vista Laboratories in El Dorado Hills, California, a National Environmental Laboratory Accreditation Program-accredited laboratory. Soil samples were analyzed for United States Environmental Protection Agency (USEPA) Modified Method 537 which includes: perfluorooctanoic acid (PFOA), perfluorooctane sulfanate (PFOS), perfluorobutanesulfonic acid (PFBS), and 11 other PFAS compounds.

Groundwater Sample Collection

Groundwater samples were collected from 17 pre-selected existing groundwater monitoring wells and all newly installed wells between February 13, 2018 and March 1, 2018. Groundwater samples were collected from monitoring wells under low-flow and low-stress conditions, with the sample pump intake placed at the middle of the well screen interval. In accordance with the SAP, the pumps used were PFAS-free pneumatic pumps operated by compressed air, essentially a bladderless bladder pump, in which the air does not come into contact with the air and water interface. For shallow wells (less than 30 feet bgs), peristaltic pumps with disposable PFAS-free tubing were used to collect groundwater samples from the middle of the well screen interval.

Depth to water readings and WQPs (specific conductance, pH, turbidity, temperature, dissolved oxygen, and oxidation-reduction potential [ORP]) were measured and recorded approximately every 5 minutes before sampling using a water quality meter which was calibrated daily (at a minimum). If excessive drawdown was created at the minimum acceptable flow rate for low-flow and low-stress sampling conditions, the pump intake was raised to within a few feet of the top of the water column and a minimum of three well volumes was purged. If the well went dry before purging three well volumes, a sample was collected after recharge had taken place within 24 hours of purging.

WQPs were considered stabilized if the following criteria were met for three consecutive readings:

- Temperature remained constant
- pH was within 0.1 pH units
- Conductivity was within 10 percent
- Turbidity measurements were less than 10 nephelometric turbidity units or agreed within 10 percent

- ORP
- Dissolved oxygen within 0.2 mg/L

Groundwater sample locations are shown on **Figures 5** and **6**. Stabilized WQPs recorded before sample collection are presented in **Table 2**. Depth-to-water, WQPs, and total well depth measurements were recorded on groundwater sampling data sheets included as **Attachment 4**.

During sample collection, sample containers were filled in such a manner so as to minimize aeration of the samples. QC samples were collected at a rate of one field duplicate sample for every 10 samples and one matrix spike/matrix spike duplicate sample for every 20 samples collected. One equipment rinsate blank sample was collected each day of sampling from decontaminated equipment.

Groundwater samples were shipped on ice under chain-of-custody protocols to Vista Laboratories in El Dorado Hills, California, a National Environmental Laboratory Accreditation Program-accredited laboratory. Groundwater samples were analyzed for USEPA Method 537 Modified which includes PFOA, PFOS, PFBS, and 11 other PFAS compounds.

Investigation-derived Waste Management and Disposal

Wastes generated during the field activities were characterized as investigation-derived waste (IDW) and managed in accordance with the SAP and applicable SOPs. Solid IDW generated from soil cuttings and residual drilling mud was containerized in three 20-cubic-yard roll-off boxes with lids, inner plastic liners, and outer secondary containment. Liquid IDW, which included well development, purge, and decontamination water, was stored in two 21,000-gallon steel fractionation tanks within secondary containment. Additional liquid IDW, containing purge and decontamination water from WI-AF-4-MW-3, was stored in one 55-gallon stainless steel drum placed on a wooden pallet with secondary containment. Soil IDW was sampled for waste characterization and analyzed for PFAS, Toxicity Characteristic Leaching Procedure, VOCs, semivolatile organic compounds (SVOCs), and total Resource Conservation and Recovery Act of 1976 (RCRA) metals plus copper, nickel, and zinc, reactivity, corrosivity, and ignitability. Liquid IDW, excluding WI-AF-4-MW-3, was sampled for waste characterization and analyzed for PFAS, VOCs, SVOCs, total RCRA metals plus copper, nickel, and zinc, reactivity, corrosivity, and ignitability. Liquid IDW from WI-AF-4-MW-3, which was installed within the former Walker Barn foundation where transformers had been stored and known polychlorinated biphenyl (PCB) Aroclor 1260 and pentachlorophenol have been detected in surface soil, was sampled for waste characterization and analyzed for all the aforementioned contaminants plus PCBs. The solid and liquid IDW has been characterized as nonhazardous and is not considered a dangerous waste (State of Washington Dangerous Waste Regulations WAC 173-303). Two tanks contain aqueous IDW which exceeds 70 ppt PFOS and PFOA. The Navy has an internal policy that any IDW water that exceeds 70 ppt PFOS and/or PFOA must be treated prior to disposal off-Base. The Navy is evaluating treatment methods for this aqueous IDW prior to disposal.

Groundwater Elevation Study

A groundwater elevation study was conducted on March 1 and 2, 2018, which consisted of collecting groundwater measurements using water level meters at both the newly installed and existing groundwater monitoring wells sampled during the 2018 Phase 1 SI. Groundwater-level measurements were collected from all of the monitoring wells within a 24-hour period, using a water level indicator to the nearest 0.01 foot from the top of the survey point on the PVC riser casing. Groundwater elevations are presented in **Table 3** and in **Attachment 5**. Groundwater contour maps were constructed using these data and are provided as **Figures 7** through **10**. These data are discussed in the Updated Conceptual Site Model section later in this technical memorandum.

Archaeological Survey Report

CH2M conducted archaeological monitoring of proposed boring locations at Residence 1 (MW-611) and Residence 2 (MW-615) during installation. The Area of Potential Effect for each boring was 50 feet by 50 feet at each residence. No evidence of buried archaeological deposits, artifacts, features, or paleosols were observed during

the Phase 1 monitoring well installation. A finding of No Adverse Effect to Historical Resources was recommended. Further information on the protocols and results of the archaeological monitoring can be found in the Archaeological Monitoring Technical Memorandum included as **Attachment 6**.

Deviations from the Sampling and Analysis Plan

The following list summarizes deviations from the SAP during the SI activities and justification for those deviations:

- Monitoring wells were installed at elevations relative to the mean sea level and considered the depths of impacted private drinking water wells, while screen intervals identified in the SAP were based on existing documentation and research of existing soil borings and wells. The depths specified in the SAP were not always consistent with actual water-bearing zones observed in the field. During borehole advancement, observations were made based on soil type and saturation to determine the appropriate installation depth. Where practical based on lithology, monitoring well screened intervals were selected to coincide with the well screen elevations of the affected water supply wells nearby, while also targeting the more transmissive units encountered.
- The SAP-proposed drilling depth for well MW-607 was 75 to 125 feet bgs. During drilling of the first two wells in this area (MW-605 and MW-606), the water-bearing unit was found to be between approximately 90 and 115 feet bgs. As discussed above, MW-607 was advanced significantly deeper than the target screened interval (to a depth of 199 feet bgs) to investigate the deeper stratigraphy in the area. The borehole was subsequently backfilled with bentonite chips to 116 feet bgs, and the screen installed from 100 to 110 feet bgs. No deeper water-bearing units were encountered in the extended portion of the boring.
- The SAP-proposed drilling depth for well MW-610 was 35 to 70 feet bgs. During drilling of the first two wells in this area (MW-608 and MW-609), the water-bearing unit was found to be between approximately 40 and 55 feet bgs. As with MW-607, MW-610 was advanced significantly deeper than the target screened interval (to a depth of 248 feet bgs) to investigate the deeper stratigraphy in the area. The borehole was subsequently backfilled with bentonite chips to 56 feet bgs, and the screen installed from 40 to 50 feet bgs. No deeper water-bearing units were encountered in the extended portion of the boring.
- Monitoring well MW-610 could not be fully developed nor sampled due to very low water levels, high turbidity, and slow recharge.
- The proposed boring location for MW-612 was moved approximately 80 feet due west of the SAP-proposed location to avoid drill rig navigation across a drainage ditch running from southwest to northeast across the site.
- One hour of well development was proposed in the SAP; however, because of the turbidity of the
 groundwater observed during development, well development duration was increased to 4 hours to allow for
 adequate development.
- During groundwater sampling of monitoring well N29-22D, excessive drawdown was observed during purging.
 This well was sampled within 24 hours of purging after recharge had occurred. This additional contingency procedure was not described in the SAP.
- Soil samples were collected on January 5 and January 7, 2018 and held on ice until the SAP was finalized on February 5, 2018 following Stakeholder review and approval. These samples were immediately shipped and arrived at Vista Analytical Laboratory on February 7, 2018. Soil sample SB-612 was received at the lab 3 days out of the hold time, sample SB-613 was received at the lab the same day as the hold time expired, and sample SB-614 was received at the lab 5 days out of hold time.

Data quality and usability were not affected by these deviations.

Sampling Results Summary

Soil Sample Results

The following is a summary of the soil sampling results from samples collected in January and February 2018:

- **PFBS** All soil samples were non-detect for PFBS.
- **PFOS** All soil samples were non-detect for PFOS.
- **PFOA** PFOA was detected in one sample (SB606-0001) from 0 to 1 foot bgs, at 0.163 ng/g. Results were non-detect for all other soil intervals at all other boring locations.

The highest PFOA concentration was 0.163 ng/g. Project Action Limits currently do not exist for soil. Soil samples were collected in order to determine the approximate distribution of PFAS in the soil profile at each well location.

Groundwater Sampling Results

Groundwater sample results are presented in **Table 4** and shown on **Figures 5** and **6.** Comprehensive laboratory results are presented in **Attachment 7**. The following is a summary of the groundwater sampling results from samples collected in February and March 2018:

- **PFBS** PFBS was detected in 12 samples, ranging from an estimated 4.57 ppt in the sample collected from MW-608 to 2,090 ppt in the sample collected from MW-201. None of the detections of PFBS exceeded the Regional Screening Level (USEPA, 2017) of 400,000 ppt (based on a hazard quotient of 1.0).
- **PFOS** PFOS was detected in 12 samples ranging from an estimated 2.8 ppt in the sample collected from MW-N29-22D to 29,200 ppt in the sample collected from MW-114-114-B2668. Ten samples—collected from MW-N2-7S, MW-201, N2-6C, MW-200, MW-N3-12, MW-114, MW-202, N2-5, MW-204, and MW-3—exceeded the USEPA Lifetime Health Advisory of 70 ppt for PFOS.
- PFOA PFOA was detected in 15 samples, ranging from an estimated 0.702 ppt in the sample collected from MW-N29-22D to 3,010 ppt in the sample collected from MW-201. Ten samples—collected from wells MW-N2-7S, MW-201, N2-6C, MW-200, MW-N3-12, MW-114, MW-202, N2-5, MW-204, and MW-3—exceeded the Lifetime Health Advisory of 70 ppt for PFOA.

The highest combined PFOA and PFOS concentration was 29,749 ppt in the sample from MW-114. The highest detection was of PFOS (29,200 ppt), also in the sample collected from MW-114. None of the new monitoring wells installed as part of this SI effort yielded groundwater samples that exceeded the USEPA Lifetime Health Advisory of 70 ppt for combined PFOS/PFOA.

Data Validation

Data validation was performed on groundwater samples collected for this inspection. The data validation report is included in **Attachment 7**. The data validation included a review for systematic errors or patterns that are found in the distribution of data qualifiers.

Select PFAS were analyzed by USEPA Method 537 Modified as specified in the SAP (CH2M, 2018). The data packages were then reviewed by an independent data validator on the basis of the criteria outlined by *National Functional Guidelines for Superfund Organic Data Review* (USEPA, 2016). Excluding field QC samples, 84 distinct data points were generated, and six results were qualified with J-qualifiers (because of the low sample concentrations) or U-qualified (because of blank contamination).

All results are usable as qualified. The overall conclusion is that the dataset generated is acceptable and appropriate for its intended use.

Conceptual Site Model

Regional Conceptual Site Model

The following discussion provides a general description of the conceptual site model across Ault Field based on historical documents available for the site. A more detailed discussion of the updated conceptual site model specific to the areas investigated during this field efforts is provided in the following section.

Whidbey Island, including the entire SI area, 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 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).

The 1994 Remedial Investigation (RI) Report (Navy, 1994) identified a confined aquifer beneath Area 16, Ault Field Runway Ditches (**Figure 2**), at a depth of approximately 20 to greater than 150 feet bgs consisting of fine to medium sand with some silt. Clay and silt of the Everson glaciomarine drift forms the overlying confining layer. A single, unconfined aquifer was identified beneath Area 31, the Former Runway Fire Training Area (**Figure 2**), interpreted to be the same as that encountered in Area 16, but without the glaciomarine drift that confines the aquifer in Area 16 (presumed to pinch out).

Ault Field is located in a valley, with elevated areas to the south, northeast, and east of the field. Because Area 31 lies at the base of the south side of Monkey Hill, groundwater flow mimics topography in that area, flowing to the south, away from the hill and toward the Strait of Juan de Fuca. This was confirmed by the RI Report (Navy, 1994).

Across the remainder of the Base, east of the runway, groundwater generally flows to the northeast, and east toward Clover Valley Stream, Clover Valley Lagoon, and Dugualla Bay. West of the runway, there is likely a component of flow to the west toward the Strait of Juan de Fuca.

Updated Conceptual Site Model for Areas Investigated in this Field Effort

Drilling conducted during this effort provided additional information on lithology and groundwater conditions in the three areas of Ault Field where the well clusters were installed (**Figures 3** and **4**). These data were used to refine the conceptual site model in the areas where investigative work was conducted. In the updated conceptual site model discussion below, the areas where new information has been collected will be referred to as the Eastern Ault Field Area (containing wells MW-605, MW-606, MW-607 and MW-608, MW-609, MW-610 and the Residence 1 potential replacement well MW-611) and the Southern Ault Field area (containing wells MW-612, MW-613, MW-614 and the Residence 2 potential replacement well MW-615). The locations of these areas and associated wells are shown on **Figures 3** and **4**, respectively.

In the Eastern Ault Field area, it was anticipated prior to drilling that the aquifer system would look much like that encountered in Area 6 to the south: a series of three aquifers comprised of (from shallow to deep) the Vashon advance outwash unit, the Whidbey subunit 2, and the Whidbey subunit 4 (or sea level aquifer). These aquifers are separated by two lower permeability aquitards known as Whidbey subunit 1 (or upper confining unit) and Whidbey subunit 3 (or lower confining unit) (Sapik, et al., 1988). However, the stratigraphy observed during drilling in the Eastern Ault Field area is significantly different than that seen in Area 6. The upper 30 to 40 feet of sediment is composed primarily of silt with thin layers of interbedded sand and silty sand. An upper aquifer was encountered beneath this upper unit composed of silty sand, extending to a depth of 175 feet bgs. A thick clay unit was then encountered at 175 feet, extending to the total depth of well MW-610 at a depth of 248 feet bgs. It is not clear whether the relatively shallow aquifer encountered in this area directly correlates with any of the three aquifer units observed in Area 6. The final well drilled in this area is the potential replacement well for Residence 1 (MW-611), located approximately 3,000 feet east of well MW-609. At this location, a shallow sandy aquifer is present from ground surface to a depth of 50 feet, where a clay confining unit is encountered that extends from 50 to 100 feet bgs. A second silty sand aquifer is then encountered at 100 feet bgs extending

through the total depth of MW-611 of 180 feet bgs. Two cross-sections, A-A' and B-B', have been developed to present observed lithology in this area are shown on **Figures 11** and **12**, the units on all cross-section figures are feet above mean sea level.

The wells constructed in the Southern Ault Field area are located due south of the Current Firefighting School. A series of wells drilled in the vicinity of the Current Firefighting School indicate the presence of three aquifers in the area: a shallow, an intermediate, and a sea level aquifer. The stratigraphy encountered in the Southern Ault Field area is somewhat similar; however, fewer aguifer units were identified during this inspection. Insufficient data exist to correlate the aquifer identified in the Southern Ault Field area with those observed previously at the Current Firefighting School. The sediments in Southern Ault Field consist of a thin layer of sand with silt from approximately 0 to 5 feet bgs, under which a thick layer of sandy lean clay is encountered to a depth of 50 to 75 feet bgs. A clayey sand with gravel aquifer was encountered beneath the clay layer, extending to a depth of about 100 feet bgs. This aquifer is underlain by a second clay unit of unknown thickness. Well MW-615, located at Residence 2, was drilled south of the MW-612, MW-613, MW-614 cluster. At well MW-615, observed stratigraphy was similar to that seen in the on-Base wells MW-612 through MW-614, but the well was drilled to a total depth of 210 feet bgs to provide lithologic information at deeper depths. Based on observations at this well, it appears that a second relatively thin aquifer unit exists from 105 to 120 feet bgs, which is underlain by a clay unit that extends down to 180 feet bgs. The boring then encountered an underlying shale unit that is present to the total well depth of 210 feet bgs. A conceptual geologic cross-section has also been developed to present observed lithology in this area as shown on **Figure 13.** The units on all cross-section figures are feet above mean sea level.

Groundwater levels were also collected at all new and selected existing groundwater monitoring wells in the area as discussed in the Groundwater Elevation Study section. These data were used to assess the degree of hydraulic connection between aquifer units at the site and to estimate groundwater flow directions. Estimates of groundwater flow directions in the areas investigated as part of this field program are summarized on Figures 3 and 4, and potentiometric maps are shown on Figures 7 through 10. As shown on Figure 3, groundwater flow patterns in the Eastern Ault Field area are to the north in the vicinity of well clusters MW-605, MW-606, MW-607 and MW-608, MW-609, MW-610. Flow directions shift toward the east farther north in the Clover Valley Stream drainage as groundwater converges toward Clover Valley Stream from uplands to the north and south, and move eastward prior to discharge to Dugualla Bay. In the Southern Ault Field area, shown on Figure 4, groundwater flow directions appear to be toward the northeast in the vicinity of well cluster MW-612, MW-613, MW-614 based on groundwater levels collected during the synoptic groundwater level survey on March 2, 2018. However, groundwater level data collected during the on-Base sampling event conducted from February 13 to February 20, 2018, show groundwater flow directions appear to flow toward the southeast, so some variability in flow direction may occur in the area. Additional sitewide groundwater level information will be collected during future site characterization efforts and will support a more complete understanding of groundwater conditions across Ault Field.

All newly constructed wells and a subset of on-Base existing monitoring wells were sampled for PFAS compounds. In the Eastern Ault Field area, PFAS were not detected in the six newly installed wells sampled during the February 2018 sampling event conducted as part of this SI. Analytical results are presented in **Table 4**.

In the Southern Ault Field area, PFAS were detected in well MW-615 during the February 2018 groundwater sampling event conducted as part of this SI, results are presented in **Table 4**. All three wells installed as part of the MW-612, MW-613, and MW-614 cluster, located between the Current Firefighting School and Residence 2, were non-detect for PFOS and PFOA during the February 2018 groundwater sampling event. As monitored under the *Sampling and Analysis Plan Investigation of Per- and Polyfluoroalkyl Substances in Drinking Water* (CH2M, 2017) and related SAP Addendum, PFAS concentrations in excess of the USEPA Lifetime Health Advisory were detected in the current water supply well at Residence 2, at a concentration of 8,030 ppt, in March 2018 as shown on **Figure 4**.

Conclusions

The primary conclusions of this SI effort are summarized as follows:

- Eleven on-Base groundwater wells were installed on, or directly adjacent to, Ault Field in the eastern and
 southern portions of the Base. Nine of the new wells are on-Base groundwater monitoring wells. The
 remaining two wells are potential replacement drinking water wells on parcels adjacent to Ault Field where
 PFOS and/or PFOA have been detected above the USEPA Lifetime Health Advisory in the existing drinking
 water wells on the properties.
- Lithologic data collected during drilling identified aquifer units in the eastern and southern inspection areas; however, these aquifer units could not be directly correlated with previously identified aquifer units in areas adjacent to the inspection areas. Additional subsurface information would be required to identify the hydrogeologic relationship between the aquifers screened by the new monitoring wells and the previously identified aquifer units nearby.
- Groundwater flow directions in the Southern Ault Field area appear to be oriented to the northeast; however, variability in water level data collected from the newly installed wells in this area may indicate variable groundwater flow directions over time.
- Groundwater flow directions in the Eastern Ault Field area appear to be oriented to the north in the areas
 where the new wells were installed. Further north in the Clover Valley Stream drainage, groundwater flow
 directions appear to transition to an easterly flow direction following the orientation of Clover Valley Stream
 and eventually discharging to either the creek or nearby Dugualla Bay.
- The three wells installed as part of the MW-612, MW-613, and MW-614 cluster, located between the Current Firefighting School and Residence 2, were non-detect for PFOS and PFOA. Additional groundwater data and lithologic information is needed in this area to determine if on-Base PFAS sources have impacted the existing drinking water well at Residence 2.
- In the Eastern Ault Field area, all six wells installed were non-detect for PFAS compounds. Additional groundwater data and lithologic information is needed between known and potential source areas at Ault Field, such as the Hangars and runways, to determine if on-Base PFAS sources have impacted the existing drinking water well at Residence 1.

References

CH2M HILL, Inc. (CH2M). 2017. Sampling and Analysis Plan, Investigation of Per- and Polyfluoroalkyl Substances in Drinking Water, Ault Field and Outlying Landing Field Coupeville, Naval Air Station Whidbey Island. November.

CH2M HILL, Inc. (CH2M). 2018. Sampling and Analysis Plan, Phase I Site Investigation for Per- and Polyfluoroalkyl Substances in Soil and Groundwater, Ault Field, Naval Air Station Whidbey Island, Oak Harbor, Washington. February.

Department of the Navy (Navy). 1994. Final Remedial Investigation Report for Operable Unit 3, Naval Air Station Whidbey Island. Prepared for Engineering Field Activity Northwest, Naval Facilities Engineering Command by URS Consultants Under Contract No. N62474-89-D-9295, CTO 0074. January.

Commander, Navy Installations Command (CNIC). 2017. Naval Air Station Whidbey Island. https://cnic.navy.mil/regions/cnrnw/installations/nas-whidbey-island.html

Sapik, D.B., G.C. Bortleson, B.W. Drost, M.A. Jones, and E.A. Drych. 1988. "Groundwater Resources and Simulation of Flow in Aquifers Containing Fresh Water and Sea Water, Island County, Washington." U.S. Geological Survey Water Resources Investigations Report 87-4182. p. 67.

EVALUATION OF PER- AND POLYFLUOROALKYL SUBSTANCES IN GROUNDWATER, AULT FIELD NAVAL AIR STATION WHIDBEY ISLAND, OAK HARBOR, WASHINGTON

United States Environmental Protection Agency (USEPA). 2016. *National Functional Guidelines for Superfund Organic Data Review*. September.

USEPA. 2017. Regional Screening Level (RSL) Resident Tapwater Table. May.

Tables

TABLE 1 Monitoring Well Construction Summary Site Inspection for Per- and Polyfluoroalkyl Substances in Groundwater Ault Field, Naval Air Station Whidbey Islana Oak Harbor, Washington

| Monitoring Well | Installation Date | Ground Elevation (ft msl) | Top of PVC Casing Elevation (ft msl) | Well Diameter (in) | Total Well Depth (ft bgs) | Measured Total Well Depth (ft btoc) | Length of Screen (ft) | Screen Slot Size (in) | Length of Sump (ft) | Depth of Top of Screen (ft bgs) | Depth of Bottom of Screen (ft bgs) | Elevation of Top of Screen (ft msl) | Elevation of Bottom of Screen (ft msl) | Pump Intake Depth (ft btoc) | Screened Aquifer | Northing (feet NAD83) | Easting (feet NAD83) |
|------------------|----------------------|---------------------------------|--|-----------------------|------------------------------|---|-----------------------------|--------------------------|------------------------|---------------------------------------|--|---|--|-----------------------------------|------------------|--------------------------|-------------------------|
| New Wells | | | | | | | | | | | | | | | | | |
| MW-605 | 1/22/2018 | 30.56 | 30.27 | 2.00 | 120.89 | 120.60 | 10 | 0.010 | 5 | 105.00 | 115.00 | -74.44 | -84.44 | 207.00 | Surface East | 496011.66 | 1200073.92 |
| MW-606 | 1/20/2018 | 16.34 | 16.11 | 2.00 | 103.97 | 103.74 | 10 | 0.010 | 5 | 90.00 | 100.00 | -73.66 | -83.66 | 153.00 | Surface East | 496551.20 | 1200405.99 |
| MW-607 | 1/12/2018 | 19.15 | 18.90 | 2.00 | 105.06 | 104.80 | 10 | 0.010 | 5 | 100.00 | 110.00 | -80.85 | -90.85 | 157.50 | Surface East | 496664.60 | 1200992.79 |
| MW-608 | 1/23/2018 | 49.47 | 49.18 | 2.00 | 54.79 | 54.50 | 10 | 0.010 | 5 | 40.00 | 50.00 | 9.47 | -0.53 | 100.00 | Surface East | 494698.52 | 1200421.10 |
| MW-609 | 1/24/2018 | 53.09 | 52.75 | 2.00 | 60.04 | 59.70 | 10 | 0.010 | 5 | 45.00 | 55.00 | 8.09 | -1.91 | 227.00 | Surface East | 494571.87 | 1200607.07 |
| MW-610 | 1/25/2018 | 56.99 | 56.72 | 2.00 | NM | NM | 10 | 0.010 | 5 | 40.00 | 50.00 | 16.99 | 6.99 | 150.00 | Surface East | 494401.08 | 1200544.45 |
| MW-611 | 2/20/2018 | 101.13 | 100.66 | 6.00 | 170.21 | 169.74 | 20 | 0.010 | | 145.00 | 165.00 | -43.87 | -63.87 | 153.00 | Surface East | 494569.61 | 1203629.96 |
| MW-612 | 1/7/2018 | 87.42 | 87.14 | 2.00 | 84.73 | 84.45 | 10 | 0.010 | 5 | 69.00 | 79.00 | 18.42 | 8.42 | 74.00 | Intermediate | 490240.07 | 1189445.22 |
| MW-613 | 1/10/2018 | 92.94 | 92.69 | 2.00 | 78.85 | 78.60 | 10 | 0.010 | 5 | 64.00 | 74.00 | 28.94 | 18.94 | 165.00 | Intermediate | 490272.46 | 1188887.70 |
| MW-614 | 1/5/2018 | 89.36 | 89.11 | 2.00 | 70.05 | 69.80 | 10 | 0.010 | | 59.00 | 69.00 | 30.36 | 20.36 | 122.00 | Intermediate | 489730.10 | 1189248.99 |
| MW-615 | 2/13/2018 | 92.06 | 91.67 | 6.00 | 95.93 | 95.54 | 20 | 0.010 | 5 | 70.00 | 90.00 | 22.06 | 2.06 | 179.00 | Intermediate | 488678.09 | 1189640.43 |
| Existing Wells | | | | | | | | | | | | | | | | | |
| 3-MW-2 | 2/10/1992 | 82.71 | 84.95 | 4.00 | 95.86 | 98.10 | 10 | UNK | 1 | 84.00 | 94.00 | -1.29 | -11.29 | 91.2 | Intermediate | 491368.70 | 1190681.00 |
| 4-MW-3 | 1/13/1992 | 82.83 | 85.21 | 4.00 | 80.40 | 82.78 | 10 | UNK | 1 | 69.00 | 79.00 | 13.83 | 3.83 | 76.4 | Deep | 492262.60 | 1190041.00 |
| 29-MW-4 | 7/13/1992 | 94.27 | 96.16 | 4.00 | 64.05 | 65.94 | 10 | UNK | 1 | 52.00 | 62.00 | 42.27 | 32.27 | 58.9 | Intermediate | 489353.60 | 1188495.00 |
| MW3 | 3/16/1994 | 89.56 | 89.33 | 2.00 | 13.58 | 13.35 | UNK | UNK | UNK | UNK | UNK | UNK | UNK | UNK | Surface West | 491763.00 | 1189695.00 |
| MW-114-114-B2668 | 11/11/1997 | 96.10 | 95.29 | 2.00 | 14.81 | 14.00 | 10 | UNK | 0 | 8.00 | 18.00 | 88.1 | 78.1 | 12.2 | Surface West | 491877.30 | 1189577.00 |
| MW-200 | UNK | 93.86 | 95.92 | 2.00 | 105.60 | 107.66 | UNK | UNK | UNK | UNK | UNK | UNK | UNK | UNK | Deep | 491895.12 | 1189354.31 |
| MW-201 | UNK | 97.53 | 99.65 | 2.00 | 76.13 | 78.25 | UNK | UNK | UNK | UNK | UNK | UNK | UNK | UNK | Deep | 491982.33 | 1189455.54 |
| MW-202 | UNK | 90.03 | 89.46 | 2.00 | 15.85 | 15.28 | UNK | UNK | UNK | UNK | UNK | UNK | UNK | UNK | Surface West | 491689.50 | 1189597.51 |
| MW-204 | UNK | 97.17 | 96.61 | 2.00 | 18.98 | 18.42 | UNK | UNK | UNK | UNK | UNK | UNK | UNK | UNK | Surface West | 491958.56 | 1189575.78 |
| N2-3 | 3/26/1987 | 121.97 | 122.40 | 2.00 | 122.37 | 122.80 | 10 | UNK | 1 | 112.00 | 122.00 | 9.97 | -0.03 | 117.4 | Deep | 491030.20 | 1188592.00 |
| N2-5 | 3/19/1987 | 91.81 | 92.91 | 2.00 | 17.70 | 18.80 | 10 | UNK | 3 | 7.00 | 17.00 | 84.81 | 74.81 | 13.1 | Surface West | 491758.20 | 1189620.00 |
| N2-6 | 4/15/1987 | 87.55 | 89.19 | 2.00 | 72.45 | 74.09 | 10 | UNK | 0 | 64.00 | 74.00 | 23.55 | 13.55 | 70.6 | Intermediate | 491543.50 | 1189532.00 |
| N2-7S | 3/24/1987 | 96.66 | 98.00 | 2.00 | 19.03 | 20.36 | 10 | UNK | 2 | 8.00 | 18.00 | 88.66 | 78.66 | 14.3 | Surface West | 491081.00 | 1188933.00 |
| N2-8 | 4/2/1987 | 87.47 | 87.88 | 2.00 | 112.97 | 113.38 | 10 | UNK | 7 | 102.00 | 112.00 | -14.53 | -24.53 | 107.4 | Intermediate | 490793.70 | 1189305.00 |
| N2-9 | 4/7/1987 | 86.99 | 87.56 | 2.00 | 98.12 | 98.70 | 10 | UNK | 1 | 88.00 | 98.00 | -1.01 | -11.01 | 93.6 | Intermediate | 490504.70 | 1189359.00 |
| N3-12 | 4/17/1987 | 98.25 | 99.11 | 2.00 | 58.09 | 58.95 | 10 | UNK | 2 | 48.00 | 58.00 | 50.25 | 40.25 | 53.9 | Intermediate | 491400.00 | 1190575.00 |
| N29-22D | 5/26/1987 | 95.93 | 99.52 | 2.00 | 101.62 | 105.21 | 10 | UNK | 1 | 18.00 | 28.00 | 77.93 | 97.93 | 26.6 | Deep | 489251.20 | 1188284.00 |

NAD 83 - Washington State Plane Coordinate System, North Zone NAD83-11

-- - No sump used in well construction

bgs - below ground surface

btoc - below top of casing

ft - feet

msl - mean sea level

NM - not measured

TABLE 2
Water Quality Parameters
Site Inspection for Per- and Polyfluoroalkyl Substances in Groundwater
Ault Field, Naval Air Station Whidbey Island
Oak Harbor, Washington

| Station ID | ion ID Sample ID Sample Date Time | | = | рН | Conductivity (mS/cm) | Temperature (°C) | Dissolved Oxygen (mg/L) | Oxidation- Reduction Potential (mV) | Turbidity (NTU) |
|------------------|-----------------------------------|-----------|-------|-------|-------------------------|---------------------|-------------------------------|--|--------------------|
| New Wells | | | | | | | | | |
| MW-605 | WI-AF-MW-605-0218 | 2/17/2018 | 13:00 | 7.60 | 0.343 | 10.77 | 0.5 | -101 | 0.89 |
| MW-606 | WI-AF-MW-606-0218 | 2/16/2018 | 14:50 | 7.55 | 0.515 | 11.8 | 0.77 | -130 | 113.0 |
| MW-607 | WI-AF-MW-607-0218 | 2/17/2018 | 11:08 | 7.78 | 0.432 | 10.79 | 0.57 | -83 | 140 |
| MW-608 | WI-AF-MW-608-0218 | 2/15/2018 | 15:55 | 7.74 | 0.647 | 12.88 | 3.69 | -191 | 1.5 |
| MW-609 | WI-AF-MW-609-0218 | 2/17/2018 | 15:55 | 7.77 | 0.316 | 12.17 | 0.50 | -135 | 0.08 |
| MW-611 | WI-AF-MW-611-0318 | 3/1/2018 | 15:20 | 7.30 | 0.470 | 13.1 | 0.79 | -165 | 1.58 |
| MW-612 | WI-AF-MW-612-0218 | 2/15/2018 | 11:20 | 8.08 | 1.07 | 11.2 | 0 | -154 | 43.7 |
| MW-613 | WI-AF-MW-613-0218 | 2/14/2018 | 16:55 | 8.26 | 0.83 | 11.51 | 0.00 | -133 | 15.9 |
| MW-614 | WI-AF-MW-614-0218 | 2/14/2018 | 11:45 | 7.81 | 1.03 | 11.53 | 11.09 | -120 | 22.9 |
| MW-615 | WI-AF-MW-615-0318 | 3/1/2018 | 11:40 | 7.76 | 0.941 | 12.89 | 0.31 | -284 | 6.28 |
| Existing Wells | | | | | | | | | |
| 3MW-2 | WI-AF-3-MW-2-0218 | 2/18/2018 | 14:05 | 8.39 | 0.841 | 6.03 | 2.07 | 9 | 10.8 |
| 4-MW-3 | WI-AF-4-MW-3-0218 | 2/17/2018 | 13:35 | 7.83 | 1.03 | 13.18 | 1.03 | -37 | 303 |
| 29-MW-4 | WI-AF-29-MW-4-0218 | 2/13/2018 | 13:50 | 8.61 | 0.949 | 12.74 | 2.74 | 125 | 0 |
| MW3 | WI-AF-MW-3-0218 | 2/20/2018 | 11:40 | 5.67 | 0.122 | 6.49 | 1.44 | 127 | 2.9 |
| MW-114-114-B2668 | WI-AF-MW-114-0218 | 2/20/2018 | 15:50 | 6.96 | 0.213 | 15.09 | 2.37 | 186 | 17 |
| MW-200 | WI-AF-MW-200-0218 | 2/18/2018 | 11:50 | 8.06 | 0.511 | 9.76 | 0.85 | 85 | 8.01 |
| MW-201 | WI-AF-MW-201-0218 | 2/17/2018 | 14:50 | 7.31 | 0.93 | 13.17 | 4.5 | 106 | 3.98 |
| MW-202 | WI-AF-MW-202-0218 | 2/20/2018 | 11:35 | 6.89 | 0.207 | 9.31 | 0.57 | 103 | 3.8 |
| MW-204 | WI-AF-MW-204-0218 | 2/20/2018 | 15:40 | 6.60 | 0.408 | 11.25 | 5.03 | 143 | 2.1 |
| N2-3 | WI-AF-N3-2-0218 | 2/16/2018 | 12:40 | 8.16 | 1.17 | 12.20 | 1.04 | -92 | 38.4 |
| N2-5 | WI-AF-N2-5-0218 | 2/20/2018 | 9:55 | 6.96 | 0.185 | 8.66 | 1.39 | 36 | 9 |
| N2-6 | WI-AF-N2-6C-0218 | 2/18/2018 | 11:40 | 7.80 | 0.317 | 10.75 | 1.09 | 240 | 4 |
| N2-7S | WI-AF-N2-7S-0218 | 2/15/2018 | 16:00 | 6.82 | 0.733 | 11.81 | 0.71 | 145 | 4 |
| N2-8 | WI-AF-N2-8-0218 | 2/16/2018 | 17:40 | 13.87 | 3.18 | 10.87 | 4.89 | -87 | 174 |

TABLE 2
Water Quality Parameters
Site Inspection for Per- and Polyfluoroalkyl Substances in Groundwater
Ault Field, Naval Air Station Whidbey Island
Oak Harbor, Washington

| Station ID | Sample ID | Sample Date | Sample Time | рН | Conductivity (mS/cm) | Temperature (°C) | Dissolved Oxygen (mg/L) | Oxidation- Reduction Potential (mV) | Turbidity (NTU) |
|------------|--------------------|-------------|----------------|------|-------------------------|---------------------|-------------------------------|--|--------------------|
| N2-9 | WI-AF-N2-9-0218 | 2/15/2018 | 13:05 | 9.82 | 1.09 | 11.91 | 2.73 | 139 | 58.1 |
| N3-12 | WI-AF-N3-12-0218 | 2/18/2018 | 11:10 | 7.00 | 0.851 | 10.70 | 1.43 | -102 | 2.48 |
| N29-22D | WI-AF-N29-22D-0218 | 2/19/2018 | 9:40 | 8.16 | 0.833 | 10.24 | 2.11 | 191 | 14.8 |

°C - Degrees centigrade

mg/L - Milligrams per liter

mS/cm - Milliseimens per centimeter

mV - Millivolts

NTU - Nephelometric turbidity units

TABLE 3
Groundwater Elevations (March 1 and 2, 2018)
Site Inspection for Per- and Polyfluoroalkyl Substances in Groundwater
Ault Field, Naval Air Station Whidbey Island
Oak Harbor, Washington

| Monitoring Well ID | Top of Casing Elevation | Depth to Water (03/1/2018 & 3/2/2018) | Groundwater Elevation (03/1/2018 & 3/2/2018) |
|-----------------------|----------------------------|---|--|
| | ft msl | ft btoc | ft msl |
| New Wells | | | |
| MW-605 | 30.269 | 13.19 | 16.51 |
| MW-606 | 16.112 | 0.00 | 15.96 |
| MW-607 | 18.895 | 2.38 | 16.52 |
| MW-608 | 49.184 | 30.70 | 18.48 |
| MW-609 | 52.754 | 34.17 | 18.59 |
| MW-610 | 56.717 | 37.79 | 18.93 |
| MW-611 | 100.66 | 81.75 | 18.91 |
| MW-612 | 87.143 | 49.28 | 37.84 |
| MW-613 | 92.688 | 54.64 | 38.05 |
| MW-614 | 89.108 | 51.06 | 38.05 |
| MW-615 | 91.667 | 53.82 | 38.28 |
| Existing Wells | | | |
| 3MW-2 | 84.948 | 56.88 | 28.07 |
| 4-MW-3 | 85.212 | 69.33 | 15.81 |
| 29-MW-4 | 96.159 | 57.89 | 38.23 |
| MW3 | 89.331 | 1.62 | 87.71 |
| MW-114-114-B2668 | 95.289 | 7.94 | 84.67 |
| MW-200 | 95.922 | 83.45 | 12.47 |
| MW-201 | 99.654 | 86.63 | 13.02 |
| MW-202 | 89.462 | 2.15 | 87.31 |
| MW-204 | 96.609 | 9.47 | 87.14 |
| N2-3 | 122.403 | 112.46 | 9.92 |
| N2-5 | 92.906 | 5.57 | 87.34 |
| N2-6 | 89.195 | 58.22 | 30.97 |
| N2-7S | 97.999 | 7.39 | 90.47 |
| N2-8 | 87.884 | 56.37 | 31.52 |
| N2-9 | 87.564 | 49.68 | 37.81 |
| N3-12 | 99.112 | 52.06 | 47.57 |
| N29-22D | 99.521 | 92.72 | 4.09 |

btoc = below top of casing

ft = feet

msl = mean sea level

TABLE 4
Groundwater Sample Results for PFAS (February and March 2018)
Site Inspection for Per- and Polyfluoroalkyl Substances in Groundwater
Ault Field, Naval Air Station Whidbey Island
Oak Harbor, Washington

| Sample ID | USEPA LHA | USEPA RSL | WI-AF-29-MW-4-0218 | WI-AF-MW-N29-22D-0218 | WI-AF-MW-613-0218 | WI-AF-MW-614-0218 | WI-AF-MW-N2-9-0218 | WI-AF-MW-N2-7S-0218 | WI-AF-MW-608-0218 |
|-------------------------------------|------------|------------|--------------------|-----------------------|-------------------|-------------------|--------------------|---------------------|-------------------|
| Sample Date | (May 2016) | (May 2016) | 2/13/18 | 2/14/18 | 2/14/18 | 2/14/18 | 2/15/18 | 2/15/18 | 2/15/18 |
| Chemical Name | | | | | | | | | |
| Perfluorobutanesulfonic acid (PFBS) | | 380,000 | ND | ND | ND | ND | ND | 182 | 4.57 J |
| Perfluorooctane Sulfonate (PFOS) | 70 | | ND | 2.8 J | ND | ND | ND | 568 | ND |
| Perfluorooctanoic acid (PFOA) | 70 | | ND | 0.702 J | ND | ND | ND | 117 B | ND |

--- no screening criteria available
J = analyte present, value is estimated
LHA = Lifetime Health Advisory
ng/L = all results are presented in nanograms
per liter
ND = non-detect
RSL = regional screening level

USEPA = United States Environmental Protection Agency

Shading indicates detection

Bolded text indicated exceedance of USEPA Lifetime Health Advisory

TABLE 4
Groundwater Sample Results for PFAS (February and March 2018)
Site Inspection for Per- and Polyfluoroalkyl Substances in Groundwater
Ault Field, Naval Air Station Whidbey Island
Oak Harbor, Washington

| Sample ID | USEPA LHA | USEPA RSL | WI-AF-MW-612-0218 | WI-AF-MW-N2-8-0218 | WI-AF-MW-N2-3-0218 | WI-AF-MW-606-0218 | WI-AF-4-MW-3-0218 | WI-AF-MW-201-0218 | WI-AF-MW-605-0218 |
|-------------------------------------|------------|------------|-------------------|--------------------|--------------------|-------------------|-------------------|-------------------|-------------------|
| Sample Date | (May 2016) | (May 2016) | 2/15/18 | 2/16/18 | 2/16/18 | 2/16/18 | 2/17/18 | 2/17/18 | 2/17/18 |
| Chemical Name | | | | | | | | | |
| Perfluorobutanesulfonic acid (PFBS) | | 380,000 | ND | ND | ND | ND | ND | 2090 | ND |
| Perfluorooctane Sulfonate (PFOS) | 70 | | ND | ND | ND | ND | ND | 23500 D | ND |
| Perfluorooctanoic acid (PFOA) | 70 | | ND | ND | 1.95 J,B | ND | 0.903 J,B | 3010 B | ND |

--- no screening criteria available
J = analyte present, value is estimated
LHA = Lifetime Health Advisory
ng/L = all results are presented in nanograms
per liter
ND = non-detect
RSL = regional screening level

USEPA = United States Environmental Protection Agency

Shading indicates detection

Bolded text indicated exceedance of USEPA Lifetime Health Advisory

TABLE 4
Groundwater Sample Results for PFAS (February and March 2018)
Site Inspection for Per- and Polyfluoroalkyl Substances in Groundwater
Ault Field, Naval Air Station Whidbey Island
Oak Harbor, Washington

| Sample ID | USEPA LHA | USEPA RSL | WI-AF-MW-607-0218 | WI-AF-MW-609-0218 | WI-AF-N2-6C-0218 | WI-AF-MW-200-0218 | WI-AF-3-MW-2-0218 | WI-AF-MW-N3-12-0218 | WI-AF-MW-114-0218 |
|-------------------------------------|------------|------------|-------------------|-------------------|------------------|-------------------|-------------------|---------------------|-------------------|
| Sample Date | (May 2016) | (May 2016) | 2/17/18 | 2/17/18 | 2/18/18 | 2/18/18 | 2/18/18 | 2/18/18 | 2/20/17 |
| Chemical Name | | | | | | | | | |
| Perfluorobutanesulfonic acid (PFBS) | | 380,000 | ND | ND | 98.7 | 879 | ND | 71.4 | 68.8 |
| Perfluorooctane Sulfonate (PFOS) | 70 | | ND | ND | 9450 D | 96.5 | ND | 1620 | 29200 D |
| Perfluorooctanoic acid (PFOA) | 70 | | ND | ND | 671 B | 436 | ND | 175 | 549 B |

--- no screening criteria available
J = analyte present, value is estimated
LHA = Lifetime Health Advisory
ng/L = all results are presented in nanograms
per liter
ND = non-detect

RSL = regional screening level USEPA = United States Environmental Protection Agency

Shading indicates detection

Bolded text indicated exceedance of USEPA Lifetime Health Advisory

TABLE 4
Groundwater Sample Results for PFAS (February and March 2018)
Site Inspection for Per- and Polyfluoroalkyl Substances in Groundwater
Ault Field, Naval Air Station Whidbey Island
Oak Harbor, Washington

| Sample ID | USEPA LHA | USEPA RSL | WI-AF-MW-202-0218 | WI-AF-N2-5-0218 | WI-AF-MW-204-0218 | WI-AF-MW-3-0218 | WI-AF-MW-611-0318 | WI-AF-MW-615-0318 |
|-------------------------------------|------------|------------|-------------------|-----------------|-------------------|-----------------|-------------------|-------------------|
| Sample Date | (May 2016) | (May 2016) | 2/20/18 | 2/20/18 | 2/20/18 | 2/20/18 | 3/1/18 | 3/1/18 |
| Chemical Name | | | | | | | | |
| Perfluorobutanesulfonic acid (PFBS) | | 380,000 | 126 | 38.8 | 63.6 | 49 | ND | 89.1 |
| Perfluorooctane Sulfonate (PFOS) | 70 | | 10900 D | 14500 D | 20600 D | 6050 D | ND | 3.37 J |
| Perfluorooctanoic acid (PFOA) | 70 | | 815 B | 338 B | 2520 B | 312 B | ND | 7.85 J |

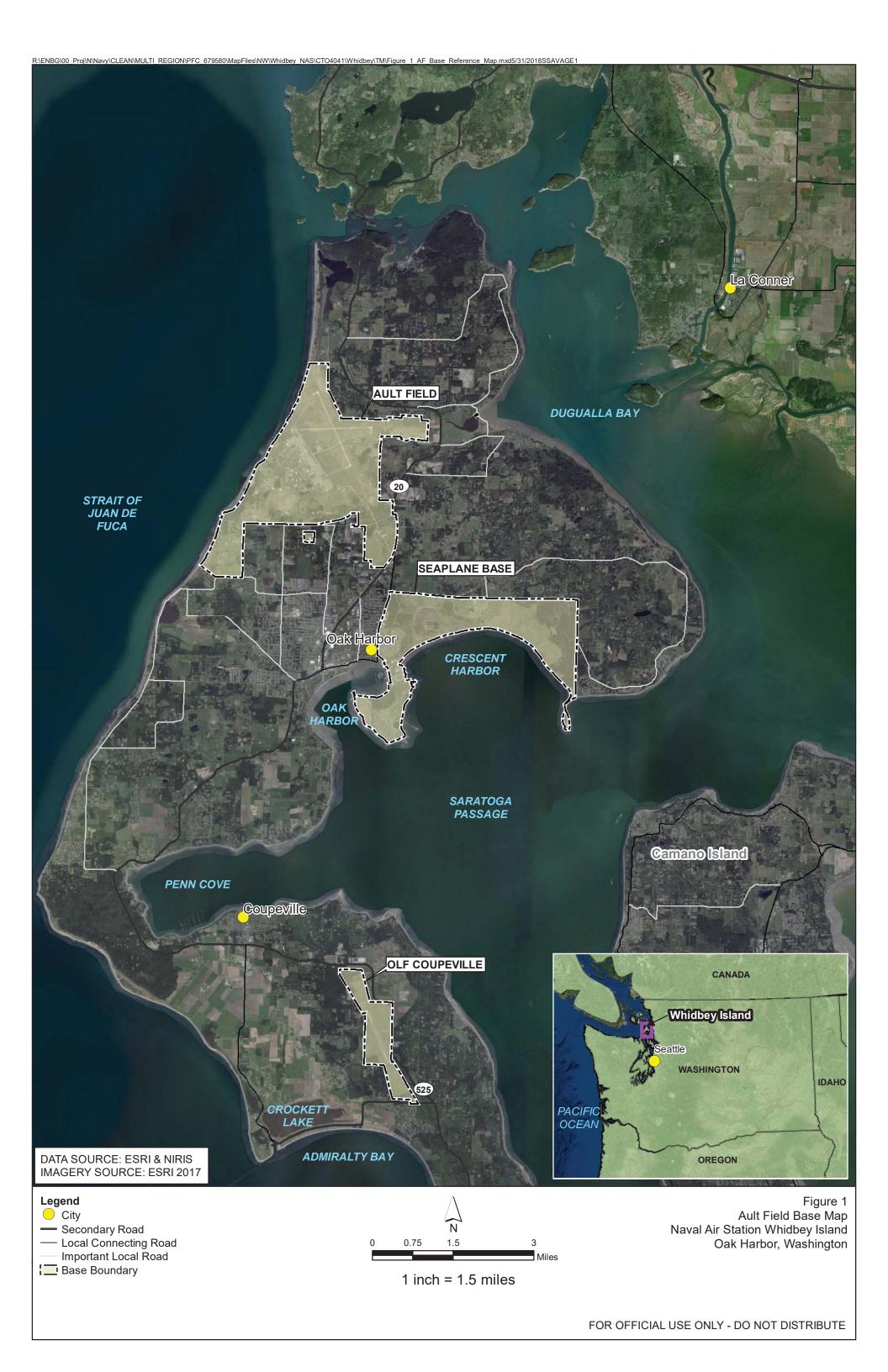
-- - no screening criteria available
J = analyte present, value is estimated
LHA = Lifetime Health Advisory
ng/L = all results are presented in nanograms
per liter
ND = non-detect
RSL = regional screening level

USEPA = United States Environmental Protection Agency

Shading indicates detection

Bolded text indicated exceedance of USEPA Lifetime Health Advisory

Figures









NOTIFICATION: FIGURE 2 CONTAINS SENSITIVE BUT UNCLASSIFIED INFORMATION WHICH IS PROTECTED BY THE FREEDOM OF INFORMATION ACT

FOIA Exemption 6 (5 USC 552(b)(6))
Personal Information Affecting an Individual's Privacy

TO REQUEST A COPY OF THE DOCUMENT PLEASE CONTACT

Department of the Navy
Freedom of Information Act Office

http://www.secnav.navy.mil/foia/Pages/default.aspx







NOTIFICATION: FIGURE 3 CONTAINS SENSITIVE BUT UNCLASSIFIED INFORMATION WHICH IS PROTECTED BY THE FREEDOM OF INFORMATION ACT

FOIA Exemption 6 (5 USC 552(b)(6))
Personal Information Affecting an Individual's Privacy

TO REQUEST A COPY OF THE DOCUMENT PLEASE CONTACT

Department of the Navy
Freedom of Information Act Office

http://www.secnav.navy.mil/foia/Pages/default.aspx







NOTIFICATION: FIGURE 4 CONTAINS SENSITIVE BUT UNCLASSIFIED INFORMATION WHICH IS PROTECTED BY THE FREEDOM OF INFORMATION ACT

FOIA Exemption 6 (5 USC 552(b)(6))
Personal Information Affecting an Individual's Privacy

TO REQUEST A COPY OF THE DOCUMENT PLEASE CONTACT

Department of the Navy
Freedom of Information Act Office

http://www.secnav.navy.mil/foia/Pages/default.aspx







NOTIFICATION: FIGURE 5 CONTAINS SENSITIVE BUT UNCLASSIFIED INFORMATION WHICH IS PROTECTED BY THE FREEDOM OF INFORMATION ACT

FOIA Exemption 6 (5 USC 552(b)(6))
Personal Information Affecting an Individual's Privacy

TO REQUEST A COPY OF THE DOCUMENT PLEASE CONTACT

Department of the Navy
Freedom of Information Act Office

http://www.secnav.navy.mil/foia/Pages/default.aspx







NOTIFICATION: FIGURE 6 CONTAINS SENSITIVE BUT UNCLASSIFIED INFORMATION WHICH IS PROTECTED BY THE FREEDOM OF INFORMATION ACT

FOIA Exemption 6 (5 USC 552(b)(6))
Personal Information Affecting an Individual's Privacy

TO REQUEST A COPY OF THE DOCUMENT PLEASE CONTACT

Department of the Navy
Freedom of Information Act Office

http://www.secnav.navy.mil/foia/Pages/default.aspx



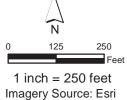
Surface Aquifer Monitoring Well

-88- Contour of Equal Groundwater Elevation

Base Boundary

Note:

90.61 - Measured Groundwater Elevation at well (ft. Msl)



Surface West Aquifer Groundwater Contour Map - West Area March 2018 Naval Air Station Whidbey Island Oak Harbor, Washington

FINAL

For Official Use Only







NOTIFICATION: FIGURE 8 CONTAINS SENSITIVE BUT UNCLASSIFIED INFORMATION WHICH IS PROTECTED BY THE FREEDOM OF INFORMATION ACT

FOIA Exemption 6 (5 USC 552(b)(6))
Personal Information Affecting an Individual's Privacy

TO REQUEST A COPY OF THE DOCUMENT PLEASE CONTACT

Department of the Navy
Freedom of Information Act Office

http://www.secnav.navy.mil/foia/Pages/default.aspx







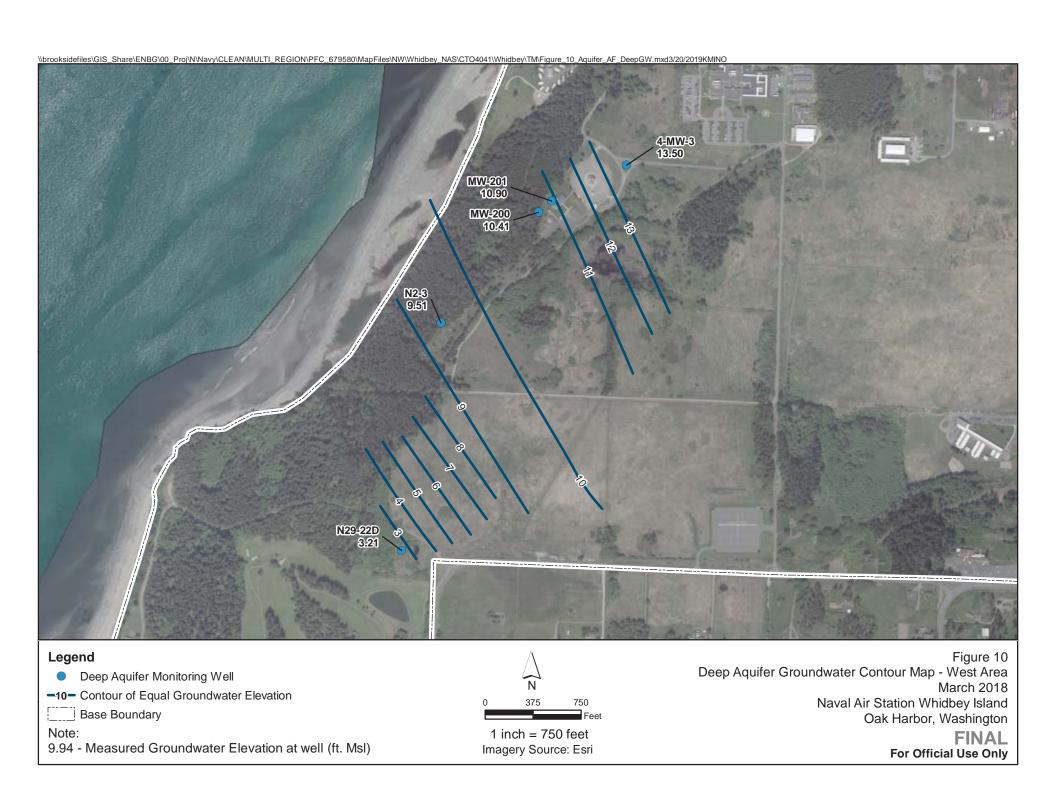
NOTIFICATION: FIGURE 9 CONTAINS SENSITIVE BUT UNCLASSIFIED INFORMATION WHICH IS PROTECTED BY THE FREEDOM OF INFORMATION ACT

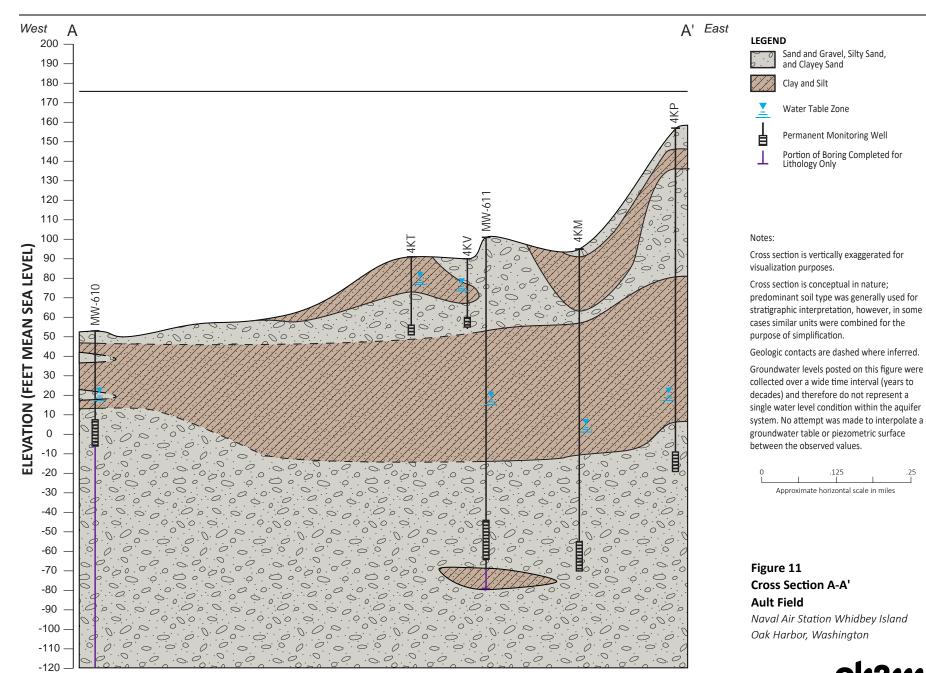
FOIA Exemption 6 (5 USC 552(b)(6))
Personal Information Affecting an Individual's Privacy

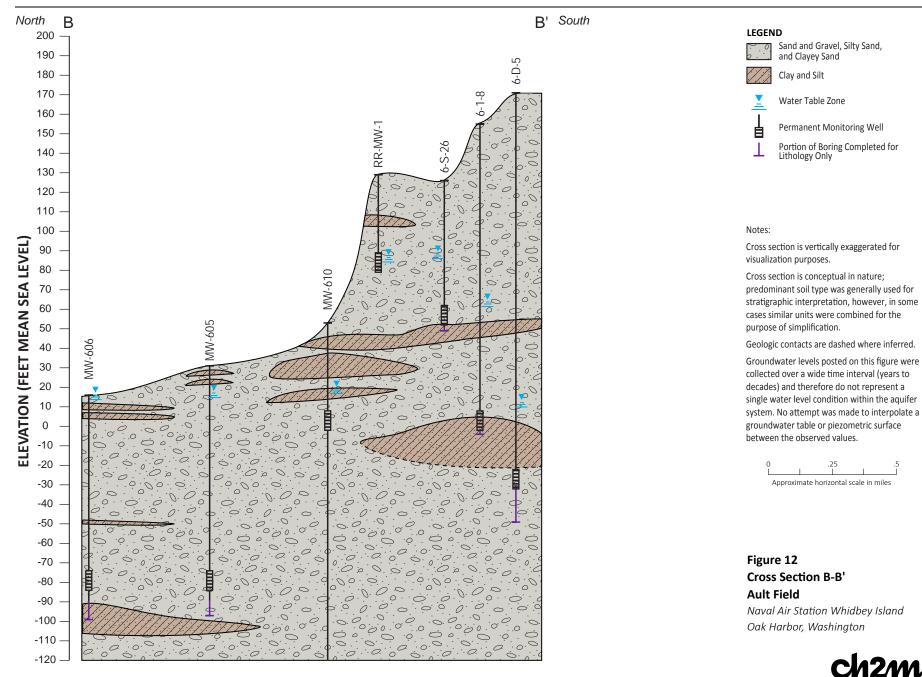
TO REQUEST A COPY OF THE DOCUMENT PLEASE CONTACT

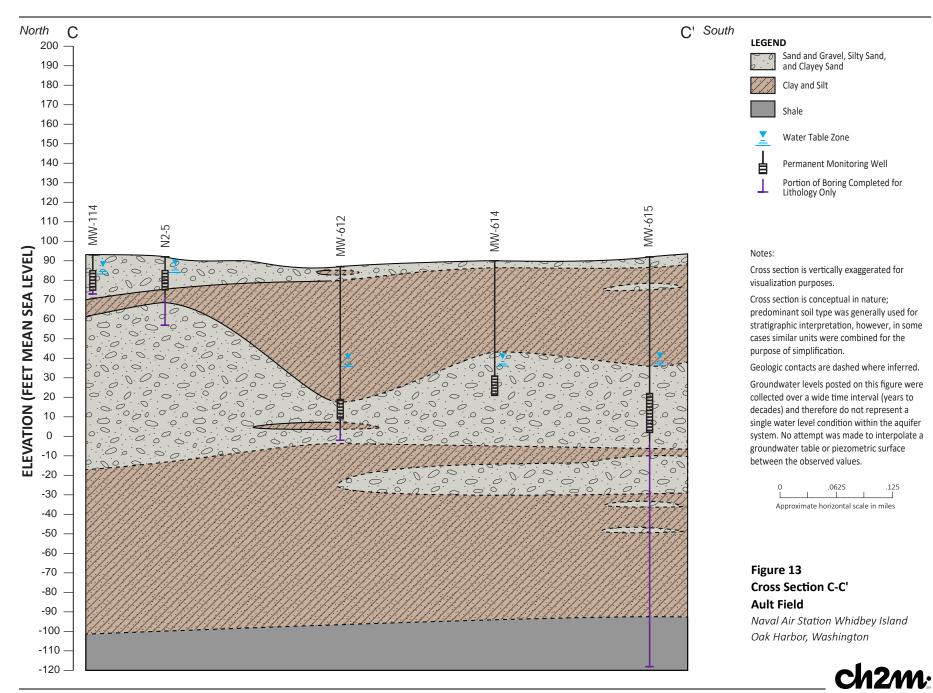
Department of the Navy
Freedom of Information Act Office

http://www.secnav.navy.mil/foia/Pages/default.aspx









Attachment 1
Soil Boring Logs and Well Construction
Diagrams



PROJECT NUMBER: 695610.04.FI.WI

DRILLING METHOD AND EQUIPMENT: Terrasonic 150CC; 8" surface casing, 7" barrel (0'-18' bgs); 6" casing, 4" barrel (18'-128' bgs), Rotosonic

BORING NUMBER:

WI-AF-MW-605

SHEET 1 OF 5

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (496011.7 N, 1200073.9 E)

ELEVATION: 30.6 ft DRILLING CONTRACTOR: Yellow Jacket

| WATER | LEVELS | : 13.8 ft b | gs START : 1/4/2018 | | ΕN | ND : 1/23/2018 LOGO | GER : M. Green |
|-----------------------------|---------------|---------------|---|--------------|--------------------------|--|----------------|
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | SYMBOLIC LOG | PID READING HEADSPACE | | WELL DIAGRAM |
| - - - | 2.0 | 2.0 | Sandy SILT with Gravel (ML) Dark Brown (7.5YR 3/2) Silt, soft, wet, low plasticity, rapid dilatancy. Sand, fine to coarse grained, sub-angular to sub-rounded, well graded. Gravel up to 4" diameter, sub-rounded to rounded, well graded. No cementation. No | | 0.0 | 1/4/18 Clear boring via 3-point hand auger to 7 ft x 12 in OD 1/22/18 @ 0945 Collect soil sample WI-AF-SB605-0001-0118 from 0-1 ft bgs | - |
| | 4.0 | 2.0 | stain/odor 20% Gravel; 25% Sand; 55% Fines Clayey SAND with Gravel (SC) | | | 1/22/18 @ 0950 Collect soil sample WI-AF-SB605-0202.5-0118 from 2-2.5 ft bgs | - |
| 5 | 6.0 | 2.0 | Brown (10YR 5/3) Sand, loose, wet, fine to coarse grained, sub-angular to subrounded, well graded. Fines: medium plasticity. Gravel up to 1" diameter, sub-rounded to rounded, poorly graded. No stain/odor 15% Gravel; 70% Sand; 15% Fines | | | 1/22/18 @ 0930 GW encountered from 0 to 4 ft bgs 1/22/18 @1000 Collect soil sample WI-AF-SB605-02.504.5-0118 from 3.5-4.5 ft bgs | - - - |
| - | 8.0 | 2.0 | Sandy Lean CLAY (CL) Brown (10YR 5/3) Clay, stiff, moist, medium plasticity, slow dilatancy. Sand, fine to medium grained, sub-angular, poorly graded. Weak cementation. Mottled FeO staining, no odor | | | 1/22/18 @ 0920 Begin drilling w/ 10 ft x 8 in OD outer casing & 10 ft x 7 in OD core barrel | - |
| 10 | 10.0 | 2.0 | 30% Sand; 70% Fines Silty SAND (SM) Dark Yellowish Brown (10YR 4/4) Sand, loose, damp, fine to | | | | |
| - | 12.0 | 2.0 | medium grained, sub-angular to sub-rounded, poorly graded. Fines: low plasticity. No cementation. No stain/odor 75% Sand; 25% Fines Clayey SAND (SC) | | 0.0 | | |
| - - - | 14.0 | 2.0 | Dark Yellowish Brown (10YR 4/4), Sand, loose, damp, fine to medium grained, sub-angular to sub-rounded, poorly graded, no cementation. Fines: medium plasticity, discontinuous clay stringers. No cementation. No stain/odor | | | | |
| 15 | 16.0 | 2.0 | 60% Sand; 40% Fines Sandy Lean CLAY (CL) Yellowish Brown (10YR 5/4) Clay, stiff, moist, medium plasticity, slow dilatancy. Sand, fine to medium grained, | | | | - - - |
| | 18.0 | 2.0 | sub-angular, poorly graded, discontiniuous clay stringers. Weak cementation. Mottled FeO staining, no odor 40% Sand; 60% Fines Clayey SAND (SC) | | 0.0 | | - |
| 20 | 20.0 | 2.0 | Yellowish Browh (10YR 5/4) Sand, loose, damp, fine to medium grained, sub-angular to subrounded, poorly graded. Fines: medium plasticity. No cementation. No stain/odor 70% Sand; 30% Fines | | | 1/22/18 @ 1010 Switch to 10 ft x 6 in OD casing & 4 10 ft x 4 in core barel & begin mud recirculation using mud puppy #MP170-25C | - - - |
| - | 22.0 | 2.0 | Sandy Lean CLAY (CL) Same description as 4.5-5.5 ft bgs 40% Sand; 60% Fines Silty SAND (SM) | | | | - |
| - | 24.0 | 2.0 | Dark Yellowish Brown (10YR 3/4) Sand, loose, moist, very fine to fine grained, sub-angular to sub-rounded, poorly graded. Fines: low plasticity. Weak cementation. No stain odor | | | | |
| 25 <u></u> | 26.0 | 2.0 | 75% Sand; 25% Fines Poorly Graded SAND with Silt (SP-SM) Dark Grayish Brown (10YR 4/2) Sand, loose, very moist, very fine to fine grained, sub-angular to sub-rounded, poorly | | | | |
| - | 28.0 | 2.0 | graded. Fines: low plasticity. Weak cementation. No stain/odor 90% Sand; 10% Fines | | | | - |
| 30 | | 2.0 | - - | | | | - |
| | | | | | | | |



BORING NUMBER:

WI-AF-MW-605

SHEET 2 OF 5

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (496011.7 N, 1200073.9 E)

ELEVATION: 30.6 ft

DRILLING CONTRACTOR: Yellow Jacket

| WATER | LEVELS | : 13.8 ft b | ogs START : 1/4/2018 | END : 1/23/2018 LOGGER : M. Green | | | | |
|-----------------------------|---------------|---------------|--|-----------------------------------|--------------|--------------------------|----------|--------------|
| | | | SOIL DESCRIPTION | | ניז | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | | SYMBOLIC LOG | PID READING HEADSPACE | COMMENTS | WELL DIAGRAM |
| - - - | 30.0 | 2.0 | Poorly Graded SAND (SP) Very Dark Gray (GLEY1 3/N) Sand, loose, very moist, no standing water, very fine to fine grained, sub-angular to sub-rounded, poorly graded. Very weak cementation. No | - - - | | 0.0 | | - |
| - - - | 34.0 | 2.0 | stain/odor 95% Sand; 5% Fines Poorly Graded SAND with Silt (SP-SM) Very Dark Gray (GLEY1 3/N) Sand, loose, very moist, very fine to fine grained, sub-angular to sub-rounded, poorly | | | | | - |
| 35 | 36.0 | 2.0 | fine to fine grained, sub-angular to sub-rounded, poorly graded. Fines: low plasticity. Very weak cementation. No stain/odor 90% Sand; 10% Fines | - - | | | | |
| - - - | 38.0 | 2.0 | | - - - | | | | - |
| 40 | 40.0 | 2.0 | | - - - | | | | |
| - | 42.0 | 2.0 | | - - - | | 0.0 | | - |
| - - - | 44.0 | 2.0 | | - - - | | | | - |
| 45 - - | 46.0 | 2.0 | | - - - | | | | |
| - - - | 48.0 | 2.0 | | - - - - | | | | - |
| 50 | 50.0 | 2.0 | | - - - | | | | Grout _ |
| - - - | 52.0 | 2.0 | | - - - | | 0.0 | | - |
| - - - | 54.0 | 2.0 | | - - - | | | | - |
| 55 - - | 56.0 | 2.0 | | - - - | | | | - |
| - - - | 58.0 | 2.0 | | - - - | | | | - |
| 60 | | 2.0 | | - - - | | | | - |
| | | | | | | | | |



BORING NUMBER:

WI-AF-MW-605

SHEET 3 OF 5

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (496011.7 N, 1200073.9 E)

ELEVATION: 30.6 ft

DRILLING CONTRACTOR: Yellow Jacket

| WATER | | | EQUIPMENT : Terrasonic 150CC; 8" surface casing, 7" barrel (0-18" b ogs START : 1/4/2018 | | ND: 1/23/2018 | | GER : M. Green | | |
|-----------------------------|---------------|---------------|--|---------------------|---------------|--------------------------|----------------|------|------------------|
| | | | SOIL DESCRIPTION | | ر2 | | 1/20/2010 | LOGG | LIV. IVI. OIGGII |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | | SYMBOLIC LOG | PID READING HEADSPACE | COMMENTS | | WELL DIAGRAM |
| - - - | 62.0 | 2.0 | | - · | | 0.0 | | | - |
| - - | 64.0 | 2.0 | Poorly Graded SAND (SP) Same description as 18-30 ft bgs | _ | | : | | | |
| 65 - | 66.0 | 2.0 | 95% Sand; 5% Fines | - | | | | | - |
| - - - | 68.0 | 2.0 | | - - - - | | | | | - |
| 70 | 70.0 | 2.0 | | _ _ _ _ | | | | | - |
| - - - | 72.0 | 2.0 | | - - - | | 0.0 | | | - |
| - | 74.0 | 2.0 | Poorly Graded SAND (SP) Same description as 18-30 ft bgs but with clay stringers | _ | | | | | |
| 75 <u></u> | 76.0 | 2.0 | 95% Sand; 5% Fines | | | | | | - - |
| - - - | 78.0 | 2.0 | Poorly Graded SAND (SP) Same description as 18-30 ft bgs 95% Sand; 5% Fines | - - | | | | | - |
| - - 80 | 80.0 | 2.0 | | | | | | | |
| - | 82.0 | 2.0 | | - - - | | 0.0 | | | |
| - - | 84.0 | 2.0 | Silty SAND (SM) Dark Gray (GLEY1 4/N) Sand, loose, moist, very fine to fine grained, sub-angular to sub-rounded, poorly graded. Fines: low plasticity. Weak cementation. No stain/odor | - - - - | | | | | - |
| 85 - - | 86.0 | 2.0 | 75% Sand; 25% Fines | _ | | | | | <u>-</u> - |
| - | 88.0 | 2.0 | | - - - - | | | | | - - - |
| 90 | | 2.0 | | _[: | | | | | - |
| | | | | | | | | | |



BORING NUMBER:

WI-AF-MW-605

SHEET 4 OF 5

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (496011.7 N, 1200073.9 E)

ELEVATION: 30.6 ft

DRILLING CONTRACTOR: Yellow Jacket

| | | : 13.8 ft l | EQUIPMENT: Terrasonic 150CC; 8" surface casing, 7" barrel (0-18) pgs START: 1/4/2018 | bg5), 0 · | ouc | | D : 1/23/2018 | | ER : M. Green |
|-----------------------------|---------------|---------------|--|--|--------------|--------------------------|---------------|------|---------------------------------------|
| | LLVLLO | | SOIL DESCRIPTION | | | LIN | . 1/20/20 TO | LOGG | LIX. IVI. OIGGII |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | OC I OT I COMMAND | SYMBOLIC LOG | PID READING HEADSPACE | COMMENTS | | WELL DIAGRAM |
| - | 90.0 92.0 | 2.0 | | - | | 0.0 | | | - |
| | 94.0 | 2.0 | Poorly Graded SAND (SP) Same description as 18-30 ft bgs | - : : - ::: | | | | | - |
| 95 - | 96.0 | 2.0 | 95% Sand; 5% Fines | - - - | | | | | |
| - - - | 98.0 | 2.0 | Silty SAND (SM) Same description as 82-93 ft bgs | - - - | | | | | - |
| 100 | 100.0 | 2.0 | 70% Sand; 30% Fines | - | | | | | |
| - | 102.0 | 2.0 | | - : : - : : - : : | | 0.0 | | | |
| - | 104.0 | 2.0 | | _ _ _ | | | | | |
| 105 | 106.0 | 2.0 | Poorly Graded SAND (SP) Same description as 18-30 ft bgs but with fine to medium | <u>- </u> | | | | | 20/40 Sand |
| - - - | 108.0 | 2.0 | sand 95% Sand; 5% Fines | - : - : - : : | | | | | |
| - 110_ | 110.0 | 2.0 | | -[:: | | | | | |
| - | 112.0 | 2.0 | | - - - - | | 0.0 | | | 2" Schedule 80 PVC 0.010" Slot- |
| | 114.0 | 2.0 | Do cyly Cynded CAND (CD) | - · · · · · · · · · · · · · · · · · · · | | | | | |
| 115 - - | 116.0 | 2.0 | Poorly Graded SAND (SP) Same description as 18-30 ft bgs 95% Sand; 5% Fines | - - - - | | | | | |
| - | 118.0 | 2.0 | CIV. GAND (ON) | - - - | | | | | Schedule - |
| 120 | | 2.0 | Silty SAND (SM) Same description as 82-93 ft bgs 80% Sand; 20% Fines | - - - - | | | | | 80 PVC - Sump - |
| | | | | | | | | | |



BORING NUMBER:

WI-AF-MW-605

SHEET 5 OF 5

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (496011.7 N, 1200073.9 E)

ELEVATION: 30.6 ft

DRILLING CONTRACTOR: Yellow Jacket

| WATER | LEVELS | : 13.8 ft b | ogs START : 1/4/2018 | | | ENI | D : 1/23/2018 LOGG | ER : M. Green |
|-----------------------------|---------------|---------------|--|-------------|--------------|--------------------------|---|------------------|
| > ~ | | Æ | SOIL DESCRIPTION | | و | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | Constant | SYMBOLIC LOG | PID READING HEADSPACE | COMMENTS | WELL DIAGRAM |
| - | 120.0 | 2.0 | Poorly Graded SAND (SP) Same description as 105-124 ft bgs 95% Sand; 5% Fines | _ | | 0.0 | | - - - |
| - | 124.0 | 2.0 | | - - | | | | - - |
| 125 | 126.0 | 2.0 | Silty SAND (SM) Same description as 18-30 ft bgs 95% Sand; 5% Fines | | | | | <u>-</u> - |
| - | 128.0 | 2.0 | | : : : | | | | - - - - |
| | | | Bottom of Boring at 128.0 ft bgs on 1/23/2018 | - - - | | | 1/22/18 @ 1405 Boring terminated @ 128 ft bgs. Construct monitoring well of 2" OD Sch 80 PVC w/ 0.010" slot screen from 105 to 115 ft bgs w/ 5 ft sump to 120 ft bgs. Backfill w/ | - - - |
| | | | | - - - | | | time release bentonite 3/8" chips from 128-120 ft bgs. #20 x 40 sand filter p 1/23/18 @ 0830 Monitoring well | - - - |
| | | | | - - - | | | dropped ~6 I nches overnight before grouting & after transition seal & sand were set. New screened interval from 105 5-115 5 ft bgs w/ | - - - |
| | | | | - - - | | | sump to 120.5 ft bgs. Sand filter pack from 103.5-115.5 ft bgs | _ |
| | | | | - - - | | | | - - - |
| | | | | - - - | | | | - - - |
| | | | | - - - | | | | |
| | | | | - - - | | | | - - - - |
| | | | | - | | | | |
| | | | | - - - | | | | - - - |
| | | | | - - - | | | | - - - |
| | | | | | | | | |



DRILLING METHOD AND EQUIPMENT: Terrasonic 150CC; 8" surface casing, 7" barrel (0'-19' bgs); 6" casing, 4" barrel (19'-115' bgs), Rotosonic

BORING NUMBER:

WI-AF-MW-606

SHEET 1 OF 4

SOIL BORING LOG

PROJECT: NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (496551.2 N, 1200406.0 E)

ELEVATION: 16.3 ft DRILLING CONTRACTOR: Yellow Jacket

WATER LEVELS: 0.3 ft bgs START: 1/4/2018 END: 1/21/2018 LOGGER: M. Green SOIL DESCRIPTION SYMBOLIC LOG F 9E E READING DEPTH BEL SURFACE (I RECOVERY NTERVAL WELL DIAGRAM SOIL NAME, USCS GROUP SYMBOL, COLOR, COMMENTS MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY Sandy SILT with Gravel (ML) 1/4/18 @1130 Clear Boring via 3-0.0 2.0 Very Dark Grayish Brown (10YR 3/2) Silt, soft, saturated, low point hand auger to 7 ft x 12 inch plasticity, rapid dilatancy. Sand, fine to coarse grained, sub-angular to sub-rounded, well graded. Gravel up to 1" diameter, sub-rounded to rounded, poorly graded. No cementation. Roots & grass. No stain/odor 1/20/18 @ 1440 Soil sample WI-AF-SB606-0001-0118 collected from 0 2.0 to 1 ft bgs 3.0 20% Gravel; 25% Sand; 55% Fines 1/20/18 @ @1430 GW encountered Well Graded SAND with Clay & Gravel (SW-SC) from 0 to 4 ft bgs 2.0 1/20/18 @ 1445 Collect soil sample Grayish Brown (10YR 5/2) Sand, loose wet, fine to coarse grained, sub-angular to sub-rounded, well graded. Gravel up 5 5.0 WI-AF-SB606-0405-0118 from 4 to to 2" diameter, sub-angular to sub-rounded, well graded. Fines: medium plasticity. No cementation. No stain/odor 15% Gravel; 75% Sand; 10% Fines 5 ft bgs 2.0 1/20/18 @ 1450 Collect soil sample WI-AF-SB606-06.507.5-0118 from Sandy Lean CLAY (CL) 7.0 Gray (10YR 5/1) Clay, stiff, moist, medium placticity, slow dilatancy. Sand, fine to medium grained, sub-angular to sub-rounded, poorly graded. Weak cementation. Mottled 6.5 to 7.5 ft bgs 2.0 1/20/18 @ 1420 Begin drilling w/ 10 ft x 8 in OD casing & 10 ft x 7 in OD 9.0 FeO staining, no odor core barrel 40% Sand; 60% Fines 1/20/18 @ 1435 GW encountered 10 Clayey SAND (SC) 2.0 from 7.5 to 9 ft bgs Dark Gray (GLEY1 4/N) Sand, loose, wet, fine to coarse 11.0 grained, sub-angular to sub-rounded, well graded gravel up to 5" diameter, angular to rounded, well graded. Fines: medium plasticity. Weak cementation. No stain/odor 30% Gravel; 50% Sand; 20% Fines 2.0 13.0 Sandy Lean CLAY (CL) Dark Gray (GLEY1 4/N) Clay, stiff, damp, medium plasticity, no dilatancy, moderate cementation. Sand, fine to coarse 2.0 grained, sub-angular to sub-rounded, well graded. Gravel to 15 15.0 to 1" diameter, angular to sub-rounded, poorly graded. No stain/odor 15% Gravel; 20% Sand; 65% Fines 2.0 0.0 Poorly Graded SAND (SP) 17.0 Very Ďark Gray (GLEY1 3/N) Sand, loose, very moist, very fine to fine grained, sub-angualar to sub-rounded, poorly graded. Weak cementation. No stain/odor 2.0 95% Sand: 5% Fines 19.0 1/20/18 @ 1520 Switch to 10 ft x 6 in casing & 10 ft x 4 in core barrel, 20 2.0 begin mud recurculation using mudpuppy #MP170-25C 21.0 20 23.0 2.0 25 25.0 2.0 0.0 27.0 2.0 29.0 30



BORING NUMBER:

WI-AF-MW-606

SHEET 2 OF 4

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION : Oak Harbor, WA (496551.2 N, 1200406.0 E)

ELEVATION: 16.3 ft

DRILLING CONTRACTOR: Yellow Jacket

| | LEVELS | | gs START: 1/4/2018 | | | ND : 1/21/2018 | ER : M. Green |
|-----------------------------|---------------|---------------|--|--------------|--------------------------|----------------|---------------|
| | | | SOIL DESCRIPTION | | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | SYMBOLIC LOG | PID READING HEADSPACE | COMMENTS | WELL DIAGRAM |
| _ | 24.0 | 2.0 | - | | | | M M - |
| - | 31.0 | | - | | ļ | | Ø Ø - |
| - | 33.0 | 2.0 | - - - | | | | - |
| 35 | 35.0 | 2.0 | | | | | - |
| - | 37.0 | 2.0 | | | 0.0 | | |
| | 39.0 | 2.0 | | | | | - |
| 40 | 41.0 | 2.0 | | | | | |
| - | 43.0 | 2.0 | - - - - - | | | | Grout - |
| 45 | 45.0 | 2.0 | - - - - - | | | | - |
| - | 47.0 | 2.0 | | | 0.0 | | - - - |
| - | 49.0 | 2.0 | - - - | | | | - - - |
| 50 | 51.0 | 2.0 | | | | | - - |
| | 53.0 | 2.0 | | | | | |
| 55 | 55.0 | 2.0 | - - - | | | | |
| | 57.0 | 2.0 | - - - | | 0.0 | | |
| | 59.0 | 2.0 | | | | | - |
| 60 | | | - | | 1 | | |
| | | | | | | | YA 1YA |
| | | | | | | | |



DRILLING METHOD AND EQUIPMENT: Terrasonic 150CC; 8" surface casing, 7" barrel (0'-19' bgs); 6" casing, 4" barrel (19'-115' bgs), Rotosonic

BORING NUMBER:

WI-AF-MW-606

SHEET 3 OF 4

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION : Oak Harbor, WA (496551.2 N, 1200406.0 E)

ELEVATION: 16.3 ft DRILLING CONTRACTOR: Yellow Jacket

| WATER | | | · • • • • • • • • • • • • • • • • • • • | <i>O</i> // | | | D : 1/21/2018 | | ER : M. Green |
|-----------------------------|---------------|---------------|--|--|--------------|--------------------------|---|--------|---|
| | | | SOIL DESCRIPTION | (1 | Ţ | | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | SOLOTION | STIMBOLIC LO | PID READING HEADSPACE | COMMENTS | | WELL DIAGRAM |
| _ | 61.0 | 2.0 | Clayey SAND (SC) Dark Gray (GLEY1 4/N) Sand, loose, saturated, fine to | -/// | | | 1/21/18 @ 1030 GW encou from 60 to 62 ft bgs | ntered | ⊗ ⊗ - |
| - | 63.0 | 2.0 | coarse grained, sub-angular to sub-rounded, well graded. Fines: medium plasticity. No cementation. Abundant pieces of wood from 0.5" to 3" diameter. No stain, fetid odor 70% Sand; 30% Fines Poorly Graded SAND (SP) | | | | 110111 00 to 02 it bgs | | |
| 65 <u></u> | 65.0 | 2.0 | Same description as 12-60 ft bgs 95% Sand; 5% Fines SILT with Sand (ML) | _/ | T | | | | |
| - | 67.0 | 2.0 | Gray (GLEY1 5/N) Silt, stiff, damp, rapid dilatancy, low plasticity. Sand, very fine to fine grained, sub-angular to sub-rounded, poorly graded. Weak cementation. No stain/odor \15% Sand; 85% Fines | - | | 0.0 | | | - |
| | 69.0 | 2.0 | Silty SAND (SM) Gray (GLEY1 5/N) Sand, loose, moist, very fine to fine grained, sub-angular to sub-rounded, poorly graded, | | | | | | |
| 70 | 71.0 | 2.0 | micaceous. Fines: low plasticity. Weak cementation. No stain/odor 65% Sand; 35% Fines | - - - | | | | | |
| | 73.0 | 2.0 | | - ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; | | | | | |
| 75 <u></u> | 75.0 | 2.0 | | - - - | | | | | |
| - | 77.0 | 2.0 | | - | | 0.1 | | | |
| | 79.0 | 2.0 | | - - - - | | | | | |
| 80 | 81.0 | 2.0 | | _ _ _ | | | | | - - - |
| | 83.0 | 2.0 | Poorly Graded SAND with Silt (SP-SM) Dark Gray (GLEY1 4/N) Sand, loose, moist, very fine to fine | - : : - : : - :: : | | | | | |
| 85 | 85.0 | 2.0 | grained, sub-angular to sub-rounded, poorly graded, micaceous. Fines: low plasticity. Weak cementation. No stain/odor 90% Sand; 10% Fines | - :: - :: - :: | | | | | - |
| | 87.0 | 2.0 | | - | 111111 | 0.0 | | | → 3/8" - Bentonite - Chips |
| - | 89.0 | 2.0 | | - : : - : : - :: : | 11111 | | | | - - - - - - - - - - - - - - - - - - - |
| 90 - | | | | <u>-M</u> | 1 | | | | |



BORING NUMBER:

WI-AF-MW-606

SHEET 4 OF 4

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION : Oak Harbor, WA (496551.2 N, 1200406.0 E)

ELEVATION: 16.3 ft

DRILLING CONTRACTOR: Yellow Jacket

| , | | : 0.3 ft bgs | QUIPMENT: Terrasonic 150CC; 8" surface casing, /" barrel (0-19") START: 1/4/2018 | <u></u> | ouc | | | LOGG | ER : M. Gr | een |
|-----------------------------|---------------|---------------|--|---------------------------------------|--------------|--------------------------|--|--|------------|---------------------------------|
| | | | SOIL DESCRIPTION | , | ŋ | | 2 | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | | SYMBOLIC LOG | PID READING HEADSPACE | COMMENTS | | WELL | DIAGRAM |
| - | 91.0 | 2.0 | Poorly Graded SAND (SP) Same description as 12-60 ft bgs but with fine to medium sand | _ :: _ :: | | | | | | - |
| - - - | 93.0 | 2.0 | 95% Sand; 5% Fines | | | | | | | - - - |
| 95 | 95.0 | 2.0 | | | | | | | | 2" Sched ule |
| - | 97.0 | 2.0 | | - :: - :: | | 0.0 | | | | 80 PVC 0.010" Slot- - |
| - - - | 99.0 | 2.0 | Silty SAND (SM) Same description as 66 to 82 ft bgs but with isolated wood pieces up to 2" diameter 70% Sand; 30% Fines | - | | | | | | - - - |
| 100 _ _ | 101.0 | 2.0 | Poorly Graded SAND with Silt (SP-SM) Same description as 82-90 ft bgs 90% Sand; 10% Fines | - - - - - - | | | | | | - - - - |
| - | 103.0 | 2.0 | | - ; r - ; i ; - ; i ; - ; i | | | | | • | Schedule - |
| 105 | 105.0 | 2.0 | | - - - | | | | | | Sump - - - - |
| - | 107.0 | 2.0 | SILT (ML) | - : - - : - | | 0.0 | | | | - - - |
| - - - | 109.0 | 2.0 | Grayish Brown (10YR 5/2) Silt, stiff, damp, low plasticity, rapid dilatancy. Moderate cementation. Disseminated FeO staining, no odor \10% Sand; 90% Fines | _ _ _ | | | | | | - - - |
| 110 - - | 111.0 | 2.0 | Lean CLAY (CL) Dark Gray (GLEY1 4/N) Clay, very stiff, dry, medium plasticity, no dilatancy, platy texture. Well cemented. No stain/odor | | | | | | | <u>-</u> - - |
| - | 113.0 | 2.0 | 5% Sand; 95% Fines | - - - | | | | | | - - - |
| 115_ | 115.0 | 2.0 | Bottom of Boring at 115.0 ft bgs on 1/21/2018 | - - | | | 1/21/18 @ 1220 Boring termina | ated | | - - - |
| | | | Bottom of Boning at 113.0 it bys off 1/21/2016 | - - - - - - - | | | @ 115 ft bgs, construct monito well w/ 2" Sch 80 PVC & 0.010 screened from 90 to 100 ft bgs 5-ft sump to 105 ft bgs. Backfil 115 to 106 ft bgs w/ time releas 3/8" bentonite chips. #20/40 sa filter p | ring " slot w/ a I from se | | - - - - - - - |
| | | | | | | | | | | |



BORING NUMBER:

WI-AF-MW-607

SHEET 1 OF 7

SOIL BORING LOG

PROJECT: NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (496664.6 N, 1200992.8 E)

ELEVATION: 19.2 ft DRILLING CONTRACTOR: Yellow Jacket

DRILLING METHOD AND EQUIPMENT: Terrasonic 150CC; 8" casing, 7" barrel, Rotosonic

WATER LEVELS: 3.9 ft bgs START: 1/4/2018 END: 1/20/2018 LOGGER: M. Green SOIL DESCRIPTION SYMBOLIC LOG F ŠĒ E READING DEPTH BEL SURFACE (I RECOVERY NTERVAL WELL DIAGRAM SOIL NAME, USCS GROUP SYMBOL, COLOR, COMMENTS MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY Sandy SILT with Gravel (ML) 1/4/18 @ 0825 Begin clearing for 0.0 1.0 Very Dark Gray (10YR 3/1) Silt, soft saturated, low plasticity, utilities via 3-point hand auger to 7 f rapid dilatancy. Sand, fine to coarse grained, sub-angular to x 12 in OD 1/12/18 @ 1525 Collect soil sample WI-AF-SB607-000.5-0118 from 0sub-rounded, well graded. Gravel up to 3" diameter. 2.0 sub-rounded to rounded, well graded. No cementation. No 0.5 ft bgs 3.0 stain/odor 1/12/18 @ 1530 Collect soil sample WI-AF-SB607-0203-0118 from 2-3 20% Gravel; 25% Sand; 55% Fines Clayey SAND with Gravel (SC) 2.0 Brown (10YR 5/3) Sand, dense, wet, fine to coarse grained, ft bgs 1/12/18 @ 1500 GW encountered sub-angular to sub-rounded, well graded. Gravel up to 5' diameter, sub-rounded to rounded, well graded. Fines: 5 5.0 from 0 to 4 ft bgs medium plasticity. Moderate cementation. No stain/odor 20% Gravel; 50% Sand; 30% Fines 1/12/18 @ 1545 Collect soil sample 2.0 WI-AF-SB607-0405-0118 from 4-5 7.0 Clayey SAND with Gravel (SC) Same description as 0.5-3 ft bgs but Gray (10YR 5/1), gravel 1/12/18 @ 1450 Begin drilling w/ 8up to 1" diameter, poorly graded, moderate cementation 20% Gravel; 60% Sand; 20% Fines in OD x 10-ft casing & 7-in OD X 10-2.0 ft core- barrel 9.0 Sandy Lean CLAY with Gravel (CL) Dark Gray (GLEY1 4/N) Clay, stiff, dry, moderate placticity, 10 slow dilatancy. Sand, fine to medium grained, sub-rounded to 2.0 1/12/18 @ 1555 Collect soil sample WI-AF-SB607-1011-0118 from 10sub-angular, poorly graded. Gravel up to 2" diameter, 11.0 subrounded to rounded, well graded. Weak cementation. No 11 ft bgs stain/odor 15% Gravel; 35% Sands; 50% Fines 2.0 Sandy Lean CLAY (CL) 13.0 Same description as 4-9 ft bgs but moist 15% Gravel; 35% Sand; 50% Fines Sandy Lean CLAY (CL) 2.0 Same description as 4-9 ft bgs but saturated 15 15.0 15% Gravel; 35% Sand; 50% Fines Sandy SILT (ML) Gray (GLEY1 5/N) Silt, soft, wet, low plasticity, rapid dilatancy. Sand, fine grained, subrounded, poorly graded. No 2.0 0.0 17.0 cementation. No stain/odor 10% Gravel; 40% Sand; 50% Fines 2.0 Well Graded SAND with Clay and Gravel (SW-SC) 1/12/18 @ 1545 GW encountered from 10 to 18.5 ft bgs 1/12/18 @ 1600 GW encountered 19.0 Grayish Brown (10YR 5/2) Sand, loose, saturated, fine to coarse grained, sub-rounded to sub-angular, well graded. Gravel up to 3.5" diameter, sub-rounded to rounded, well 20 2.0 graded. No stain/odor from 19 to 22 ft bgs 30% Gravel: 60% Sand: 10% Fines 21.0 SILT (ML) Very Dark Gray (GLEY1 3/N) Silt, dense, damp, low 20 plasticity, rapid dilatancy. Weak cementation. No stain/odor 23.0 5% Sand: 95% Fines Poorly Graded SAND (SP) Dark Gray (GLEY1 4/N) Sand, loose, saturated, fine to 2.0 medium grained, sub-rounded to sub-angular, poorly graded. Fines: medium plasticity, clay stringers up to 2" thick. No 25 25.0 stain/odor 10% Gravel; 80% Sand; 10% Fines 2.0 0.0 Clayey SAND with Gravel (SC) 27.0 Dark Gray (GLEY1 4/N) Sand, loose, saturated, fine to coarse grained, sub-rounded to sub-angular, well graded. Gravel up to 2" diameter, sub-rounded to rounded, well 2.0 graded. Fines: medium plasticity, clay stringers. No 29.0 cementation. No stain/odor 20% Gravel; 60% Sand; 20% Fines 30



BORING NUMBER:

WI-AF-MW-607

SHEET 2 OF 7

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (496664.6 N, 1200992.8 E)

ELEVATION: 19.2 ft DRILLING CONTRACTOR: Yellow Jacket

| DRILLIN | DRILLING METHOD AND EQUIPMENT : Terrasonic 150CC; 8" casing, 7" barrel, Rotosonic | | | | | | | | |
|-----------------------------|---|---------------|--|-----|--------------------|--------------------------|---|--------------|--|
| WATER | LEVELS | : 3.9 ft bo | | EN | D : 1/20/2018 LOGG | ER : M. Green | | | |
| <u></u> | F | E. | SOIL DESCRIPTION |] ; | 90 | (D | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | | SYMBOLIC LOG | PID READING HEADSPACE | COMMENTS | WELL DIAGRAM | |
| _ | 31.0 | 2.0 | SILT (ML) Same description as 18.5-19 ft bgs | | | | | 8 8 - | |
| _ | 31.0 | | 5% Sand; 95% Fines | | | | | | |
| - | 33.0 | 2.0 | Poorly Graded SAND (SP) Dark Gray (GLEY1 4/N), loose, moist, very fine to fine sand, subrounded to subangular, poorly graded, isolated gravel up to 4" diameter, rounded, micaceous. Very weak cementation. | | | | | | |
| 35 | 35.0 | 2.0 | No stain/odor 10% Gravel; 85% Sand; 5% Fines Poorly Graded SAND (SP) | | | | | | |
| - - - | 37.0 | 2.0 | Dark Gray (GLEY1 4/N), loose, moist, very fine to fine sand, subrounded to subangular, poorly graded, isolated gravel up to 4" diameter, rounded, micaceous. Very weak cementation. No stain/odor | | | 0.0 | | | |
| - - - | 39.0 | 2.0 | 10% Gravel; 85% Sand; 5% Fines | | | | | | |
| 40 | 41.0 | 2.0 | <u>-</u> - | | | | 1/13/18 @ 0945 Heaving sands 1/13/18 @ 1123 200 gallons water added to mitigate heaving sands | | |
| = | 43.0 | 2.0 | - - - | - | | | | | |
| - - 45_ | 45.0 | 2.0 | _ _ | | | | | | |
| - | 47.0 | 2.0 | - - - | - | | 0.0 | | Grout - | |
| = | 49.0 | 2.0 | - - - | | | | | | |
| 50 | 51.0 | 2.0 | | | | | 1/13/18 @ 1200 200 gallons water added to mitigate heaving sands | | |
| - | 53.0 | 2.0 | - - - | | | | | | |
| 55 | 55.0 | 2.0 | - - - | | | | | | |
| - | 57.0 | 2.0 | - - - - | | | 0.3 | | | |
| - | 59.0 | 2.0 | - - - | | | | | | |
| 60 | | | - | | | | | | |
| | | | | Ť | | | | YA 1YA | |
| | | | | | _ | | | | |



BORING NUMBER:

WI-AF-MW-607

SHEET 3 OF 7

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (496664.6 N, 1200992.8 E)

ELEVATION: 19.2 ft DRILLING CONTRACTOR: Yellow Jacket

| DRILLIN | DRILLING METHOD AND EQUIPMENT : Terrasonic 150CC; 8" casing, 7" barrel, Rotosonic | | | | | | | | |
|-----------------------------|---|---------------|--|-----------------------|--------------|--------------------------|---|---------------|--|
| WATER | LEVELS | : 3.9 ft bo | START : 1/4/2018 | | | EN | D : 1/20/2018 LOGG | ER : M. Green | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | | SYMBOLIC LOG | PID READING HEADSPACE | COMMENTS | WELL DIAGRAM | |
| _ | 61.0 | 2.0 | | - | | | 1/13/18 @ 1300 150 gallons water added to mitigate heaving sands | 88 - | |
| - - - | 63.0 | 2.0 | | - - - - | | | added to fillingate fleaviling sailus | | |
| 65 | 65.0 | 2.0 | | | | | 1/13/18 @ 1355 No Recovery from 65-69 ft bgs | | |
| - - - | 67.0 | 2.0 | No Recovery | - - - | | 0.2 | 1/13/18 @ 1400 Heaving sands are preventing additional casing advancement dispite added water (550 gallons total). Prepare to add mud using slurry of water & cecto | | |
| - - - | 69.0 | 2.0 | | _ _ _ | | | "Gel-X drilling fluid", mixed & recirculated through a mud puppy MP170-25C | | |
| 70 | 71.0 | 2.0 | Poorly Graded SAND (SP) Same description as 25-65 ft bgs 95% Sand; 5% Fines | | | | 1/13/18 @ 1500 Resume drilling w/mud recirculation. Additional 9-in OD x 10-ft conductor casing advanced to 20 ft bgs & sealed at | | |
| - | 73.0 | 2.0 | | - - - | | | top with bentonite to close system & prevent spills | - | |
| 75 | 75.0 | 2.0 | | | | | | | |
| - | 77.0 | 2.0 | | | | 0.0 | | | |
| - | 79.0 | 2.0 | | | | | | | |
| 80 | 81.0 | 2.0 | | <u>-</u> | | | | | |
| - | 83.0 | 2.0 | | | | | | | |
| 85 | 85.0 | 2.0 | | | | | | | |
| - | 87.0 | 2.0 | | - - - - - | | 0.2 | | | |
| - | 89.0 | 2.0 | | | | | | | |
| 90 | | | | _ | | | | | |



BORING NUMBER: WI-AF-MW-607

SHEET 4 OF 7

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

DRILLING METHOD AND EQUIPMENT: Terrasonic 150CC; 8" casing, 7" barrel, Rotosonic

LOCATION: Oak Harbor, WA (496664.6 N, 1200992.8 E)

ELEVATION: 19.2 ft DRILLING CONTRACTOR: Yellow Jacket

END: 1/20/2018 WATER LEVELS: 3.9 ft bgs START: 1/4/2018 LOGGER: M. Green SOIL DESCRIPTION SYMBOLIC LOG (FT WQT(E PID READING HEADSPACE RECOVERY DEPTH BEL SURFACE (F INTERVAL WELL DIAGRAM SOIL NAME, USCS GROUP SYMBOL, COLOR, COMMENTS MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY 91.0 2.0 93.0 2.0 3/8' 95 95.0 Bentonite-Chips 2.0 0.0 97.0 2.0 99.0 -20/40 Sand 100 2.0 101.0 2.0 103.0 2.0 105 105.0 2" Schedule Poorly Graded SAND (SP) 80 PVC - - 0.010" Slot-Same description as 25-65 ft bgs but fine to medium sand 2.0 0.1 95% Sand; 5% Fines 107.0 2.0 109.0 110 2.0 111.0 Silty SAND (SM) Dark Gray (GLEY1 4/N) Sand, loose, very moist, very fine to 2.0 fine grained, sub-orunded to sub-angular, poorly graded. Schedule Fines: low plasticity. Weak cementation. No stain/odor 113.0 80 PVC 85% Sand; 15% Fines Sump 2.0 115 115.0 2.0 Silty SAND (SM) 0.0 117.0 Same description as 111-116 ft bgs but moderate cementation 70% Sand; 30% Fines 2.0 Silty SAND (SM) Same description as 111-116 ft bgs 119.0 85% Sand; 15% Fines 120



BORING NUMBER:

WI-AF-MW-607

SHEET 5 OF 7

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (496664.6 N, 1200992.8 E)

ELEVATION: 19.2 ft DRILLING CONTRACTOR: Yellow Jacket

DRILLING METHOD AND EQUIPMENT : Terrasonic 150CC; 8" casing, 7" barrel, Rotosonic

| | | : 3.9 ft bg | START: 1/4/2018 | | | EN | ID : 1/20/2018 LOGO | GER : M. Green | _ |
|-----------------------------|---------------|---------------|---|-----------------------------|--------------|--------------------------|--|----------------|---|
| | | l i | SOIL DESCRIPTION | | פ | | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | Carro | STIMBOLIC LO | PID READING HEADSPACE | COMMENTS | WELL DIAGRAM | |
| _ | 121.0 | 2.0 | | - ::: | | | | | _ |
| - | 123.0 | 2.0 | | - [] ; - ; ; - ; ; ; | | | | | - |
| 125 <u> </u> | 125.0 | 2.0 | Poorly Graded SAND (SM) Same description as 25-65 ft bgs 95% Sand; 5% Fines | | | | | | - |
| - - | 127.0 | 2.0 | | | | 0.0 | | | - |
| - | 129.0 | 2.0 | | - - - | | | | | - |
| 130 <u> </u> | 131.0 | 2.0 | Lean CLAY (CL) Gray (GLEY1 5/N) Clay, stiff, damp, medium plasticity, no dilatancy. Well cemented. No stain/odor 10% Sand; 90% Fines | - - - | | | | | - |
| - - - | 133.0 | 2.0 | | - - - | | | | | - |
| 135 | 135.0 | 2.0 | | - - - | | | | | - |
| - - - | 137.0 | 2.0 | | - - - - | | 0.1 | | | - |
| - - - | 139.0 | 2.0 | | - - - | | | 4/44/40 @ 4500 H 1 1/11/15 | | - |
| 140 | 141.0 | 2.0 | Sandy Lean CLAY (CL) Gray (GLEY1 5/N) Clay, stiff, dry to damp, medium plasticity slow dilatancy, platy texture. Sand, very fine to fine grained, sub-angular to sub-rounded, poorly graded, sands appear as continuous & discontinuous interbeds ~1/8" to 0.5" thick | // | | | 1/14/18 @ 1530 Hard drilling 1/14/18 @ 1555 Switch to 10-ft x 6- in OD casing w/ 10-ft x 4-in core | | - |
| - - - | 143.0 | 2.0 | spaced every 0.25" to 6". Moderate cementation. 30% Sands; 70% Fines | - - - - | | | barrel | | - |
| 145 <u> </u> | 145.0 | 2.0 | | - - - - | | | | | - |
| - | 147.0 | 2.0 | | - - - - | | 0.0 | | | - |
| - | 149.0 | 2.0 | | - - - - | | | | | - |
| 150 _ | | | | [// | | | | | _ |
| | | | | | | | | | |
| - | | | | | _ | | 1 | | _ |



BORING NUMBER: WI-AF-MW-607

SHEET 6 OF 7

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

DRILLING METHOD AND EQUIPMENT : Terrasonic 150CC; 8" casing, 7" barrel, Rotosonic

LOCATION: Oak Harbor, WA (496664.6 N, 1200992.8 E)

ELEVATION: 19.2 ft DRILLING CONTRACTOR: Yellow Jacket

| , | VATER LEVELS: 3.9 ft bgs START: 1/4/2018 | | | | | | 2018 | LOGG | ER : M. G | reen |
|-----------------------------|--|---------------|--|--------------|-------------|-----------|----------|------|-----------|-----------|
| | | | SOIL DESCRIPTION | (D | 1 | , 20/2 | | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | SYMBOLIC LOG | PID READING | HEADSPACE | COMMENTS | | WELI | _ DIAGRAM |
| _ | 151.0 | 2.0 | - | | 1 | | | | | _ |
| - | 151.0 | | - | | 1 | | | | | - |
| | | 2.0 | _ | | | | | | | |
| - | 153.0 | | - | | 1 | | | | | - |
| _ | | | | | 1 | | | | |] |
| - | | 2.0 | - | | | | | | | - |
| 155_ | 155.0 | | | | 1 | | | | | _ |
| _ | | | - | - | 1 | | | | | _ |
| | | 2.0 | | | 10 | .1 | | | | _ |
| - | 157.0 | | - | | 1 | | | | | - |
| _ | | 2.0 | | | | | | | | |
| - | 159.0 | | - | | 1 | | | | | - |
| | | | | | | | | | |] |
| 160 | | 2.0 | - | | 1 | | | | | |
| _ | 161.0 | | | | 1 | | | | | _ |
| _ | | 2.0 | _ | | 1 | | | | | _ |
| _ | 162.0 | 2.0 | _ | | | | | | | _ |
| - | 163.0 | | - | | 1 | | | | | - |
| _ | | 2.0 | _ | | | | | | | |
| 165 | 165.0 | | Same description as above | | 1 | | | | | |
| - | | | - | • | | | | | | - |
| | | 2.0 | | | ٥ [| .2 | | | | _ |
| _ | 167.0 | | - | - | 1 | | | | | _ |
| _ | | 2.0 | | | 1 | | | | |] |
| - | 169.0 | | - | | 1 | | | | | - |
| 170 | | | | | | | | | | _ |
| 170 | | 2.0 | - | | 1 | | | | | |
| _ | 171.0 | | - | | | | | | | _ |
| - | | 2.0 | - | | 1 | | | | | - |
| _ | 173.0 | 2.0 | - | | | | | | | _ |
| _ | 173.0 | | - | | 1 | | | | | _ |
| - | | 2.0 | - | | | | | | | _ |
| 175_ | 175.0 | | | | 1 | | | | | |
| - | | | - | <i>\\\\\</i> | 1 | | | | | - |
| | | 2.0 | | | 1 0 | 0.0 | | | | _ |
| - | 177.0 | - | - | //// | 1 | | | | | - |
| | | 2.0 | | | | | | | |] |
| - | 179.0 | | - | | 1 | | | | | - |
| 180 | | |] | | | | | | | = |
| 100 | | | | <i>[[]]</i> | 1 | | | | | |
| | | | | | | | | | | |



BORING NUMBER: WI-AF-MW-607

SHEET 7 OF 7

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (496664.6 N, 1200992.8 E)

ELEVATION: 19.2 ft DRILLING CONTRACTOR: Yellow Jacket

DRILLING METHOD AND EQUIPMENT : Terrasonic 150CC; 8" casing, 7" barrel, Rotosonic WATER LEVELS: 3.9 ft bgs START: 1/4/2018 END: 1/20/2018 LOGGER: M. Green SOIL DESCRIPTION SYMBOLIC LOG (FT VOTE VOTE E PID READING HEADSPACE RECOVERY DEPTH BEL SURFACE (F NTERVAL WELL DIAGRAM SOIL NAME, USCS GROUP SYMBOL, COLOR, COMMENTS MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY 181.0 2.0 183.0 2.0 185_ 185.0 2.0 187.0 2.0 189.0 190 2.0 <u>191</u>.0 2.0 193.0 2.0 195 195.0 Clayey SAND (SC)
Gray (GLEY1 5/N) Sand, loose, moist, very fine to fine 2.0 0.2 grained, sub-angular to sub-rounded, poorly graded. Fines: 197.0 medium plasticity. No cementation. No stain/odor 60% Sand; 40% Fines Sandy Lean CLAY (CL) 2.0 Same description as 139-195 ft bgs 199.0 30% Sand; 70% Fines 1/15/18 @ 1150 Boring terminated Clayey SAND (SC) Same description as 195.5-197.5 ft bgs @ 199 ft bgs 1/20/18 Complete well by backfilling from 116 to 199 ft bgs w/ time release 3/8" bentonite chips & 60% Sand; 40% Fines Sandy Lean CLAY (CL) Same description as 139-195 ft bgs installing a monitoring well 30% Sand; 70% Fines constructed of 2" OD Sch. 80 PVC Bottom of Boring at 199.0 ft bgs on 1/20/2018 screened w/ 0.010" slot from 100 to 110 ft bgs w/ a 5-ft sump to 115 ft bgs & #20/40 filter pack sand from 98 to 116 ft bgs. See well completion diagram for details.



BORING NUMBER:

WI-AF-MW-608

SHEET 1 OF 3

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (494698.5 N, 1200421.1 E)

ELEVATION: 49.5 ft DRILLING CONTRACTOR: Yellow Jacket

| WATER LEVELS: 31.7 ft bgs SOIL DESCRIPTION SOI | LOGGER : M. Green WELL DIAGRAM |
|--|---|
| SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR COMMENTS SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY 1.0 1.0 Sandy SILT with Gravel (ML) Very Dark Grayish Brown (10YR 3/2) Silt, soft, wet, low plasticity, rapid dilatancy. Sand, fine to coarse grained, sub-angular to sub-rounded, well graded. No cementation. No stain/odor 2.0 2.0 3.0 2.0 7.0 2.0 10 2.0 11.0 2.0 11.0 2.0 11.0 2.0 12.0 13.0 2.0 13.0 2.0 13.0 2.0 13.0 2.0 13.0 2.0 15.0 15.0 15.0 2.0 15.0 1 | WELL DIAGRAM |
| Sandy SiLT with Gravel (ML) Very Dark Grayish Brown (10YR 3/2) Silt, soft, wet, low plasticity, rapid dilatancy, Sand, fine to coarse grained, sub-angular to sub-rounded, well graded. No cementation. No stain/odor 20% Gravel; 25% Sand; 55% Fines Clayey SAND with Gravel (SC) Dark Yellowish Brown (10YR 4/4) Sand, loose, moist, fine to coarse grained, sub-angular to sub-rounded, well graded. Gravel up to 1" diameter, sub-rounded, poorly graded. Fines: medium plasticity. Weak cementation. No stain/odor 15% Gravel; 65% Sand; 20% Fines Sandy Lean CLAY (CL) Pale Brown (10YR 6/3) Clay, stiff, moist, medium plasticity, slow dilatancy. Sand, fine to coarse grained, sub-angular to sub-round, well graded. Moderate cementation. Mottled FeO staining, no odor 30% Sand; 70% Fines Sandy Lean CLAY (CL) Gray (10YR 5/1) Clay, stiff, damp, medium plasticity, slow dilatancy. Sand, the to coarse grained, sub-angular to sub-rounded, well graded. Moderate cementation. Disseminated, FeO staining, no odor 20% Gravel; 25% Sand; 55% Fines SiLT with Sand (ML) Dark Grayish Brown (10YR 3/2) Silt, soft, wet, low plasticity, rapid dilatancy. Sand, very fine grained, sub-rounded, poorly | |
| _ graded. Weak cementation. No stain/odor _ | oring via 3- t x 12 inch t soil sample 18 from 0 to ncountered t soil sample 5-0118 from drilling w/ 10- x 4-in core t soil sample |
| 2.0 20% Sand; 80% Fines Fat CLAY (CH) Very Dark Gray (GLEY1 4/N) Clay, very stiff, dry, high plasticity, no dilatancy. Well cemented. No stain/odor 5% Sand; 95% Fines | Grout - |
| Lean CLAY with Sand (CL) 21.0 Lean CLAY with Sand (CL) Dark Gray (GLEY1 4/N) Clay, stiff, damp, medium plasticity, slow dilatancy. Sand very fine to fine grained, sub-rounded, poorly graded, sand stringers. Weak cementation. No stain/odor 20% Sand; 80% Fines | |
| 25 25.0 | |
| Poorly Graded SAND with Silt (SP-SM) Very Dark Gray (GLEY1 3/N) Sand, loose, very moist, very fine to fine grained, sub-angular to sub-rounded, poorly graded. Fines: low plasticity. Weak cementation. No stain/odor | - |
| 2.0 90% Sand; 10% Fines | - |



BORING NUMBER:

WI-AF-MW-608

SHEET 2 OF 3

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (494698.5 N, 1200421.1 E)

ELEVATION: 49.5 ft DRILLING CONTRACTOR: Yellow Jacket

DRILLING METHOD AND EQUIPMENT : Terrasonic 150CC; 6" casing, 4" barrel, Rotosonic

| WATER | | | ogs START: 1/6/2018 | | Е | ND : 1/24/2018 LOG | GER : M. Green |
|-----------------------------|---------------|---------------|--|--------------|--|---|------------------------------------|
| | | | SOIL DESCRIPTION | ניז | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | SYMBOLIC LOG | PID READING | COMMENTS | WELL DIAGRAM |
| | 24.0 | 2.0 | Silty SAND (SM) Grayish Brown (10YR 5/2) Sand, dense, damp, very fine to | П | | | X X - |
| - - - - | 33.0 | 2.0 | Grayish Brown (10/R 3/2) Sand, dense, damp, very line to fine grained, sub-angular to sub-rounded, poorly graded. Fines: low plasticity. Moderate cementation. No stain/odor 85% Sand; 15% Fines Silty SAND (SM) Very Dark Gray (GLEY1 3/N) Sand, loose, moist, very fine to | | | | |
| 35 | 35.0 | 2.0 | fine grained, sub-angular to sub-rounded, poorly graded. Fines: low plasticity. Shells up to 0.5" diameter. Weak cementation. No stain/odor 70% Sand; 30% Fines | | ; ;; ;; ;; ;; ;; ;; ;; 0.2 | | |
| | 37.0 | 2.0 | Poorly Graded SAND with Silt (SP-SM) Dark Gray (GLEY1 4/N) Sand, loose, moist to very moist, very fine to fine grained, sub-angular to sub-rounded, poorly graded. Fines: low plasticity. Weak cementation. No | | | 2 | → 3/8" - Bentonite - Chips - |
| | 39.0 | 2.0 | stain/odor 90% Sand; 10% Fines Poorly Graded SAND (SP) | | | 1/24/18 @ 0820 GW encountered | |
| 40 <u></u> | 41.0 | 2.0 | Dark Gray (GLEY1 4/N) Sand, loose, wet, very fine to fine grained, sub-angular to sub-rounded, poorly graded. No cementation. No stain/odor 95% Sand; 5% Fines | | | from 39 to 51.5 ft bgs. Core samples from 41 to 49 ft bgs fell from core barrel & were caught in a bucket. | |
| | 43.0 | 2.0 | - - - - | | | 1/24/18 @ 0910 Collect soil samples WI-AF-SB608-3940-0118, WI-AF-SB608-3940-0118-MS, WI- AF-SB608-3940-0118-SD from 39 | |
| 45 | 45.0 | 2.0 | - - - | | | to 40 ft bgs | 2" Schedule |
| | 47.0 | 2.0 | - - - | | 0.1 | 1 | 80 PVC 0.010" Slot- |
| | 49.0 | 2.0 | - - - | | | | |
| 50 - - | 51.0 | 2.0 | | | | | |
| | 53.0 | 2.0 | Lean CLAY with Sand (CL) Gray (GLEY1 5/N) Clay, stiff, damp, medium plasticity, slow dilatancy. Sand, very fine grained, sub-rounded, poorly graded. Moderate cementation. No stain/odor | | | 1/24/18 @ 0835 Boring terminated | Schedule - 80 PVC - Sump - |
| 55 <u></u> | 55.0 | 2.0 | 15% Sand; 85% Fines | | | @ 59 ft bgs. Contruct monitoring well; 2" OD Sch. 80 PVC w/ 0.010" slot screened from 40-50 ft bgs, 5-f sump to 55 bgs. Backfill from 59-55 | |
| - | 57.0 | 2.0 | Silty SAND (SM) Dark Gray (GLEY1 4/N) Sand, loose, very moist, very fine to fine grained, sub-angular to sub-rounded, poorly graded | | 0.1 | ft bgs w/ time release 3/8" bentonite chips, 20x40 filter pack sand from 55-38 ft bgs, 5-ft transition seal of time release 3/8" bentonite chips | - |
| - | 59.0 | 2.0 | Fines: low plasticity. No stain/odor | } | from 38-33 ft bgs. See well completion diagram for details | - | |
| | | | 3 | | | | |



ELEVATION: 53.1 ft

PROJECT NUMBER: 695610.04.FI.WI

BORING NUMBER:

WI-AF-MW-609

SHEET 1 OF 3

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (494571.9 N, 1200607.1 E)

DRILLING CONTRACTOR: Yellow Jacket

DRILLING METHOD AND EQUIPMENT : Terrasonic 150CC; 6" casing, 4" barrel, Rotosonic

| WATER | LEVELS | : 35.4 ft k | ogs START : 1/5/2018 | | | ΕN | D : 1/25/2018 LOGO | GER : M. Green |
|-----------------------------|---------------|---------------|---|-------------------------|---|--------------------------|---|------------------------|
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | SYMBOLIC LOG | | PID READING HEADSPACE | COMMENTS | WELL DIAGRAM |
| _ | 0.0 1.0 | 1.0 | Sandy SILT (ML) Dark Grayish Brown (10YR 4/2) Silt, soft, saturated, low | Г | | 0.4 | 1/5/18 @ 1450 Clear boring via 3- point hand auger to 7 ft x 12 in OD | |
| - - - | 3.0 | 2.0 | plasticity, rapid dilatancy. Sand, fine to coarse grained, sub-angular to sub-rounded, well graded. No cementation. Roots & grass. No stain/odor 10% Gravel; 25% Sand; 65% Fines | | | | 1/24/18 @ 1320 GW encountered from 0 to 0.5 ft bgs 1/24/18 @ Collect soil sample WI-AF-SB209-00.501.5-0118 from 0.5 to 1.5 ft bgs | |
| 5_ | 5.0 | 2.0 | Clayey SAND with Gravel (SC) Brown (10YR 5/3) Sand, dense, damp, fine to coarse grained, sub-angular to sub-rounded, well graded. Gravel up to 1" diameter, angular to rounded, poorly graded. Fines: medium plasticity. Weak cementation. No stain/odor | - 6.6 - 6.6 - 7.7 | | | 1/24/18 @ 1330 GW encountered from 1.5 to 6 ft bgs | |
| - | 7.0 | 2.0 | 25% Gravel; 30% Sand; 45% Fines Clayey SAND with Gravel (SC) Yellowish Brown (10YR 5/4) Sand, loose, wet, fine to coarse | | 2 | 0.0 | 1/24/18 @ 1350 Collect soil sample WI-AF-SB609-0607-0118 from 6 to 7 ft bgs; @1355 Collect soil sample | |
| - | 9.0 | 2.0 | grained, sub-angular to sub-rounded, well graded. Gravel up to 4" diameter, subanglular to rounded, well graded. Fines: medium plasticity. No cementation. No stain/odor 30% Gravel; 40% Sand; 30% Fines | - - - - | | | WI-AF-SB609P-0607-0118 from 6 to 7 ft bgs 1/24/18 @1310 Begin drilling w/ 10- ft x 6-in casing & 10-ft x 4-in core | |
| 10 - - | 11.0 | 2.0 | Well Graded SAND with Clay & Gravel (SW-SC) Dark Yellowish Brown (10YR 4/4) Sand, loose, saturated, fine to coarse grained, sub-angular to sub-rounded, well graded. Gravel up to 4" diameter, sub-angular to rounded, graded of the state of | - - - | | | Tr x 6-in casing & 10-ft x 4-in core barrel 1/24/18 @ 1405 Collect soil sample WI-AF-SB609-0708-0118 from 7 to 8 ft bas | |
| - - - | 13.0 | 2.0 | well graded. Fines: medium plasticity. No cementation. No stain/odor 30% Gravel; 50% Sand; 10% Fines Clayey SAND with Gravel (SC) | | | | o K Sgo | |
| 15 | 15.0 | 2.0 | Same description as 1.5-3.5 ft bgs 30% Gravel; 40% Sand; 30% Fines SILT with Sand (ML) Yellowish Brown (10YR 5/6) Silt, soft damp, low plasticity, | | : | | 1/24/18 @ 1340 GW encountered from 14 to 14.5 ft bgs | |
| - - - | 17.0 | 2.0 | rapid dilatancy. Sand, very fine to fine grained, subrounded, poorly graded. Moderate cementation. Mottled FeO staining, no odor 20% Sand; 80% Fines | - - - | | 0.1 | | |
| - | 19.0 | 2.0 | SILT with Sand (ML) Gray (GLEY1 5/N) Silt, stiff, moist, low, plasticity, rapid dilatancy. Sand, very fine to medium grained, sub-angular to sub-rounded, poorly graded. Moderate cementation. No | | | | | - - - Grout - |
| 20 | 21.0 | 2.0 | stain/odor 20% Sand; 80% Fines Silty SAND with Gravel (SM) Gray (GLEY1 5/N) Sand, loose, wet, fine to coarse grained, | | | | | |
| - - - | 23.0 | 2.0 | sub-angular to sub-rounded, well graded. Gravel up to 2" diameter, sub-angular to rounded, well graded. Fines: low plasticity. No cementation. No stain/odor 20% Gravel; 40% Sand; 40% Fines | - - - - | | | | - |
| 25 | 25.0 | 2.0 | SILT with Sand (ML) Same as 7 -14 ft bgs but very moist 20% Sand; 80% Fines Lean CLAY (CL) | - - - | | | | - |
| - - - | 27.0 | 2.0 | Dark Gray (GLEY1 4/N) Clay, stiff, moist, medium plasticity, slow dilatancy. Weak cementation. No stain/odor 5% Sand; 95% Fines | - - - - | | 0.1 | | - |
| - | 29.0 | 2.0 | | - - - | | | | |
| 30 | | | | - | | | | |
| | | | | | | | | <u> </u> |



BORING NUMBER:

WI-AF-MW-609

SHEET 2 OF 3

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (494571.9 N, 1200607.1 E)

ELEVATION: 53.1 ft DRILLING CONTRACTOR: Yellow Jacket

DRILLING METHOD AND EQUIPMENT: Terrasonic 150CC; 6" casing, 4" barrel, Rotosonic

| WATER | LEVELS | : 35.4 ft l | bgs START : 1/5/2018 | | Е | ND : 1/25/2018 | LOGG | SER : M. Green |
|-----------------------------|---------------|---------------|--|--|-------------|--|--------|---|
| ≥ | _ | (T- | SOIL DESCRIPTION | | | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | SYMBOLIC LOG | PID READING | COMMENTS | | WELL DIAGRAM |
| - | 31.0 | 2.0 | Silty SAND (SM) Dark Gray (GLEY1 4/N) Sand, loose, moist, very fine to fine | | | | | X X - |
| - | 33.0 | 2.0 | grained, sub-rounded, poorly graded, low plasticity. Weak cementation. No stain/odor 70% Sand; 30% Fines Lean CLAY (CL) | - - - - | | | | |
| 35 <u></u> | 35.0 | 2.0 | Dark Gray (10YR 4/1) Clay, stiff, dry, medium plasticity, slow dilatancy. Moderate cementation. No stain/odor 10% Sand; 90% Fines | - - - | | | | - - - |
| - - - | 37.0 | 2.0 | Lean CLAY (CL) Black (GLEY1 2.5/N) Clay, very stiff, dry, medium plasticity, slow dilatancy. Well cemented. No stain/odor 10% Sand; 90% Fines | - - - - | 0.2 | , | | |
| - - - | 39.0 | 2.0 | | - - - - | | 1/24/18 @ 1515 Collect soil | sample | |
| 40 | 41.0 | 2.0 | Poorly Graded SAND with Silt (SP-SM) Dark Gray (GLEY1 4/N) Sand, loose wet, very fine to fine grained, sub-rounded, poorly graded, low plasticity. Weak | - - - - - - | | WI-AF-SB609-3940-0118 fro 40 ft bgs 1/24/18 @ 1445 GW encour from 40 to 57 ft bgs | | |
| | 43.0 | 2.0 | cementation. No stain/odor 90% Sand; 10% Fines | -[:::::::::::::::::::::::::::::::::::: | | | | Опря — — — |
| 45 | 45.0 | 2.0 | | | | | | 20/40 Sand |
| | 47.0 | 2.0 | | | 0.1 | | | |
| - | 49.0 | 2.0 | Poorly Graded SAND with Silt (SP-SM) | - (11.1 - (11.1 - (11.1 | | | | |
| 50 | 51.0 | 2.0 | Same as 40-49 ft bgs but more wet 90% Sand; 10% Fines | - | | | | 2" Schedule 80 PVC - 0.010" Slot- |
| - | 53.0 | 2.0 | | -[| | | | |
| 55 <u></u> | 55.0 | 2.0 | | - | | | | |
| - | 57.0 | 2.0 | Silty SAND (SM) Dark Gray (GLEY1 4/N) Sand, loose, wet, very fine to fine grained, sub-rounded, poorly graded, sand stringers. Fines: | -[:::::::::::::::::::::::::::::::::::: | 0.2 | , | | |
| - | 59.0 | 2.0 | grained, sub-rounded, poorly graded, sand stringers. Fines: low plasticity. Weak cementation. No stain/odor 70% Sand; 30% Fines | / - | | | | Schedule - 80 PVC - Sump - |
| 60 | | | | | | - | | |
| | | | | | | | | |



BORING NUMBER:

WI-AF-MW-609

SHEET 3 OF 3

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (494571.9 N, 1200607.1 E)

ELEVATION: 53.1 ft

DRILLING CONTRACTOR: Yellow Jacket

DRILLING METHOD AND EQUIPMENT : Terrasonic 150CC; 6" casing, 4" barrel, Rotosonic

| WATER | LEVELS | : 35.4 ft b | ogs START : 1/5/2018 | | Εl | ND : 1/25/2018 LOGG | ER : M. Green |
|-----------------------------|---------------|---------------|--|--------------|--------------------------|--|---------------------------------|
| | | | SOIL DESCRIPTION | ניו | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | SYMBOLIC LOG | PID READING HEADSPACE | | WELL DIAGRAM |
| | 61.0 | 0.0 | Sandy SILT (ML) Dark Gray (GLEY1 4/N) Silt, stiff, moist, low plasticity, rapid dilatancy. Sand, very fine to fine grained, subrounded, poorly graded, Well cemented. No stain/odor 40% Sand; 60% Fines Bottom of Boring at 61.0 ft bgs on 1/25/2018 | | | 1/24/18 @ 1500 Boring terminated @ 59 ft bgs. See well completion diagram for construction details 1/25/18 @ 0825 When attempting to set the well on 1/24/18, driller's tagline became stuck & broke off downhole. During the attempt to retrieve the tagline, the well shifted vertically several feet. Drillers pulled well casing & overdrilled boring to 61 ft 1/25 18 @ 0900 Backfill w/ sand from 61 to 60 ft bgs & construct monitoring well. See well completion diagram for details | - - - - - - - |
| | | | | | | | |



DRILLING METHOD AND EQUIPMENT: Terrasonic 150CC; 8" surface casing, 7" barrel (0'-18' bgs); 6" casing, 4" barrel (18'-248' bgs), Rotosonic

BORING NUMBER:

WI-AF-MW-610

SHEET 1 OF 9

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (494401.1 N, 1200544.5 E)

ELEVATION: 57.0 ft DRILLING CONTRACTOR: Yellow Jacket

WATER LEVELS: 37.8 ft bgs START: 1/5/2018 END: 1/29/2018 LOGGER: M. Green SOIL DESCRIPTION E SYMBOLIC LOG 9E E READING ADSPACE RECOVERY DEPTH BEL SURFACE (I NTERVAL WELL DIAGRAM SOIL NAME, USCS GROUP SYMBOL, COLOR, COMMENTS MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY 듬 Sandy SILT with Gravel (ML) 1/5/18 @ 1320 Clear boring via 3-0.0 point hand auger to 7 ft x 12 in OD 1/25/18 @ 1550 Collect soil sample WI-AF-SB610-0001.5-0118 from 0 Dark Brown (10YR 3/3) Silt, soft, moist, low plasticity, rapid 2.0 dilatancy. Sand, fine to coarse grained, sub-angular to 20 sub-rounded, well graded. Gravel up to 3" diameter, subangular to rounded, well graded. No cementation. Roots to 1.5 & grass. No stain/odor 1/25/18 GW encountered from 1.5 2.0 20% Gravel; 25% Sand; 55% Fines to 7.5 ft bgs 4.0 Clayey SAND with Gravel (SC) Yellowish Brown (10YR 5/4) Sand, loose, wet, fine to coarse grained, sub-angular to sub-rounded, well graded. Gravel up 5 2.0 to 5" diameter, sub-rounded to rounded, well graded. Fines: medium plasticity. No stain/odor 30% Gravel; 50% Sand; 20% Fines 6.0 Well Graded SAND with Clay & Gravel (SW-SC) 2.0 1/25/18 @ 1540 Begin drilling w/ 10-ft x 8-in OD casing & 10-ft x 7-in OD Dark Yellowish Brown (10YR 4/4) Sand, loose, wet, fine to 8.0 coarse grained, sub-angular to sub-rounded, well graded. Gravel up to 2" diameter, sub-rounded to rounded, well core barrel 1/25/18 @ 1555 Collect soil sample WI-AF-SB610-07.508-0118 from 7.5 graded. Fines: medium plasticity. No cementation. No 20 stain/odor to 8 ft bgs 10 10.0 35% Gravel, 55% Sand; 10% Fines Clayey SAND with Gravel (SC) Same description as 1.5-6 ft bgs 2.0 0.0 30% Gravel; 50% Sand; 20% Fines 12.0 SILT with Sand (ML) Grayish Brown (10YR 5/2) Silt, stiff, damp, low plasticity, rapid dilatancy. Sand, very fine to fine grained, sub-rounded, 20 poorly graded, Moderate cementation. No stain/odor 20% Sand; 80% Fines 14 0 SILT with Sand (ML) Same description as 7.5-8 ft bgs but Gray (GLEY1 5/N) 15 2.0 20% Sand; 80% Fines 16.0 Grout 2.0 18.0 1/25/18 @ 1610 Switch to 10-ft x 6in OD casing and 10-ft x 4-in OD 2.0 core barrel 20 20.0 Lean CLAY (CL) Very Dark Gray (GLEY1 3/N) Clay, stiff, damp, medium 2.0 0.0 plasticity, slow dilatancy. Moderate cementation. No 22.0 stain/odor 5% Sand; 95% Fines 20 <u>24.</u>0 25 2.0 26.0 2.0 28.0 2.0 30



DRILLING METHOD AND EQUIPMENT: Terrasonic 150CC; 8" surface casing, 7" barrel (0'-18' bgs); 6" casing, 4" barrel (18'-248' bgs), Rotosonic

BORING NUMBER:

WI-AF-MW-610

SHEET 2 OF 9

SOIL BORING LOG

PROJECT: NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (494401.1 N, 1200544.5 E)

ELEVATION: 57.0 ft DRILLING CONTRACTOR: Yellow Jacket

WATER LEVELS: 37.8 ft bgs START: 1/5/2018 END: 1/29/2018 LOGGER: M. Green SOIL DESCRIPTION E SYMBOLIC LOG VOTE VOTE E READING ADSPACE DEPTH BEL SURFACE (F RECOVERY NTERVAL WELL DIAGRAM SOIL NAME, USCS GROUP SYMBOL, COLOR, COMMENTS MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY 듬 30.0 2.0 0.0 32.0 Sandy Lean CLAY (CL)
Dark Gray (GLEY1 4/N) Clay, stiff, damp, medium plasticity, 2.0 slow dilatancy. Sand, very fine to fine grained, sub-rounded, 34.0 poorly. Weak cementation. No stain/odor 40% Sand; 60% Fines 35 Lean CLAY with Sand (CL) 2.0 Black (GLEY1 2.5/N) Clay, very stiff, dry, medium plasticity, slow dilatancy. Sand, very fine to fine grained, sub-rounded, 36.0 Bentonite poorly graded, shells. Well cemented. No stain/odor Chips 20% Sand; 80% Fines 2.0 38.0 20/40 Sand 2.0 Silty SAND (SM) Dark Gray (GLEY1 4/N) Sand, dense, moist, very fine to fine 40 40.0 grained, sub-rounded, poorly graded, micaceous. Fines: low plasticity. Weak cementation. No stain/odor 2.0 60% Sand; 40% Fines 0.0 42 0 Poorly Graded SAND with Silt (SP-SM) Dark Gray (GLEY1 4/N) Sand, loose, very moist, very fine to fine grained, sub-rounded, poorly graded, micaceous. Fines: low plasticity. Weak cementation. No stain/odor 2.0 44.0 90% Sand: 10% Fines 45 2.0 2" Schedule 80 PVC -46.0 0.010" Slot 2.0 48.0 2.0 50 50.0 2.0 0.0 52.0 Schedule 80 PVC 2.0 Sump 54.0 55 2.0 56.0 Silty SAND (SM) Same description as 39-40 ft bgs 2.0 60% Sand; 40% Fines 58.0 2.0 60



BORING NUMBER:

WI-AF-MW-610

SHEET 3 OF 9

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (494401.1 N, 1200544.5 E)

ELEVATION: 57.0 ft

DRILLING CONTRACTOR: Yellow Jacket

| WATER | LEVELS | : 37.8 ft k | ogs START : 1/5/2018 | | | EN | ID : 1/29/2018 LOG | GER : M. Green |
|-----------------------------|---------------|---------------|--|-------------|--------------|--------------------------|--------------------|----------------|
| > - | (| F | SOIL DESCRIPTION | | Ŋ | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | | SYMBOLIC LOG | PID READING HEADSPACE | COMMENTS | WELL DIAGRAM |
| _ | 60.0 | | Silty SAND (SM) | | Ш | | | |
| - | 62.0 | 2.0 | Silty SAND (SM) Same description as 56-60 ft bgs 80% Sand; 20% Fines | - | | 0.0 | | <u>-</u> |
| - | 64.0 | 2.0 | | - | | | | - - - |
| 65 - - | 66.0 | 2.0 | | - | | | | |
| - - - | 68.0 | 2.0 | | - | | | | - |
| 70 | 70.0 | 2.0 | | - | | | | |
| - - - | 72.0 | 2.0 | | - - - | | 0.0 | | |
| - - - | 74.0 | 2.0 | | - - - | | | | |
| 75 - - | 76.0 | 2.0 | | - | | | | |
| - - - | 78.0 | 2.0 | | - - - | | | | |
| 80 | 80.0 | 2.0 | | - | | | | |
| - | 82.0 | 2.0 | | - - - | | 0.0 | | |
| - - - | 84.0 | 2.0 | | - - - | | | | |
| 85 - - | 86.0 | 2.0 | | - - - | | | | |
| - | 88.0 | 2.0 | | - - - | | | | |
| 90 | | 2.0 | | - | | | | |
| | | | | | | | | |



BORING NUMBER:

WI-AF-MW-610 SHE

SHEET 4 OF 9

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (494401.1 N, 1200544.5 E)

ELEVATION: 57.0 ft

DRILLING CONTRACTOR: Yellow Jacket

| WATER | | | eQUIPMEN1: Terrasonic 150CC; 8" surface casing, 7" barrel (0-18" sigs START: 1/5/2018 | bgs), | <i>3</i> 00 | | | LOGGER : M. Green |
|-----------------------------|---------------|---------------|---|---------------------|--------------|--------------------------|--|-------------------|
| | | | SOIL DESCRIPTION | | ני) | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | | SYMBOLIC LOG | PID READING HEADSPACE | COMMENTS | WELL DIAGRAM |
| - | 90.0 | 2.0 | | - | | 0.0 | | - |
| - - - | 92.0 | 2.0 | | | | | | - - - |
| 95 <u> </u> | 96.0 | 2.0 | | | | | | - |
| - | 98.0 | 2.0 | | | | | | |
| 100_ | 100.0 | 2.0 | | - | | | | |
| - - - | 102.0 | 2.0 | Poorly Graded SAND with Silt (SP-SM) Same description as 40-56 ft bgs 90% Sand; 10% Fines | | | 0.0 | | - |
| - - - | 104.0 | 2.0 | Doorly Craded CAND (CD) | - | | | 4/00/40 @ 4200 CW anacymte | |
| 105 | 106.0 | 2.0 | Poorly Graded SAND (SP) Dark Gray (GLEY1 4/N) Sand, wet, loost, fine to medium sand, sub-angular to sub-rounded, poorly graded, micaceous. No cementation. No stain/odor | - | | | 1/26/18 @ 1300 GW encounte from 104 to 109 ft bgs | red - |
| - | 108.0 | 2.0 | 95% Sand; 5% Fines | | | | | |
| 110_ | 110.0 | 2.0 | Sandy SILT (ML) Dark Gray (GLEY1 4/N) Silt, stiff, moist, low plasticity, rapid dilatancy. Sand, very fine to fine grained, subrounded, poor | - I - | | <u> </u> | | |
| - | 112.0 | 2.0 | graded. Moderate cementation. No stain/odor 30% Sand; 70% Fines | ·• - - - - | | 0.0 | | |
| - | 114.0 | 2.0 | Silty SAND (SM) | - | | | | |
| 115 | 116.0 | 2.0 | Same description as 56-60 ft bgs 80% Sand; 20% Fines | - | | | | - |
| - | 118.0 | 2.0 | | - | | | | |
| 120 | | 2.0 | | - | | | | |
| | | | | | | | | |



DRILLING METHOD AND EQUIPMENT: Terrasonic 150CC; 8" surface casing, 7" barrel (0'-18' bgs); 6" casing, 4" barrel (18'-248' bgs), Rotosonic

BORING NUMBER:

WI-AF-MW-610

SHEET 5 OF 9

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (494401.1 N, 1200544.5 E)

ELEVATION: 57.0 ft

DRILLING CONTRACTOR: Yellow Jacket

| WATER | LEVELS | : 37.8 ft b | gs START : 1/5/2018 | | | END |): 1/29/2018 LOG | GER : M. Green |
|-----------------------------|----------------|---------------|--|--|---------------------------------|-----------|------------------|----------------|
| ≥ ○ | (| (T= | SOIL DESCRIPTION | | 3 | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | SYMBOLIC LOG | | HEADSPACE | COMMENTS | WELL DIAGRAM |
| - - - | 120.0 122.0 | 2.0 | Poorly Graded SAND (SP) Same description as 40-56 ft bgs 90% Sand; 10% Fines | - 11 - 11 - 11 | - - - - - - | 0.0 | | - |
| - | 124.0 | 2.0 | | - | 1 | | | |
| 125 <u> </u> | 126.0 | 2.0 | | - | | | | - - |
| - | 128.0 | 2.0 | Sandy SILT (ML) | - ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; | | | | - - - |
| 130_ | 130.0 | 2.0 | Same description as 109-114 ft bgs 30% Sand; 70% Fines | <u>-</u> | | | | |
| - | 132.0 | 2.0 | | - - - - | | 0.0 | | |
| - | 134.0 | 2.0 | Poorly graded SAND (SP) Same description as 40-56 ft bgs 90% Sand; 10% Fines | - 11 - 11 - 11 - 11 | | | | |
| 135 <u> </u> | 136.0 | 2.0 | | - - - - - - - - - - - - - - - - - - - | 1 | | | - |
| - | 138.0 | 2.0 | Sandy SILT (ML) Same description as 109-114 ft bgs | - [1]. | 1 | | | - |
| 140 | 140.0 | 2.0 | 30% Sand; 70% Fines Poorly Graded SAND (SP) Same description as 104-109 ft bgs 95% Sand; 5% Fines | | | | | - |
| - | 142.0 | 2.0 | | | | 0.0 | | |
| - | 144.0 | 2.0 | | | | | | |
| 145 <u> </u> | 146.0 | 2.0 | | | | | | - |
| - | 148.0 | 2.0 | | | | | | - |
| 150 | | 2.0 | Silty SAND (SM) Same description as 56-60 ft bgs 80% Sand; 20% Fines | _ _ _ _ | | | | - |
| | | | | | 1 | | | |



BORING NUMBER:

WI-AF-MW-610

SHEET 6 OF 9

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (494401.1 N, 1200544.5 E)

ELEVATION: 57.0 ft

DRILLING CONTRACTOR: Yellow Jacket

| WATER | LEVELS | : 37.8 ft b | ogs START : 1/5/2018 | | | EN | ID : 1/29/2018 | LOGGI | ER : M. Green |
|-----------------------------|---------------|---------------|--|---------------|--------------|--------------------------|----------------|-------|---------------|
| > _ | | F | SOIL DESCRIPTION | | ပ္ | | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | | SYMBOLIC LOG | PID READING HEADSPACE | COMMENTS | | WELL DIAGRAM |
| 1 37 | 150.0 | | | - | TT | | | | X//XXI |
| - | | 2.0 | | - : - : : | | 0.0 | | | - |
| - | 152.0 | | | - : | | | | | - |
| | | 2.0 | | _[] | | | | | |
| _ | 154.0 | | | - : | | | | | |
| 155 | | | | -[] | | | | | - |
| _ | 156.0 | 2.0 | - |] | | | | | |
| _ | 156.0 | | | -[] | | | | | |
| - | | 2.0 | | -[: | | | | | - |
| - | 158.0 | | Poorly Graded SAND (SD) | | Щ | | | | |
| - | | 2.0 | Poorly Graded SAND (SP) Same description as 104-109 ft bgs | _ | | | | | |
| 160 | 160.0 | | 95% Sand; 5% Fines | - | | | | | - |
| - | | | Silty SAND)(SM) Same description as 56-60 ft bgs | -[: | | | | | /// |
| _ | 400.0 | 2.0 | 80% Sand; 20% Fines | _[: | | 0.0 | | | |
| _ | 162.0 | | Poorly Graded SAND with Silt (SP-SM) | | # | | | | - |
| - | | 2.0 | Same description as 40-56 ft bgs 90% Sand; 10% Fines | - | | | | | |
| _ | 164.0 | | 10 /0 1 11100 | _[: | | | | | |
| 165 | | 2.0 | | - | H | | | | |
| - | 166.0 | 2.0 | | - | | | | | - |
| _ | 100.0 | | Poorly Graded SAND (SP) Same description as 104-109 ft bgs | 1 | ' | | | | |
| _ | | 2.0 | 95% Sand; 5% Fines | _ | | | | | |
| _ | 168.0 | | | - | | | | | - |
| - | | 2.0 | | _ | | | | | |
| 170_ | 170.0 | | | - | | | | | |
| - | | 2.0 | Poorly Graded SAND with Silt (SP-SM) Same description as 40-56 ft bgs 90% | - | H | | | | - |
|] - | 172.0 | ∠.∪ | Sand; 10% Fines | - | H | 0.0 | | | |
| 1 - | 112.0 | | | | | | | | |
| - | | 2.0 | | _ - | | | | | |
| - | 174.0 | | | - | | | | | - |
| 175_ | | 2.0 | | 1 | | | | | |
| - | 176.0 | | Poorly Graded SAND (SP) | 1 | lij. | | | | |
| - | _ | 0.0 | Same description as 104-109 ft bgs \95% Sand; 5% Fines | - - | | | | | - |
| - | 178.0 | 2.0 | Poorly Graded SAND with Silt (SP-SM) | -[] | | | | | |
| - | 1/0.0 | | Same description as 40-56 ft bgs 90% Sand; 10% Fines | -1/2 | | | | | |
| - | | 2.0 | | -1/2 | | | | | - |
| 180 | | | | | | | | | |
| | | | | | | | | | |
| | | L | | _ | _ | | 1 | | |



BORING NUMBER:

WI-AF-MW-610

SHEET 7 OF 9

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (494401.1 N, 1200544.5 E)

ELEVATION: 57.0 ft

DRILLING CONTRACTOR: Yellow Jacket

| WATER | | | ogs START: 1/5/2018 | ,, - | | | GER : M. Green |
|-----------------------------|----------------|---------------|--|------------------|--------------------------|--|------------------|
| | LLVLLO | | SOIL DESCRIPTION | | Γ | 100 | OLIV. WI. GIGGII |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | SYMBOLIC LOG | PID READING HEADSPACE | COMMENTS | WELL DIAGRAM |
| - | 180.0 182.0 | 2.0 | Lean CLAY with Sand (CL) Gray (GLEY1 5/N) Clay, very stiff, dry to damp, medium plasticity, slow dilatancy. Sand, very fine to medium grained, sub-angular to sub-rounded, poorly graded, platy, continuous & discontinuous sand stringers from <1/32" to 0.25" thick. | - - - | 0.0 | | |
| - | 184.0 | 2.0 | & discontinuous sand stringers from <1/32" to 0.25" thick. Well cemented. No stain/odor 15% Sand; 85% Fines | - - - | | | |
| 185 | 186.0 | 2.0 | | - - - | | | |
| - | 188.0 | 2.0 | | - - - | | | |
| 190 | 190.0 | 2.0 | | - - - | | | |
| | 192.0 | 2.0 | | - - - | 0.0 | | |
| - | 194.0 | 2.0 | | - - - | | | |
| 195 | 196.0 | 2.0 | | - - - | | | |
| - | 198.0 | 2.0 | Lean CLAY with Sand (CL) | - - | | | |
| 200_ | 200.0 | 2.0 | Same description as 177.5-198 ft bgs 20% Sand; 80% Fines | - - | | 1/27/18 @ 1350 Continuous cores | |
| | 202.0 | 2.0 | | - - - | 0.0 | 1/27/18 @ 1350 Continuous cores CC101-CC123 were collected in 2- foot intervals w/ 100% recovery, no VOC detected in BZ of HS from 200 to 245 ft bgs | |
| - | 204.0 | 2.0 | | - - - | | | |
| 205 | 206.0 | 2.0 | | - - - - | | | |
| - | 208.0 | 2.0 | | - - - | | | |
| 210 | | 2.0 | | - - | | | - |
| | | | | | _ | | |



BORING NUMBER:

WI-AF-MW-610

SHEET 8 OF 9

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (494401.1 N, 1200544.5 E)

ELEVATION: 57.0 ft

DRILLING CONTRACTOR: Yellow Jacket

| WATER | LEVELS | : 37.8 ft l | bgs START : 1/5/2018 | | | END : | 1/29/2018 I | LOGGI | ER : M. Green |
|-----------------------------|---------------|---------------|--|--------------|-------------|-----------|-------------|-------|---------------|
| <u>}</u> ⊆ | Ê | Ē | SOIL DESCRIPTION | 90 | | | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | SYMBOLIC LOG | PID READING | HEADSPACE | COMMENTS | | WELL DIAGRAM |
| - | 210.0 | | | -/// | | | | | - |
| - | 212.0 | 2.0 | | -/// | 10 | .0 | | | |
| - | 212.0 | | | -/// | | | | | |
| - | | 2.0 | | -{/// | 1 | | | | - |
| - | 214.0 | | | -/// | | | | | |
| 215_ | | 2.0 | - | -/// | | | | | |
| - | 216.0 | | | -/// | | | | | |
| - | | 2.0 | | -/// | | | | | |
| - | 218.0 | | | -/// | | | | | |
| - | | 2.0 | | -/// | | | | | - |
| 220 | 220.0 | 2.0 | | -/// | | | | | |
| - | 220.0 | | | -/// | | | | | |
| - | 222.0 | 2.0 | | -/// | 0 | .0 | | | |
| - | 222.0 | | | - | | | | | |
| - | | 2.0 | | -/// | | | | | |
| - | 224.0 | | | -/// | | | | | - |
| 225_ | | 2.0 | Same description as above | -/// | | | | | |
| - | 226.0 | | - | -/// | | | | | |
| - | | 2.0 | | -/// | | | | | |
| - | 228.0 | | | - | | | | | |
| - | | 2.0 | | -/// | | | | | |
| 230 - | 230.0 | 2.0 | | -/// | | | | | - |
| - | | | | -/// | | | | | - |
| - | 232.0 | 2.0 | | -/// | ٥ | .0 | | | |
| - | 202.0 | | | - | | | | | |
| - | 0040 | 2.0 | | -/// | | | | | |
| - | 234.0 | | | -[/// | | | | | |
| 235 | | 2.0 | - | - 1/// | | | | | |
| - | 236.0 | | 1 | - [/// | | | | | - |
| - | | 2.0 | | -/// | | | | | |
|] - | 238.0 | | | -/// | | | | | |
|] - | | 2.0 | | -/// | | | | | /// |
| 240 | | | | - [/// | 4 | \perp | | | <u> </u> |
| | | | | | l | | | | |
| | | - | | | - | | | | |



BORING NUMBER:

WI-AF-MW-610

SHEET 9 OF 9

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (494401.1 N, 1200544.5 E)

ELEVATION: 57.0 ft

DRILLING CONTRACTOR: Yellow Jacket

| WATER | LEVELS | : 37.8 ft b | ogs START : 1/5/2018 | | | END |): 1/29/2018 LOGG | ER : M. Green |
|-----------------------------|----------------|---------------|--|------------------|-------------|-----------|---|---|
| | | | SOIL DESCRIPTION | O | | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | SYMBOLIC LOG | PID READING | HEADSPACE | COMMENTS | WELL DIAGRAM |
| - - - | 240.0 242.0 | 2.0 | | - - - - | 0 | 0.0 | | - |
| - | 244.0 | 2.0 | Same description as above | - - - | | | | |
| 245 <u> </u> | 246.0 | 2.0 | · | - - - | | | | |
| - | 248.0 | 2.0 | Bottom of Boring at 248.0 ft bgs on 1/29/2018 | - - - | | | 1/27/18 @ 1455 Boring terminated | |
| | | | | | | | 1/27/18 @ 1455 Boring terminated @ 248 ft bgs. Backfill hole with grout via tremie pipe to ~67 ft bgs. Backfill w/ bentoninte chips from ~67 ft bgs to 56 ft bgs. See well completion diagram for details | |
| | | | | - | | | | - - - - - - - - - - - - - - - - - - - |



BORING NUMBER:

WI-AF-MW-611

SHEET 1 OF 7

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (494569.6 N, 1203630.0 E)

ELEVATION: 101.1 ft DRILLING CONTRACTOR: Yellow Jacket

DRILLING METHOD AND EQUIPMENT : Terrasonic 150CC; 11" cond. casing, 10" outer casing, 8" barrel (0'-18' bgs); 6" outer casing, 4" barrel (18'-128' bgs), Rotosonic

| WATER | LEVELS | : 59.3 ft b | gs START : 2/19/2018 | | | ENI | D : 2/22/2018 LOGG | GER: M. Green |
|-----------------------------|--|--|--|------------------|----------------|-------------------------------------|--|---------------|
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | SYMBOLICLOG | טואום עדים חיב | PID READING HEADSPACE | COMMENTS | WELL DIAGRAM |
| 5 | 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10.0 | 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR | 901-21 NAWAS III | | PID READING PID READING PID READING | COMMENTS 2/19/18 @ 1630 Begin potholing for utilities via 3-point hand auger to 7 ft x 16-in OD 2/20/18 @ 1055 Collect soil sample WI-AF-SB611-0H01-0218 from 0.5 to 1 ft bgs 2/20/18 @ 1105 Collect soil sample WI-AF-SB611-0103-0218 from 1 to 3 ft bgs 2/20/18 @ 1110 Collect soil sample WI-AF-SB611P-0103-0218 from 1 to 3 ft bgs 2/19/18 @ 1710 3-point hand auger complete, No utilities encountered 2/20/18 @ 1025 Begin drilling w/ 10-ft x 8-in OD Core Barrel, 10-ft x 10" casing & 10-ft x 11" conductor casing 2/20/18 @ 1145 Collect soil sample WI-AF-SB611-1213-0218 from 12 to 13 ft bgs 2/20/18 @ 1040 GW encountered @ 13 ft bgs 2/20/18 @ 1055 11" x 10-ft concudtor casing terminated @ 10 ft bgs, continue drilling w/ 10-ft x 8" OD core barrel & 10-ft x 10" OD casing | |
| 30 | 28.0 | 2.0 | | | | | | |
| | | | | | \perp | | | |



BORING NUMBER:

WI-AF-MW-611

SHEET 2 OF 7

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (494569.6 N, 1203630.0 E)

ELEVATION: 101.1 ft DRILLING CONTRACTOR: Yellow Jacket

DRILLING METHOD AND EQUIPMENT: Terrasonic 150CC; 11" cond. casing, 10" outer casing, 8" barrel (0'-18' bgs); 6" outer casing, 4" barrel (18'-128' bgs), Rotosonic

| WATER | LEVELS | : 59.3 ft b | gs START : 2/19/2018 | | Εl | ND : 2/22/2018 | LOGG | ER : M. Green |
|-----------------------------|---------------|---------------|--|---------------------------------|--------------------------|----------------|------|------------------|
| >_ | _ | F | SOIL DESCRIPTION | ڻ | | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | SYMBOLIC LOG | PID READING HEADSPACE | COMMENTS | | WELL DIAGRAM |
| - - - | 30.0 | 2.0 | Sandy SILT Gray (GLEY1 5/N) Silt, stiff, moist, low plasticity, rapid dilatancy. Sand, very fine to fine grained, sub-angular to sub-rounded, poorly graded, micaceous, Weak cementation. No stain/odor | | 0.0 | | | - |
| - - - | 34.0 | 2.0 | 45% Sand; 55% Fines Silty SAND Grayish Brown (10YR 5/2) Sand, loose wet, fine to medium | - : : : - : : : - : : : | | | | |
| 35 | 36.0 | 2.0 | grained, sub-angular to sub-rounded, poorly graded. Fines: low plasticity. No stain/odor 80% Sand; 20% Fines Silty SAND | - | | | | |
| - - - | 38.0 | 2.0 | Gray (GLEY1 5/N) Sand, loose, wet, fine to medium sand, sub-angular to sub-rounded, poorly graded. Fines: low plasticity. Weak cementation. No stain/odor. Discontinuous silt stringers up to 3" thick | - | | | | - - - - |
| 40 | 40.0 | 2.0 | 70% Sand; 30% Fines Poorly Graded SAND with Silt Gray (GLEY1 5/N) Sand, loose, wet, fine to medium sand, sub-angular to sub-rounded, poorly graded. Fines: low | | | | | - - - |
| - - - | 42.0 | 2.0 | plasticity. No cementation. No stain/odor 90% Sand; 10% Fines Silty SAND Gray (GLEY1 5/N) Sand, dense, moist, very fine to fine | - | 0.0 | 0.0 | | - - - |
| - - - | 44.0 | 2.0 | grained, sub-angular to sub-rounded, poorly graded. Fines: low plasticity. Medium cementation. No stain/odor 60% Sand; 40% Fines | - | | | | |
| 45 | 46.0 | 2.0 | | - : : - : : | | | | - |
| - - - | 48.0 | 2.0 | | _ _ _ _ | | | | |
| 50 | 50.0 | 2.0 | SILT Gray (GLEY1 5/N) Silt, stiff, moist, low plasticity, rapid dilatancy. Weak cementation. No stian/odor 10% Sand; 90% Fines | - - - | | | | |
| - - - | 52.0 | 2.0 | Lean CLAY Gray (GLEY1 5/N) Clay, stiff, damp, medium plasticity, slow | - - - | 0.0 | | | |
| - - - | 54.0 | 2.0 | dilatancy, laminations across core. Medium cementation. No stain/odor 10% Sand; 90% Fines | - - - | | | | |
| 55 - - | 56.0 | 2.0 | Silty SAND Same description as 41-48 ft bgs | - - - | | | | |
| - - - | 58.0 | 2.0 | 60% Sand; 40% Fines Lean CLAY Same description as 51-55 ft bgs but Dark Gray (GLEY1 4/N), very stiff | - - - | | | | |
| 60 | | 2.0 | 5% Sand; 95% Fines | - - - | | | | |
| | | | | | | | | |



BORING NUMBER:

WI-AF-MW-611

SHEET 3 OF 7

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (494569.6 N, 1203630.0 E)

ELEVATION: 101.1 ft DRILLING CONTRACTOR: Yellow Jacket

DRILLING METHOD AND EQUIPMENT : Terrasonic 150CC; 11" cond. casing, 10" outer casing, 8" barrel (0'-18' bgs); 6" outer casing, 4" barrel (18'-128' bgs), Rotosonic

| WATER | LEVELS | : 59.3 ft b | gs START : 2/19/2018 | | EN | D : 2/22/2018 LC | GGER : M. Green |
|-----------------------------|---------------|---------------|--|------------------|--------------------------|------------------|-----------------|
| ≥ | _ | Ĺ. | SOIL DESCRIPTION | ၂ | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | SYMBOLIC LOG | PID READING HEADSPACE | COMMENTS | WELL DIAGRAM |
| - - - | 62.0 | 2.0 | | - - - - | 0.0 | | - |
| - - - | 64.0 | 2.0 | | - - - - | | | - |
| 65 - - | 66.0 | 2.0 | Lean CLAY Same description as 56-65 ft bgs but Black (GLEY1 2.5/N), very stiff, fetid odor, organic pieces | - - - | | | |
| - - - | 68.0 | 2.0 | 5% Sand; 95% Fines Lean CLAY Gray (GLEY1 5/N) Clay, stiff, damp, medium plasticity, slow dilatancy. Sand, very fine to fine grained, sub-angular, poorly | - - - | | | |
| 70 | 70.0 | 2.0 | graded. Moderate cementation. No stain/odor 20% Sand; 80% Fines | - - - | | | Grout - |
| - - - | 72.0 | 2.0 | Lean CLAY | - - - | 0.0 | | |
| - - - | 74.0 | 2.0 | Same as 67-72 ft bgs but with silty sand stringers up to 3" thick, continuous across core 20% Sand; 80% Fines | - - - | | | - |
| 75 _ _ | 76.0 | 2.0 | Lean CLAY | - - - | | | |
| - - - | 78.0 | 2.0 | Very Dark Gray (GLEY1 3/N) Clay, very stiff, dry, medium plasticity, no dilatancy. Well cemented. Fetid odor, no stain, pulverized 5% Sand; 95% Fines | - - - | | | - |
| 80 | 80.0 | 2.0 | · - | - - - | | | |
| - - - | 82.0 | 2.0 | | - - - | 0.0 | | |
| - - - | 84.0 | 2.0 | | - - - | | | - |
| 85 _ _ | 86.0 | 2.0 | - | - - - | | | - |
| - - - | 88.0 | 2.0 | | - - - | | | - |
| 90 | | 2.0 | | - - - | | | |
| | | | | | | | |



BORING NUMBER:

WI-AF-MW-611

SHEET 4 OF 7

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (494569.6 N, 1203630.0 E)

ELEVATION: 101.1 ft

DRILLING CONTRACTOR: Yellow Jacket

DRILLING METHOD AND EQUIPMENT : Terrasonic 150CC; 11" cond. casing, 10" outer casing, 8" barrel (0'-18' bgs); 6" outer casing, 4" barrel (18'-128' bgs), Rotosonic

| WATER | LEVELS | : 59.3 ft b | ogs START : 2/19/2018 | | | ENI | D : 2/22/2018 LOGO | GER : M. Green |
|-----------------------------|---------------|---------------|---|-----------------------|-------------|-----------|--|----------------|
| > - | | (F | SOIL DESCRIPTION | Ú | Τ | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | SYMBOLIC LOG | ONIGNED CIG | HEADSPACE | COMMENTS | WELL DIAGRAM |
| - - - | 90.0 | 2.0 | Lean CLAY Same description as 76-90 ft bgs but Black (GLEY1 2.5/N), abundant iridescent shells & fragments up to 1.5" diameter \(5\% \) Sand; 95% Fines | - /- | , | 0.0 | | - |
| - | 94.0 | 2.0 | Lean CLAY Same description as 76-90 ft bgs but Dark Gray (GLEY1 4/N), damp, no odor 5% Sand; 95% Fines | - - - - | | | | |
| 95 <u> </u> | 96.0 | 2.0 | Lean CLAY Same description as 91-95 ft bgs but not pulverized 5% Sand; 95% Fines | - - -// | | | | |
| - - - | 98.0 | 2.0 | 5% Salid, 95% Filles | - - - - | | | | |
| 100_ | 100.0 | 2.0 | Sile, CAND | - - - - - | | | | |
| - | 102.0 | 2.0 | Silty SAND Gray (GLEY1 5/N) Sand, dense, damp, very fine to fine grained, sub-angular to sub-rounded, poorly graded. Fines: low plasticity. Moderate cementation. No stain/odor 65% Sand; 35% Fines | -[:] | , | 0.0 | | |
| - - - | 104.0 | 2.0 | 03 % Garid, 33 % Filles | - | | | | |
| 105 - - | 106.0 | 2.0 | | | | | | |
| - | 108.0 | 2.0 | | | | | | |
| 110_ | 110.0 | 2.0 | | | | | | - - - |
| - - - | 112.0 | 1.0 | No Recovery | - <u> </u> - | | 0.0 | 2/20/18 @ 1645 No Recovery from 111-116 ft bgs, core dropped out of | - |
| - - - | 114.0 | 2.0 | | _ | | | core barrel 2/21/18 @ 0840 Begin new 20-ft runs from 111 ft bgs | |
| 115 - - | 116.0 | 2.0 | | | | | | |
| - | 118.0 | 2.0 | Sandy SILT Gray (GLEY1 5/N) Silt, soft, very moist, low plasticity, rapid dilatancy. Sand, very fine to fine grained, sub-angular to sub-rounded, poorly graded. Weak cementation. No | - - - - | | | | |
| 120 | | 2.0 | stain/odor 40% Sand; 60% Fines | - - - | | | | - |
| | | | | | | | | |



BORING NUMBER:

WI-AF-MW-611

SHEET 5 OF 7

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (494569.6 N, 1203630.0 E)

ELEVATION: 101.1 ft DRILLING CONTRACTOR: Yellow Jacket

DRILLING METHOD AND EQUIPMENT: Terrasonic 150CC; 11" cond. casing, 10" outer casing, 8" barrel (0'-18' bgs); 6" outer casing, 4" barrel (18'-128' bgs), Rotosonic

| • | | : 59.3 ft l | EQUIPMENT: Terrasonic 150CC; 11" cond. casing, 10" outer casing open START: 2/19/2018 | g, O De | iiici (| | | GGER : M. Green |
|-----------------------------|---|---|---|--|--------------|--------------------------|--|----------------------------|
| | | | SOIL DESCRIPTION | | (D | | LO LO | OCEIT. IVI. OIGGII |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | | SYMBOLIC LOG | PID READING HEADSPACE | COMMENTS | WELL DIAGRAM |
| 125 | 120.0 122.0 124.0 126.0 128.0 130.0 132.0 134.0 134.0 144.0 144.0 146.0 148.0 | 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 | Silty SAND Same description as 100-111 ft bgs but loose, very moist 65% Sand; 35% Fines Sandy SILT Same description as 116-124 ft bgs but wet 40% Sand; 60% Fines Sandy SILT Same description as 128-131 ft bgs but Dary Gray (GLEY14/N), stiff, damp 35% Sand; 65% Fines Silty SAND Dary Gray (GLEY14/N) Sand, loose, wet, very fine to medium grained, sub-angular to sub-rounded, poorly grade Fines: low plasticity, micaceous, trace silt, rip-up clasts up 2" diameter. Weak cementation. No stain/odor 80% Sand; 20% Fines No Recovery | - - - - - - - - - - | | 0.0 | 2/21/18 @ 1330 GW encountered @ 128 ft bgs 2/21/18 @ 1550 GW encountered @ 138 ft bgs | ■ 3/8" Bentonite - Chips - |
| | | | | | | L | | |
| | | | | | _ | _ | | |



BORING NUMBER:

WI-AF-MW-611

SHEET 6 OF 7

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (494569.6 N, 1203630.0 E)

ELEVATION: 101.1 ft

DRILLING CONTRACTOR: Yellow Jacket

DRILLING METHOD AND EQUIPMENT: Terrasonic 150CC; 11" cond. casing, 10" outer casing, 8" barrel (0'-18' bgs); 6" outer casing, 4" barrel (18'-128' bgs), Rotosonic

WATER LEVELS: 50.3 ft bas

| WATER | LEVELS | : 59.3 ft b | gs START : 2/19/2018 | | | EN | D : 2/22/2018 LOGG | ER : M. Gre | en |
|-----------------------------|----------------|---------------|--|-------------|--------------|--------------------------|--|-------------|---|
| ي ≼ ا | Ē | E. | SOIL DESCRIPTION | | 90 | [_ | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | | SYMBOLIC LOG | PID READING HEADSPACE | COMMENTS | WELL [| DIAGRAM |
| - | 150.0 152.0 | 1.0 | Silty SAND Same description as 138-149 ft bgs but no silt rip-up clasts | - | | 0.0 | 2/22/18 @ 1530 GW encountered @ 151 ft bgs | | - |
| - | 154.0 | 2.0 | 80% Sand; 20% Fines | | | | | | _ _ _ _ |
| 155 <u> </u> | 156.0 | 2.0 | | | | | | | 6" Stainle ss Steel 0.010" Slot_ |
| - - | 158.0 | 2.0 | | | | | | | - - - |
| 160 <u></u> | 160.0 | 2.0 | | | | | | | - - - |
| - | 162.0 | 2.0 | | | | | | | - - - - |
| - - - | 164.0 | 2.0 | | - (| | | | | - - - |
| 165 <u> </u> | 166.0 | 2.0 | Poorly Graded SAND with Silt | : : | | | | | - - - |
| - | 168.0 | 2.0 | Dark Gray (GLEY1 4/N) Sand, loose, wet, very fine to medium grained, sub-angular to sub-rounded, poorly graded. Fines: low plasticity, micaceous. Weak cementation. No stain/odor | | | | | - | - Schedule - 80 PVC - |
| 170 <u></u> | 170.0 | 2.0 | 90% Sand; 10% Fines Sandy SILT | _ | | | | | Sump – – – |
| - | 172.0 | 2.0 | Dark Gray (GLEY1 4/N) Silt, very stiff, damp, low plasticity, rapid dilatancy. Sand, very fine to fine grained, sub-angular to sub-rounded, poorly graded. Moderate cementation. No stain/odor | - | | | | | - - - - |
| - | 174.0 | 2.0 | 35% Sand; 65% Fines | - | | | 0100140 0 400011 1 1 1 1 1 1 1 1 1 1 1 1 | | - - - - |
| 175 <u> </u> | 176.0 | 2.0 | | - | | | 2/22/18 @ 1600 Hard drilling @ 175 ft bgs 2/22/18 @ 1630 Boring terminated | | - - - - |
| - | 178.0 | 2.0 | | - | | | @ 180 ft bgs. Backfill with TR 3/8" bentonite chips from 170-180 ft bgs. Set 6" OD stainless steel screen w/ 0.010" slot 145 165 ft | | - - - |
| 180 | 180.0 | 2.0 | D. H | - - - | | | bgs, Sch 80 PVC sump 165-170 ft bgs. 8/16 sand filter pack to 143-170 ft bgs | | - - - |
| | | | Bottom of Boring at 180.0 ft bgs on 2/22/2018 | | | | | | |



DRILLING METHOD AND EQUIPMENT: Terrasonic 150CC; 8" surface casing, 7" barrel (0'-29' bgs); 6" casing, 4" barrel (29'-89' bgs), Rotosonic

BORING NUMBER:

WI-AF-MW-612

SHEET 1 OF 4

SOIL BORING LOG

PROJECT: NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (490240.1 N, 1189445.2 E)

ELEVATION: 87.4 ft DRILLING CONTRACTOR: Yellow Jacket

WATER LEVELS: 50.3 ft bgs START: 1/3/2018 END: 1/9/2018 LOGGER: M. Green SOIL DESCRIPTION SYMBOLIC LOG F E READING DEPTH BEL SURFACE (I RECOVERY NTERVAL WELL DIAGRAM SOIL NAME, USCS GROUP SYMBOL, COLOR, COMMENTS MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY SILT with Sand (ML) 1/3/18 @ 1320 Clear boring via 3-0.0 1.0 Black (10YR 2.5/1) Silt, soft, saturated, low plasticity, point HA to 7 ft x 12" OD 1/7/18 @ 0855 Collect soil sample WI-AF-SB612-0001-0118 from 0-1 medium dilatancy. Sand, very fine to fine grained, sub-rounded, poorly graded. Grass & roots present. No 2.0 cementation. No stain/odor ft bgs 1/7/18 @ 0830 GW encountered 3.0 15% Sand; 85% Fines from 0-2 ft bgs 1/7/18 @ 0900 Collect soil sample Silty SAND (SM) Strong Brown (7.5YR 5/6) Sand, loose, saturated, fine to 2.0 WI-AF-SB612-0204-0118 from 2-4 medium grained, sub-angular to sub-rounded, poorly graded. Fines: low plasticity. Isolated gravel up to 1" diameter. No 5 5.0 1/7/18 @ GW encountered from 4cementation. Mottled FeO staining 5% Gravel; 65% Sand; 30% Fines 4.5 ft bgs 2.0 1/7/18 @ 0920 Collect soil sample Sandy Lean CLAY (CL) Light Brownish Gray (10YR 6/2) Clay, soft, moist, medium plasticity, slow dilatancy. Sand, fine to medium grained, sub-angular to sub-rounded, poorly graded. Isolated gravel WI-AF-SB612-04.505.5-0118 & 7.0 MS/MSD samples WI-AF-SB612-04.505.5-0118-MS & WI-AF-SB612-2.0 04.505.5-0118-SD from 4.5-5.5 ft up to 1" diameter. Moderate cementation. Mottled FeO staining, isolated MnO staining. No odor 5% Gravel; 40% Sand; 55% Fines 9.0 1/7/18 @ 0815 Begin drilling w/ 10-ft x 8-inch OD casing & 10ft x 7-inch 10 Clayey SAND with Gravel (SC) 2.0 core barrel Light Brownish Gray (10YR 6/2) Sand, loose, wet, fine to 11.0 coarse grained, sub-angular to sub-rounded, well graded. Gravel up to 1.5" diameter, sub-angular to rounded, well graded. Fines: medium plasticity. No cementation. No 2.0 stain/odor 13.0 15% Gravel; 50% Sand; 35% Fines Lean CLAY with Sand (CL) Gray (10YR 5/1) Clay, moist, medium plasticity, slow 2.0 dilatancy. Sand, fine to medium grained, sub-angular to 15 15.0 sub-rounded, poorly graded. Moderate cementation. Mottled FeO staining, no odor 25% Sand; 75% Fines 2.0 0.0 Lean CLAY (CL) 17.0 Gray (GLEY1 6/N) Clay, moist, medium plasticity, no dilatancy. Well cemented. No stain/odor 10% Sand; 90% Fines 2.0 Lean CLAY (CL) 19.0 Gray (GLEY1 6/N) Clay, stiff, very moist, medium plasticity, slow dilatancy. Sand, fine to medium grained, sub-rounded to 20 2.0 rounded, poorly graded. Gravel, up to 1.5" diameter, isolated, rounded, well graded, sands appear in 1" to ~4" thick seams, 21.0 some penetrate across the core, others do not. Moderate cementation. No stain/odor 5% Gravel; 15% Sand; 80% Fines 20 23.0 2.0 25 25.0 2.0 0.0 27.0 Sandy Lean CLAY (CL) 1/7/18 @ 0855 GW encountered Gray (GLEY1 5/N) Clay, wet, medium plasticity, slow dilatancy. Sand, fine to medium grained, sub-rounded to rounded, poorly graded. Gravel up to 1.5" diameter, rounded, from 27-27.5 ft bas 2.0 29.0 well graded. Moderate cementation. No stain/odor 15% Gravel; 15% Sand; 70% Fines 30



BORING NUMBER:

WI-AF-MW-612

SHEET 2 OF 4

SOIL BORING LOG

PROJECT: NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (490240.1 N, 1189445.2 E)

ELEVATION: 87.4 ft DRILLING CONTRACTOR: Yellow Jacket

DRILLING METHOD AND EQUIPMENT: Terrasonic 150CC; 8" surface casing, 7" barrel (0'-29' bgs); 6" casing, 4" barrel (29'-89' bgs), Rotosonic END: 1/9/2018 WATER LEVELS: 50.3 ft bgs START: 1/3/2018 LOGGER: M. Green SOIL DESCRIPTION E SYMBOLIC LOG WQT(E READING RECOVERY DEPTH BEL SURFACE (F NTERVAL WELL DIAGRAM SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR COMMENTS CONSISTENCY, SOIL STRUCTURE, MINERALOGY Lean CLAY with Sand (CL) 1/7/18 @ 0900 Switch to 10-ft x 6' - Grout diam casing & 10-ft x 4-inch core barrel, 8" conductor casing left in 31.0 Same description as 18-27 ft bgs 5% Gravel; 15% Sand; 80% Fines hole to 29 ft bgs. 6" diam. Cobble @ 2.0 bottom of cc-15 interval 33.0 Sandy Lean CLAY (CL) 1/7/18 @ 0950 GW encountered Same description as 27-27.5 ft bgs from 32.5 t0 33 ft bgs 15% Gravel; 30% Sand; 55% Fines 2.0 Lean CLAY with Sand (CL) Same description as 18-27 ft bgs 5% Gravel; 15% Sand; 80% Fines 35 35.0 2.0 37.0 2.0 39.0 40 2.0 41.0 2.0 43.0 2.0 45 45.0 2.0 0.0 47.0 2.0 Sandy Lean CLAY (CL) Same description as 27-27.5 ft bgs but moist 15% Gravel; 20% Sand; 65% Fines 49.0 50 Lean CLAY with Sand (CL) 2.0 Same description as 18-27 ft bgs 51.0 5% Gravel; 15% Sand; 80% Fines 20 Clayey SAND with Gravel (SC) 1/7/18 @ 1040 GW encountered 53.0 Gray (GLEY1 5/N) Sand, dense, wet, fine to coarse grained, from 52.5-53.5 ft bgs sub-angular to sub-rounded, well graded. Gravel up to 1.5" diameter, sub-rounded to rounded, well graded. Fines: 2.0 medium plasticity. Moderate cementation. No stain/odor 15% Gravel; 40% Sand; 45% Fines 55 55.0 Lean CLAY with Sand (CL) 2.0 Same description as 18-27 ft bgs 0.0 5% Gravel: 15% Sand: 80% Fines 57.0 2.0 59.0 60



BORING NUMBER:

WI-AF-MW-612

SHEET 3 OF 4

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (490240.1 N, 1189445.2 E)

ELEVATION: 87.4 ft DRILLING CONTRACTOR: Yellow Jacket

DRILLING METHOD AND EQUIPMENT : Terrasonic 150CC; 8" surface casing, 7" barrel (0'-29' bgs); 6" casing, 4" barrel (29'-89' bgs), Rotosonic

| WATER | LEVELS | : 50.3 ft l | gs START : 1/3/2018 | | EN | D : 1/9/2018 LOGG | ER : M. Green |
|-----------------------------|---------------|---------------|---|--|--------------------------|--|------------------------|
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | SYMBOLIC LOG | PID READING HEADSPACE | COMMENTS | WELL DIAGRAM |
| - | 61.0 | 2.0 | - - - | | | | |
| - | 63.0 | 2.0 | | | | | - - - 3/8" - |
| 65 | 65.0 | 2.0 | <u>-</u> | - | | | Bentonite - Chips - |
| - | 67.0 | 2.0 | Clayey SAND with Gravel (SC) | - | 0.0 | | |
| - | 69.0 | 2.0 | Same description as 52.5-53.5 ff bgs but moist, well cemented 15% Gravel; 40% Sand; 45% Fines Gravelly Lean CLAY (CL) | | | 1/7/18 @ 1300 Collect soil sample WI-AF-SB612-6870-0118 from 68- 70 ft bgs | |
| 70 <u> </u> | 71.0 | 2.0 | Gray (GLEY1 5/N) Clay, very stiff, moist, medium plasticity, no dilatancy. Gravel up to 1.5" diameter, rounded, well graded. Sand, fine to coarse grained, sub-angular to sub-rounded, well graded. Well cemented. No stain/odor | - - - - - - | | 1/7/18 @ 1135 GW encountered from 70 to 78 ft bgs | |
| - | 73.0 | 2.0 | 30% Gravel; 10% Sand; 60% Fines Clayey SAND with Gravel (SC) Gray (GLEY1 5/N) Sand, loose, saturated, fine to coarse grained, sub-angular to sub-rounded, well graded. Gravel up | - - - - - | | | 2" Schedule |
| 75 | 75.0 | 2.0 | to 2" diameter, sub-rounded to rounded, well graded. Fines: medium plasticity. No cementation. No stain/odor 25% Gravel; 50% Sand; 25% Fines | | | | 80 PVC 0.010" Slot- |
| - | 77.0 | 2.0 | - - | | 0.0 | | |
| - - - | 79.0 | 2.0 | Gravelly Lean CLAY (CL) Same description as 69-70 ft bgs | - <i>()))</i> - <i>()))</i> - ()) | | | |
| 80 | 81.0 | 2.0 | 30% Gravel; 10% Sand; 60% Fines | | | 417/40 0 4040 011 | Schedule - |
| - | 83.0 | 2.0 | Clayey SAND with Gravel (SC) Dark Gray (GLEY1 4/N) Sand, loose, saturated, fine to medium grained, sub-angular to sub-rounded, poorly graded. Gravel up to 2.5" diameter, sub-rounded to rounded, well graded. No cementation. No stain/odor | | | 1/7/18 @ 1210 GW encountered from 81 to 84 ft bgs | Sump - |
| 85 | 85.0 | 2.0 | Gravelly Lean CLAY (CL) Gray (GLEY1 5/N) Clay, very stiff, moist, medium plasticity, no dilatancy. Gravel up to 1.5" diameter, rounded to | - <i> </i> - <i> </i> | | 1/7/18 @ 1215 GW encountered | - |
| - | 87.0 | 2.0 | sub-rounded, well graded. Sand, fine to coarse grained, sub-angular to sub-rounded, well graded. Well cemented. No stain/odor 30% Gravel; 20% Sand; 50% Fines | | 0.0 | from 85 to 88 ft bgs | - - - |
| - - | 89.0 | 2.0 | Clayey SAND with Gravel (SC) Same description as 81-84 ft bgs 20% Gravel; 60% Sand; 20% Fines | - (//) | _ | | |
| | | | | | | | |



BORING NUMBER:

WI-AF-MW-612

SHEET 4 OF 4

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (490240.1 N, 1189445.2 E)

ELEVATION: 87.4 ft

DRILLING CONTRACTOR: Yellow Jacket

DRILLING METHOD AND EQUIPMENT: Terrasonic 150CC; 8" surface casing, 7" barrel (0'-29' bgs); 6" casing, 4" barrel (29'-89' bgs), Rotosonic

| , | LEVELS | | eQUIPMENT : Terrasonic 150CC; 8" surface casing, /" barrel (0-2 gs START : 1/3/2018 | o bgo), (| 0 00 | | | GER : M. Green |
|-----------------------------|---------------|---------------|--|-----------|--------------|-------------|--|-----------------|
| | LLVLLS | | SOIL DESCRIPTION | | | T | LOGO | JEIV. WI. Green |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | | SYMBOLIC LOG | PID READING | COMMENTS | WELL DIAGRAM |
| | | | Gravelly Lean CLAY with Sand (CL) Same description as 84-85 ft bgs 30% Gravel; 20% Sand; 50% Fines Bottom of Boring at 89.0 ft bgs on 1/9/2018 | | | | 1/7/18 @ 1230Boring terminated @ 89 ft bgs, backfill to 83 ft bgs w/ bentonite chips 1/7/18 @ 1300 Install monitoring well screened from 68-78 ft bgs w/ 2" diam Sch. 80 PVC 0.010" slot screen & #20x40 sand filter pack w/ 5 ft Sch. 80 PVC sump at bottom, 5 ft bentonite seal above sand and grout to 2 ft bgs. Flush mount surface completion. See well completin diagram for details | - |
| | | | | | | | | |



DRILLING METHOD AND EQUIPMENT: Terrasonic 150CC; 8" surface casing, 7" barrel (0'-20' bgs); 6" casing, 4" barrel (20'-79' bgs), Rotosonic

BORING NUMBER:

WI-AF-MW-613

SHEET 1 OF 3

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (490272.5 N, 1188887.7 E)

ELEVATION: 92.9 ft DRILLING CONTRACTOR: Yellow Jacket

WATER LEVELS: 55.8 ft bgs START: 1/3/2018 END: 1/11/2018 LOGGER: M. Green SOIL DESCRIPTION SYMBOLIC LOG F E READING DEPTH BEL SURFACE (I RECOVERY NTERVAL WELL DIAGRAM SOIL NAME, USCS GROUP SYMBOL, COLOR, COMMENTS MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY 1/3/18 @ 1215 Clear boring via 3-Sandy SILT (ML) 0.0 1.0 Very Ďark Grayish Brown (10YR 3/2) Silt, very soft, point hand auger to 7 ft x 12-inch saturated, low plasticity, rapid dilatancy. Sand, fine to coarse 1/10/18 @ 1130 GW encountered from 0-0.5 ft bgs 1/10/18 @ 1155 Collect soil sample grained, sub-rounded to rounded, well graded. Organic roots 2.0 throughout core. No cementation. No stain/odor 5% Gravel; 30% Sand; 65% Fines 3.0 WI-AF-SB613-000.5-0118 from 0-Lean CLAY with Sand (CL) 0.5 ft bgs Brown, (10YR 5/3) Clay, stiff damp, medium plasticity, slow 2.0 1/10/18 @ 1200 Collect soil sample WI-AF-SB613-0.502-0118 from 0.5dilatancy. Sand, fine grained, sub-angular to sub-rounded, poorly graded. Moderate cementation. Mottled FeO staining, 5 5.0 isolated MnO staining. No odor, poorly graded. 1/10/18 @ 1210 Collect soil sample 20% Sand; 80% Fines 2.0 WI-AF-SB613-03.5-04.5-0118 from Sandy Lean CLAY (CL) 3.5-4.5 ft bgs Light Brownish Gray (10YR 6/2) Clay, stiff, damp, medium 7.0 plasticity, slow dilatancy. Sand, fine grained, sub-angular to 1/10/18 @ 1115 Begin drilling w/ 10sub-rounded, poorly graded. Moderate cementation. No ft x 8-in casing & 10-ft x 7-in core 2.0 stain/odor 9.0 35% Sand; 65% Fines Lean CLAY with Sand (CL) 10 Gray (10YR 5/1) Clay, very stiff, damp, medium plasticity, no 2.0 dilatancy. Sand, fine to medium grained, sub-angular to 11.0 sub-rounded, poorly graded, sands occur as discontinuous 0.5" thick seams. Gravel up to 3" diameter, sub-angular to rounded, well graded, gravels are isolated. Welll cemented. 2.0 No stain/odor 13.0 5% Gravel; 10% Sand; 85% Fines 2.0 15.0 15 2.0 0.0 17.0 2.0 19.0 1/10/18 @ 1200 Switch to 6-inch OD x 10-ft casing & 10-ft x 4-inch OD core barrel, 8-inch casings left Lean CLAY with Gravel (CL) Dark Gray (GLEY1 4/N) Clay, very moist, soft, medium plasticity, slow dilatancy, fine to coarse grained, sub-angular to sub-rounded, well graded. Gravel up to 1" diameter, 20 2.0 21.0 in ground from 0-24 ft bgs to act as angular to rounded, poorly graded, isolated gravel throughout isolation casings core, occasionally occurs in 1"-4" continuous seams with 2.0 sands, seams are more like gravelly/sandy clays. Well cemented. No stain/odor 23.0 15% Gravel; 10% Sand; 75% Fines 2.0 25 25.0 2.0 0.0 27.0 -Grout 2.0 29.0 30



DRILLING METHOD AND EQUIPMENT : Terrasonic 150CC; 8" surface casing, 7" barrel (0'-20' bgs); 6" casing, 4" barrel (20'-79' bgs), Rotosonic

BORING NUMBER:

WI-AF-MW-613

SHEET 2 OF 3

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (490272.5 N, 1188887.7 E)

ELEVATION: 92.9 ft DRILLING CONTRACTOR: Yellow Jacket

| WATER | | | rgs START : 1/3/2018 | . | | ND : 1/11/2018 | LOGGE | R : M. Green |
|-----------------------------|---------------|---------------|---|--|--------------------------|---|-------------|--------------|
| | | | SOIL DESCRIPTION | ō | | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | SYMBOLIC LOG | PID READING HEADSPACE | COMMENTS | | WELL DIAGRAM |
| | 31.0 | 2.0 | | -/// | | | , | 3 8 - |
| | 33.0 | 2.0 | | - - - - | | | | |
| 35 | 35.0 | 2.0 | | - - - | | | | |
| | 37.0 | 2.0 | | - - - - | 0.0 | | | |
| | 39.0 | 2.0 | | - - - - | | | | |
| 40 | 41.0 | 2.0 | Gravelly Lean CLAY (CL) Dark Gray (GLEY1 4/N) Clay, very moist, soft, medium plasticity, slow dilatancy. Sand, fine to coarse grained, | - - - | | | | |
| | 43.0 | 2.0 | sub-angular to sub-rounded, well graded. Gravel up to 2" diameter, sub-angular to round, well graded. Moderate cementation. No stain/odor 30% Gravel; 10% Sand; 60% Fines | - - - - | | | | |
| 45 <u></u> | 45.0 | 2.0 | Gravelly Lean CLAY with Sand (CL) Grayish Brown (10YR 5/2) Clay, moist, soft, medium plasticity, slow dilatancy. Sand, fine to coarse grained, sub-angular to sub-rounded, well graded. Gravel up to 3" | | | | | |
| | 47.0 | 2.0 | diameter, sub-angular to rounded, well graded. Moderately cemented. No stain/odor 25% Gravel; 20% Sand; 55% Fines | | 0.0 | | | - |
| | 49.0 | 2.0 | Poorly Graded SAND (SP) Olive Gray (5Y 5/2) Sand, loose, damp, very fine to fine grained, sub-rounded, poorly graded. No cementation. No stain/odor | | | | | - |
| 50 | 51.0 | 2.0 | \\\\95\% Sand; 5\% Fines \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\ | | | | | |
| | 53.0 | 2.0 | diameter, sub-rounded to rounded, well graded. Fines: medium plasticity. No cementation. No stain/odor 20% Gravel; 70% Sand; 10% Fines Well Graded SAND with Clay & Gravel (SW-SC) | - | | | | - |
| 55 | 55.0 | 2.0 | Same description as 48-49 ft bgs but Dark Gray (10YR 4/1), moist & subrounded to rounded sand 35% Gravel; 55% Sand; 10% Fines | - 1/1/1 - 1/1/1 - 1/1/1 - 1/1/1 | | 1/10/18 @ 1415 hard drilling | | |
| | 57.0 | 2.0 | Well Graded SAND with Clay & Gravel (SW-SC) Same description as 48-49 ft bgs 20% Gravel; 70% Sand; 10% Fines Well Graded SAND with Clay & Gravel (SW-SC) | - 1 | 0.0 | 1/10/18 @ 1515 Collect soil s WI-AF-SB613-5657.5-0118 fr | ample om | - - - |
| | 59.0 | 2.0 | Same description as 49-55 ft bgs but very moist 30% Gravel; 60% Sand; 10% Fines Well Graded SAND with Clay & Gravel (SW-SC) Same description as 48-49 ft bgs | | | 56-57.5 ft bgs 1/10/18 @ 1440 GW encount from 57.5 to 58.5 ft bgs | | |
| 60 | | | 20% Gravel; 70% Sand; 10% Fines | | | 1/10/18 @ 1430 hard drilling, rock at bottom of run | ıarge | Chips – |



BORING NUMBER:

WI-AF-MW-613

SHEET 3 OF 3

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (490272.5 N, 1188887.7 E)

ELEVATION: 92.9 ft DRILLING CONTRACTOR: Yellow Jacket

| DRILLIN | G METH | OD AND | EQUIPMENT : Terrasonic 150CC; 8" surface casing, 7" barrel (0'-20' l | ogs); 6" | ' casi | ng, 4 | 4" barrel (20'-79' bgs), Rotosonic | |
|-----------------------------|---------------|---------------|--|---|--------------|--------------------------|--|--------------------------------------|
| WATER | LEVELS | : 55.8 ft b | pgs START : 1/3/2018 | | | EN | D : 1/11/2018 LOGG | SER : M. Green |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | | SYMBOLIC LOG | PID READING HEADSPACE | COMMENTS | WELL DIAGRAM |
| _ | 04.0 | 2.0 | Clayey SAND (SC) | | | | 1/10/18 @ 1500 GW encountered | |
| - | 63.0 | 2.0 | Dark Ğray (10YR 4/1) Sand, loose, wet, fine to coarse grained, subrounded to rounded sand, well graded. Gravel up to 2" diameter, sub-rounded to rounded, well graded. Fines: medium plasticity. No cementation. No stain/odor 10% Gravel; 60% Sand; 30% Fines Well Graded SAND with Clay & Gravel (SW-SC) Same description as 48-49 ft bgs | | | | from 59.5-79 ft bgs | |
| 65 - | 65.0 | 2.0 | 20% Gravel; 70% Sand; 10% Fines Clayey SAND (SC) Same description as 57.5-58.5 ft bgs but dry and dense 10% Gravel; 60% Sand; 30% Fines | | | 0.0 | | |
| - | 67.0 | 2.0 | Clayey SAND (SC) Same description as 57.5-58.5 ft bgs but saturated 10% Gravel; 60% Sand; 30% Fines Well Graded SAND with Clay & Gravel (SW-SC) | | | 0.0 | | |
| 70 | 71.0 | 2.0 | Dark Gray (10YR 4/1) Sand, loose, saturated, fine to coarse sub-rounded to rounded, well graded. Gravel up to 2" diameter, sub-orounded to rounded, well graded. Fines: medium plasticity. No cementation. No stain/odor 20% Gravel; 70% Sand; 10% Fines | | | | | 2" Schedule 80 PVC 0.010" Slot |
| - | 73.0 | 2.0 | | - / - / - / - / - / - / | | | | |
| 75 | 75.0 | 2.0 | | - \$\frac{\fir}}}}}}{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac}\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac}\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\frac{\fra | | | | |
| - | 77.0 | 2.0 | | - * * * * * * * * * * * * * * * * * * * | | 0.0 | | Schedule - 80 PVC - |
| - | 79.0 | 2.0 | Clayey SAND with Gravel (SC) Dark Gray (10YR 4/1) Sand, loose, saturated, fine to coarse grained, sub-rounded to rounded, well graded. Gravel up to | - // | | | 1/10/18 @ 1545 Boring terminated | Sump - |
| | | | 2" diameter, sub-rounded to rounded, well graded. Fines: medium plasticity. No cementation. No stain/odor 20% Gravel; 60% Sand; 20% Fines Bottom of Boring at 79.0 ft bgs on 1/11/2018 | | | | @ 79 ft bgs. Prepare to install monitoring well construction w/ 2" OD Sch. 80 PVC screened w/ 0.010" slot between 64-74 ft bgs w/ a 5-ft sump below. #20x40 sand | - - - |
| | | | | - - - - | | | filter pack from 62-79 ft bgs w/ a 5-ft bgs. See well completion diagram for details | - - - - |
| | | | | | | | | - - - |
| | | | | - - - | | | | - |
| | | | | 1 | | | | - |



DRILLING METHOD AND EQUIPMENT : Terrasonic 150CC; 8" surface casing, 7" barrel (0'-40' bgs); 6" casing, 4" barrel (40'-69' bgs), Rotosonic

BORING NUMBER:

WI-AF-MW-614

SHEET 1 OF 3

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (489730.1 N, 1189249.0 E)

ELEVATION: 89.4 ft DRILLING CONTRACTOR: Yellow Jacket

| WATER | | | pgs START : 1/3/2018 | | | - | GER : M. Green |
|-----------------------------|---------------|---------------|---|--------------|-------------|---|----------------|
| | | | SOIL DESCRIPTION | (D | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | SYMBOLIC LOG | PID READING | | WELL DIAGRAM |
| _ | 0.0 1.0 | 1.0 | SILT with Sand (ML) Black (10YR 2.5/1) Silt, soft saturated, low plasticity, medium dilatancy. Sand, very fine to fine grained, poorly graded, | - | 0.1 | | |
| | 3.0 | 2.0 | \sub-rounded. No cementation. Roots & grass present. No stain/odor 15% Sand; 85% Fines | | | 1/5/18 @ 0915 Collect soil sample WI-AF-SB614-0001-0118 from 0-1 ft bgs 1/5/18 @ 0918 Collect soil sample WI-AF-SB614-0102-0118 from 1-2 | |
| 5_ | 5.0 | 2.0 | Lean CLAY (CL) Grayish Brown (10YR 5/2) Clay, dense, moist, medium plasticity, no dilatancy. Well cemented. FeO mottling, no odor 10% Sand; 90% Fines | | | ft bgs | |
| | 7.0 | 2.0 | - 10 % Salid, 90 % Filles | - | 0.0 | | |
| | 9.0 | 2.0 | Lean CLAY (CL) | | | 1/5/18 @ 0900 Begin drilling w/ 10-f x 8-in OD outer casing & 10-ft x 7- inch OD core barrel 1/5/18 @ 0920 Collect soil sample FD WI-AF-SB614P-0102-0118 from | |
| 10 | 11.0 | 2.0 | Gray (GLEY1 5/N) Clay, dense, moist, medium plasticity, no dilatancy. Well cemented. No stain/odor 10% Sand; 90% Fines | | | 1-2 ft bgs | |
| | 13.0 | 2.0 | - - - | | | | |
| 15 | 15.0 | 2.0 | Lean CLAY (CL) Same description as 9-14 ft bgs, but saturated 10% Sand; 90% Fines | | | 1/5/18 @ 0930 GW encountered from 14-14.5 ft bgs | |
| | 17.0 | 2.0 | Lean CLAY with Sand (CL) Gray (GLEY1 5/N) Clay, dense, mosit, medium plasticity, no dilatancy. Sand, fine to coarse grained, sub-angular to angular, well graded, sands are concentrated in seams | | 0.0 | 0 | |
| | 19.0 | 2.0 | ~0.5-2 ft apart, some penetrate core, others do not. Gravel up to 2" diameter, isolated, sub-rounded to rounded, well graded. Well cemented. No stian/odor 10% Gravel; 10% Sand; 80% Fines | - | | | |
| 20 | 21.0 | 2.0 | - | | | | |
| | 23.0 | 2.0 | - | | | | |
| 25_ | 25.0 | 2.0 | - - | | | | |
| | 27.0 | 2.0 | - - | | 0.0 | | Grout - |
| | 29.0 | 2.0 | - | | | | |
| 30 | | | | | 1 | | |
| | | | | | 1 | | |



BORING NUMBER:

WI-AF-MW-614

SHEET 2 OF 3

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (489730.1 N, 1189249.0 E)

ELEVATION: 89.4 ft DRILLING CONTRACTOR: Yellow Jacket

DRILLING METHOD AND EQUIPMENT : Terrasonic 150CC; 8" surface casing, 7" barrel (0'-40' bgs); 6" casing, 4" barrel (40'-69' bgs), Rotosonic

| WATER | LEVELS | : 52.8 ft b | gs START : 1/3/2018 | | EN | D : 1/6/2018 LOGO | GER : M. Green |
|-----------------------------|--|--|--|--------------|--------------------------|--|--------------------------------------|
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | SYMBOLIC LOG | PID READING HEADSPACE | COMMENTS | WELL DIAGRAM |
| 40_ 50_ 55_ | 31.0 33.0 35.0 37.0 41.0 45.0 47.0 49.0 51.0 | 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 | MOISTURE CONTENT, RELATIVE DENSITY OR | SAMBE | 0.0 PID RE HEADS | 1/5/18 @ 1000 Switch to 10-ft x 6-inch OD outer casing & 10-ft x 4-inch OD core barrel 1/5/18 @ 1025 GW encountered from 43-48 ft bgs 1/5/18 @ 1035 GW encountered from 40-54 ft bgs | ■ 3/8" Bentonite Chips — 20/40 Sand |
| 60 | 59.0 | 5.0 | | - /// | | 1/5/18 @ 1100 Hard drilling 1/5/18 @ 1110 GW encountered from 59-68 ft bgs | |



BORING NUMBER:

WI-AF-MW-614

SHEET 3 OF 3

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (489730.1 N, 1189249.0 E)

ELEVATION: 89.4 ft DRILLING CONTRACTOR: Yellow Jacket

DRILLING METHOD AND EQUIPMENT : Terrasonic 150CC; 8" surface casing, 7" barrel (0'-40' bgs); 6" casing, 4" barrel (40'-69' bgs), Rotosonic

| WATER | LEVELS | : 52.8 ft k | ogs START : 1/3/2018 | | | ENI | D : 1/6/2018 LOGG | ER : M. Green |
|-----------------------------|---------------|---------------|--|-------------------------|-------------|--------------------------|---|--------------------------------------|
| > _ |) | Æ | SOIL DESCRIPTION | | و | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | | SYMBOLIC LO | PID READING HEADSPACE | COMMENTS | WELL DIAGRAM |
| | | 2.0 | Clayey GRAVEL with Sand (GC) | - 1/ | 7 | | | |
| - | 61.0 | | Same description as 43-46 ft bgs but saturated & gravel up to 4" diameter 50% Gravel; 20% Sand; 30% Fines | - | | | | <u>-</u> |
| - | 63.0 | 2.0 | Well Graded GRAVEL with Clay & Sand (GW-GC) Gray (10YR 5/1) Gravel, saturated, loose, up to 3.5" diameter, rounded, well graded. Sand, fine to coarse grained, | - 64 - 64 | | | | |
| 65 | 65.0 | 2.0 | sub-rounded to rounded, well graded. Fines: medium plasticity. No stain/odor 65% Gravel; 25% Sand; 10% Fines | - 9 9 - 9 9 - 9 9 | | | | 2" Schedule 80 PVC 0.010" Slet |
| - - | 67.0 | 2.0 | | - 61 - 61 - 61 | | 0.0 | | |
| | | | | | :1 | | | |
| - | 69.0 | 1.0 | No Recovery | - | •1 | | 1/5/18 @ 1125 No recovery from 68-69 ft bgs | |
| | | | Bottom of Boring at 69.0 ft bgs on 1/6/2018 | 1 | T | | 1/5/18 @ 1130 Boring terminated @ | - |
| | | | | \dashv | | | 69 ft bgs, hole covered until materials delivered to build well | |
| | | | | 1 | | | 1/6/18 @ 0915 Construct monitoring well screened from 59-69 ft bgs w/ | - |
| | | | | | | | 0.010" slot screen Sch. 80 PVC 2" | - |
| | | | | 4 | | | OD w/ #20x40 sand filter pack from 57-69 ft bgs. Flush mount | _ |
| | | | | - | | | completion @ surface. See well | - |
| | | | | | | | construction diagram for more details | _ |
| | | | | - | | | details | - |
| | | | | 7 | | | | |
| | | | | - | | | | - |
| | | | | | | | | - |
| | | | | - | | | | - |
| | | | | | | | | - - |
| | | | | - | | | | - |
| | | | | 4 | | | | |
| | | | | | - | | | _ |
| | | | | 7 | - | | | - |
| | | | | _ | - | | | - |
| | | | | - | - | | | - |
| | | | | | - | | | _ |
| | | | | - | - | | | - |
| | | | | 1 | - | | | - |
| | | | | - | - | | | _ |
| | | | | | - | | | - |
| | | | | - | - | | | - |
| | | | | | - | | | - - |
| | | | | - | - | | | - |
| | | | | 1 | _ | | | _ |
| | | | | | | | | |
| | | | | | _ | | 1 | |



BORING NUMBER:

WI-AF-MW-615

SHEET 1 OF 7

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (488678.1 N, 1189640.4 E)

ELEVATION: 92.1 ft

DRILLING CONTRACTOR: Yellow Jacket

DRILLING METHOD AND EQUIPMENT: Terrasonic 150CC, 11" cond. casing, 10" outer casing, 8" barrel (0'-20' bgs); 6" outer casing, 4" barrel (20'-210' bgs), Rotosonic

| WATER | | | qs START : 2/13/2018 | o barre | <i>,</i> (c | | | GER : E. Cutler |
|-----------------------------|---------------|---------------|--|----------------|---------------|--------------------------|--|-----------------|
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | OC O TO TO MAN | STIMBOLIC LOG | PID READING HEADSPACE | COMMENTS | WELL DIAGRAM |
| 5 | 5.0 | 10.0 | Sandy SILT Dark Brown Silt, moist. Sand, fine grained. Abundant organics 30% Sand; 70% Fines Silty SAND with Gravel Light Brown Sand, moist, well graded, fine to coarse grained rounded to sub-rounded. Gravel up to 0.5" diameter 10% Gravel; 60% Sand; 30% Fines Clayey SAND with Gravel Light Brown Sand, fine to coarse grained, well graded. Gravel up to 0.25" diameter. Fe staining, reddish brown 10% Gravel; 50% Sand; 40% Fines Lean CLAY Grayish Brown Clay, very stiff, medium to low plasticity. No sand. No gravel. Becomes sandy from 5.5-7.75 ft bgs 100% Fines Lean CLAY Same description as 4.5-6 ft bgs but trace gravel, root casts apparent, mottled reddish brown 100% Fines Lean CLAY Same description as 4.5-6 ft bgs 100% Fines Lean CLAY Same description as 6-6.5 ft bgs, but no gravel, increased moisture 100% Fines | | | 0.0 | 2/13/18 Clear boring to 3-point hand auger to 7 ft x 12-in OD; 1418 Start drilling 1430 Collect soil sample WI-AF-SB615-0001-0218 from 0-1 ft bgs 1445 Collect soil sample WI-AF-SB615-0506-0218 from 5-6 ft bgs | |
| 20 | 25.0 | 10.0 | Clayey SAND with Gravel Grayish Brown Sand, well graded, fine to medium grained. Gravel sub-rounded to rounded up to 1.75" diameter. Trace cobbles, rounded up to 3 " diameter 15% Gravel; 60% Sand; 25% Fines Lean CLAY Gray Clay, stiff, moist, medium to high plasticity. No sand. No gravel. No mottling 100% Fines Lean CLAY Same description as 16-23 ft bgs, but trace rounded gravel up to 1" diameter 100% Fines Lean CLAY Same description as 23-23.5 but no gravel 100% Fines Lean CLAY Same description as 23-5-25 ft bgs, but trace gravel up to 0.75" diameter 100% Fines | | | | 1520 Drillers pause to plug mud tub 1545 Issues resrarting mud puppy (battery needed charging); Resume drilling @ 1640 | |
| | | | | | | | | |



BORING NUMBER:

WI-AF-MW-615 s

SHEET 2 OF 7

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (488678.1 N, 1189640.4 E)

ELEVATION: 92.1 ft

DRILLING CONTRACTOR: Yellow Jacket

DRILLING METHOD AND EQUIPMENT : Terrasonic 150CC, 11" cond. casing, 10" outer casing, 8" barrel (0'-20' bgs); 6" outer casing, 4" barrel (20'-210' bgs), Rotosonic

| WATER | I FVFI S | | ogs START : 2/13/2018 | | | |) : 2/15/2018 | ER : E. Cutler |
|-----------------------------|---------------|---------------|--|--------------|-------------|-----------|---|----------------|
| | | | SOIL DESCRIPTION | (D | | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | SYMBOLIC LOG | PID READING | HEADSPACE | COMMENTS | WELL DIAGRAM |
| 35 | 35.0 | 22.5 | Lean CLAY with Gravel Dark Gray Clay, stiff, moderate plasticity, low dilatancy. Gravel up to 2" diameter, subrounded 10% Gravel; 90% Fines Lean CLAY with Gravel Same description as 26.75-32 ft bgs but becomes trace subangular, coarse sand, gravel up to 1.5" diameter 10% Gravel; 90% Fines Lean CLAY with Gravel Same description as 32-38 ft bgs, but trace gravel, subrounded, gravel up to 3.75" diameter 10% Gravel; 90% Fines Lean CLAY with Gravel Same description as 38-43 ft bgs, but decreased stiffness, becomes stiff, medium plasticity, medium dilatancy 10% Gravel; 90% Fines Lean CLAY with Gravel Same description as 43-48 ft bgs, but decreased gravel 10% Gravel; 90% Fines Lean CLAY with Gravel Same description as 43-48 ft bgs, but decreased gravel 10% Gravel; 90% Fines Lean CLAY with Sand, Silt, & Gravel Dark Gray Clay, medium stiff, moist, medium plasticity, low diliatancy, Sand, fine grained. Gravel up to 0.75" diameter, sub-rounded 5% Gravel; 10% Sand; 80% Fines Lean CLAY with Sand, Silt, & Gravel Same description as 50-52.5 ft bgs but decreases sand and gravel 5% Gravel; 10% Sand; 85% Fines Lean CLAY Dark Gray Clay, stiff, moist, medium to low plasticity, low dilatancy, No sand. No gravel 100% Fines Silty SAND with Clay Sharp Contact @ 55.5 ft bgs Grayish Brown Sand, medium dense, moist, well graded, normal grading, fine to coarse grained. Thick laminations of silt and sand from 56.5 ft bgs 100% Sand; 70% Fines | | | | 2/13/18 @ 1730 Stop drilling 0840 Resume drilling | ■ Grout |
| | | | | | | | | |



BORING NUMBER:

WI-AF-MW-615

SHEET 3 OF 7

SOIL BORING LOG

PROJECT: NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (488678.1 N, 1189640.4 E)

ELEVATION: 92.1 ft DRILLING CONTRACTOR: Yellow Jacket

DRILLING METHOD AND EQUIPMENT: Terrasonic 150CC, 11" cond. casing, 10" outer casing, 8" barrel (0'-20' bgs); 6" outer casing, 4" barrel (20'-210' bgs), Rotosonic WATER LEVELS: 54.6 ft bgs START: 2/13/2018 END: 2/15/2018 LOGGER: E. Cutler SOIL DESCRIPTION SYMBOLIC LOG F ŠĒ E READING DEPTH BEL SURFACE (I RECOVERY NTERVAL WELL DIAGRAM SOIL NAME, USCS GROUP SYMBOL, COLOR, COMMENTS MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY Silty SAND with Clay Same description as 55.5-57.5 ft bgs, but gravelly, Light Gray, dense 30% Sand; 70% Fines Driller notes harder drilling @ 61' Silty GRAVEL with Sand Dark Gray Gravel, dense, decreased moisture, angular to sub-rounded. Sand, fine grained. Gravel up to 2" diameter 60% Gravel; 5% Sand; 35% Fines Silty GRAVEL with Sand 65 65.0 Same description as 58.75-60 ft bgs but decreased fines 1015 Drillers stop to work on rig 60% Gravel; 5% Sand; 35% Fines control box; 1030 Resume drilling; Silty GRAVEL with Sand Bentonite 1100 pause drilling for drill head Same description as 60-62.5 ft bgs but loose, decreased Chips maintenance; 1110 Resume drilling cohesion, no clay, trace cobbles, subangular to angular 1130 Collect soil sample WI-AFgravel up to 1.25" diameter 60% Gravel; 5% Sand; 35% Fines SB615-6768-0218 & MS/MSD from 67-68 ft bgs Silty SAND with Gravel Dark Gray Sand, loose, poorly graded, fine sand, angular to sub-rounded. Gravel up to 1.5" diameter. No clay -8/16 Sand 70 10% Gravel; 50% Sand; 40% Fines Silty SAND with Gravel Same description as 63.75-65.5 ft bgs but dense, increased gravel, trace cobbles 10% Gravel; 50% Sand; 40% Fines Silty SAND with Gravel Same description as 65.5-67 ft bgs but increased moisture 10% Gravel; 50% Sand; 40% Fines Well Graded GRAVEL with Sand & Silt Dark Gray Gravel, loose, well graded, cobbles up to 2.75" 75 19.5 diameter. Sand, sub-angular. Saturated at 69.5 ft bgs 70% Gravel; 20% Sand; 10% Fines Well Graded GRAVEL with Sand & Silt Same description as 68-74.5 ft bgs but medium to coarse sand 70% Gravel; 20% Sand; 10% Fines Well Graded GRAVEL with Sand & Silt Same description as 74.5-75.5 ft bgs but gravel subangular to subrounded up to 2" diameter 80 70% Gravel: 20% Sand: 10% Fines 6" Stainles Steel -0.010" Slot-Well Graded GRAVEL with Sand & Silt Same description as 75.5-81 ft bgs but with trace cobbles 70% Gravel; 20% Sand; 10% Fines 85 85.0 1220 Stop drilling for lunch; Resume Well Graded GRAVEL with Sand drilling @ 1300 Gravel, up to 2" diameter, loose, saturated, well graded. Sand, coarse grained, rounded. Trace cobbles 90% Gravel; 10% Sand Well Graded GRAVEL with Sand Same as 85.5-87.5 ft bgs but large cobbles up to 6" diameter, little to no fines 90% Gravel; 10% Sand 90



BORING NUMBER:

WI-AF-MW-615

SHEET 4 OF 7

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (488678.1 N, 1189640.4 E)

ELEVATION: 92.1 ft DRILLING CONTRACTOR: Yellow Jacket

DRILLING METHOD AND EQUIPMENT: Terrasonic 150CC, 11" cond. casing, 10" outer casing, 8" barrel (0'-20' bgs); 6" outer casing, 4" barrel (20'-210' bgs), Rotosonic WATER LEVELS: 54.6 ft bgs START: 2/13/2018 END: 2/15/2018 LOGGER: E. Cutler SOIL DESCRIPTION SYMBOLIC LOG F §€ E READING DEPTH BEL SURFACE (I RECOVERY NTERVAL WELL DIAGRAM SOIL NAME, USCS GROUP SYMBOL, COLOR, COMMENTS MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY Well Graded GRAVEL with Sand Same as 87.5-89.5 ft bgs but well graded gravel ,90% Gravel; 10% Sand Well Graded GRAVEL with Sand and Silt Dark Gray Gravel, dense, sub-angular to rounded,up to 1.75" Schedule diameter. Sand, medium to coarse grained. Fines increase 80 PVC with depth Sump 70% Gravel; 20% Sand; 10% Fines 95 19.5 Lean CLAY Sharp contact at 97 ft bgs Dark Gray Clay, stiff, moist, low plasticity. No gravel. No sand. Increased moisture at 98.5 ft bgs 100% Fines 100 Clayey SAND Dark Gray Sand, fine grained, coarser with depth, poorly graded, moist, cohesive 70% Sand; 30% Fines Poorly Graded SAND with Clay Dark Gray Sand, medium grained, coarser with depth, poorly graded, moist, non-cohesive 95% Sand; 5% Fines Well Graded SAND with Gravel 105 105.0 Dark Gray Sand, fine ro coarse grained, wet, angular to sub-rounded sand. Gravel up to 1.25" diameter 10% Gravel; 85% Sand; 5% Fines Clayey SAND with Silt Light Gray Sand, dense, saturated. Increased clay with depth 60% Sand; 40% Fines Clayey SAND with Silt Same description as 105.75-108 ft bgs but trace gravel 60% Sand; 40% Fines Hard drilling from 109-114 ft bgs 9.0 110 Clayey SAND with Silt Same description as 108-108.5 ft bgs but decreased moisture 60% Sand; 40% Fines Clayey SAND with Silt and Gravel Dark Gray Sand, very dense, slightly moist, poorly graded sand, subangular. Gravel up to 1.5" diameter. Decresed moisture with depth. Boulder from 114-115.5. Increasing 114.0 density with depth. Fine sand at 118 ft bgs 10% Gravel; 50% Sane; 40% Fines 115 Extremely hard drilling to 125 ft bgs 18.0 120



BORING NUMBER:

WI-AF-MW-615

SHEET 5 OF 7

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (488678.1 N, 1189640.4 E)

ELEVATION: 92.1 ft

DRILLING CONTRACTOR: Yellow Jacket

DRILLING METHOD AND EQUIPMENT : Terrasonic 150CC, 11" cond. casing, 10" outer casing, 8" barrel (0'-20' bgs); 6" outer casing, 4" barrel (20'-210' bgs), Rotosonic

| WATER LE | EVELS : | 54.6 ft b | ogs START : 2/13/2018 | | ΕN | ND : 2/15/2018 LOGG | SER : E. Cutler |
|-----------------------------|---------------|---------------|--|--------------|--------------------------|--|-----------------|
| | | _ | SOIL DESCRIPTION | (D | | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | SYMBOLIC LOG | PID READING HEADSPACE | COMMENTS | WELL DIAGRAM |
| 125 1 | 125.0 | | Lean CLAY with Sand and Gravel Dark Gray Clay, hard, medium plasticity. Sand, coarse grained, angualar. Gravel up to 0.75" diameter, cohesive, slightly moist 5% Gravel; 5% Sand; 90% Fines Well Graded SAND with Gravel Dark Gray Sand, fine to coarse grained, angular. Gravel up to 0.5" diameter 5% Gravel; 95% Sand Lean CLAY with Sand Dark Gray Clay, hard, medium plasticity, slightly moist. Sand coarse grained. No gravel 5% Sand; 95% Fines | | | Extremely hard drilling hard drilling | |
| 135 | 138.0 | 11.0 | Lean CLAY with Sand and Gravel Dark Gray Clay, hard, low plasticity. Sand, coarse grained, sub-angular. Gravel, sub-angular 10% Gravel; 10% Sand; 80% Fines Well Graded SAND with Clay Dark Gray Sand, loose, wet. Sand, medium to coarse grained, sub-angular to angular 95% Sand; 5% Fines | | | Lost bottom ~ft of run Large amount of sand going through mud puppy from formation Stop drilling @ 1715 on 2/14/18; Start drilling @ 0850 on 2/15/18; Additional runto recover bottom ~5 ft of run + 2 addiitional ft to 140' bgs | |
| 145 | | 27.0 | Lean CLAY with Sand Same description as 126-136.25 ft bgs 5% Sand; 95% Fines Gravelly Lean CLAY with Sand & Silt Dark Gray Clay, hard, moist. Sand, angular to sub-angular sand. Gravel, trace cobbles, gravel up to 2" diameter 20% Gravel; 15% Sand; 65% Fines Gravelly Lean CLAY with Sand & Silt Same description as 140-143.5 ft bgs but with weathered granite gravels and cobbles; large cobble at 151.5 ft bgs 20% Gravel; 15% Sand; 65% Fines | | | Came out of core hot | |



BORING NUMBER:

WI-AF-MW-615

SHEET 6 OF 7

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (488678.1 N, 1189640.4 E)

ELEVATION: 92.1 ft

DRILLING CONTRACTOR: Yellow Jacket

| ELEVATION: 92.1 ft | DRILLING CONTR | RACTOR | : Yello | w Jacket | |
|---|--|---|--------------------------|---|--------------------|
| DRILLING METHOD AND | EQUIPMENT : Terrasonic 150CC, 11" cond. casing, 10" outer casing, 8 | 3" barrel (| 0'-20' | bgs); 6" outer casing, 4" barrel (20'-210 | 0' bgs), Rotosonic |
| WATER LEVELS : 54.6 ft | bgs START : 2/13/2018 | | ENI | D : 2/15/2018 LOG | GGER : E. Cutler |
| DEPTH BELOW SURFACE (FT) INTERVAL (FT) RECOVERY (FT) | SOIL DESCRIPTION SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | SYMBOLIC LOG | PID READING HEADSPACE | COMMENTS | WELL DIAGRAM |
| 155 155.0 | Gravelly Lean CLAY with Sand & Silt Same description as 143.5-157 ft bgs, but hard, phenocrysts of olivine, quartz, and feldspar apparent; large cobbles at 161.5 20% Gravel; 15% Sand; 65% Fines | | | Hard drililng Cores come out in long, unbroken sections | - |
| 165 167.0 | Gravelly Lean CLAY with Sand & Silt Same description as 157-165 ft bgs, but angular to rounded gravel up to 2" diameter 20% Gravel; 15% Sand; 65% Fines Gravelly Lean CLAY with Sand & Silt Same description as 165-169.5 ft bgs but Dark Grayish Brown 20% Gravel; 15% Sand; 65% Fines | | | Cores come out hot; Hard drilling | - |
| 175 25.0 | Gravelly Lean CLAY with Sand & Silt Same description as 169.5-174 ft bgs, but increased gravel with depth, hard, low plasticity 20% Gravel; 15% Sand; 65% Fines | - - - - - - - - - - - - - - - - - - - | | Extremely hard drilling | |
| 180 | | | | | |



BORING NUMBER:

WI-AF-MW-615 si

SHEET 7 OF 7

SOIL BORING LOG

PROJECT : NAS Whidbey Island Ault Field, Oak Harbor, WA

LOCATION: Oak Harbor, WA (488678.1 N, 1189640.4 E)

ELEVATION: 92.1 ft

DRILLING CONTRACTOR: Yellow Jacket

DRILLING METHOD AND EQUIPMENT : Terrasonic 150CC, 11" cond. casing, 10" outer casing, 8" barrel (0'-20' bgs); 6" outer casing, 4" barrel (20'-210' bgs), Rotosonic

| | | : 54.6 ft b | EQUIPMENT: Terrasonic 150CC, 11" cond. casing, 10" outer casing, 8 ogs START: 2/13/2018 | barrer | | | GER : E. Cutler |
|---|----------------|---------------|--|--------------|--------------------------|--|--|
| | | | SOIL DESCRIPTION | (D | Γ | | |
| DEPTH BELOW SURFACE (FT) | INTERVAL (FT) | RECOVERY (FT) | SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY | SYMBOLIC LOG | PID READING HEADSPACE | COMMENTS | WELL DIAGRAM |
| 185_ 190_ 195_ 195_ 195_ 195_ 195_ 195_ 195_ 195 | 182.0 190.0 | 12.0 P.5 9.5 | MOISTURE CONTENT, RELATIVE DENSITY OR | 108ws | PID REA HEADSP | Shale completely pulverized; not able to determine whether fractured due to pulverization from drill Extremely hard drilling 1230 Stop drilling for lunch; 1305 Resume drilling 1330 Stopped drilling for rig maintenance; 1345 Resume drilling Intact shale segment from 195-197.5 ft bgs Used water to drill from 195-207 ft bgs | |
| 205 | 210.0 | | | - | | 1440 Stopped drilling @ 210 ft bgs on 2/15/18; Backfill with bentonite grout from 210-95 ft bgs; 6" OD Sch. 80 PVC sump 95-90 ft bgs, 6" OD stainless steel screen w/ 0.010" slot 90-70 ft bgs, 6" OD well casing 90-20 ft bgs, 6" stainless steel casing 20-0 ft bgs, flush mount completion. | - - - - - - - - - - |
| | | | Bottom of Boring at 210.0 ft bgs on 2/15/2018 | | | | |

File Original and First Copy with Department of Ecology Second Copy — Owner's Copy Third Copy — Driller's Copy

WATER WELL REPORT

Start Card No. 39963
UNIQUE WELL I.D. #

STATE OF WASHINGTON

Water Right Permit No.

33/1/13 P

| (1) | OWNER: NameAdd | ress | | |
|------------|--|--|----------------|-----------------|
| (2) | LOCATION OF WELL: County /SLAND | SE 1/4 SW 1/4 Sec / 3 1.3 | N. R_ | IE w.w |
| (2a) | STREET ADDRESS OF WELL (or nearest address) | PER RD, OAK HARBOR WA. | | |
| (3) | PROPOSED USE: Domestic Industrial Municipal Industrial Municipal Industrial I | (10) WELL LOG or ABANDONMENT PROCEDURE D Formation. Describe by color, character, size of material and structure, and | ESCRIPTI | |
| (4) | TYPE OF WORK: Owner's number of well | and the kind and nature of the material in each stratum penetrated, with a change of information. | at least one e | entry for each |
| (- , | Abandoned New well Method: Dug Bored Bored | MATERIAL | FROM | то |
| | Deepened Cable Driven Beconditioned Reconditioned Deepened Driven Betted | SANDY | 0 | 15 |
| <u>/E\</u> | PINELIGIANO | HARD PAN | 12_ | 23 |
| (5) | Drilled 3 feet. Depth of completed well 15. | DIRTY SAND WATER SAND | 29 | 36 |
| (6) | CONSTRUCTION DETAILS: Casing Installed: | | | |
| | Type of perforator used | WELL HAS 100' RADIN | | |
| | perforations from tt. to tt. | | のまり | |
| | Screens: Yes No 🗆 | COUNTY BOOR | FG> | |
| | Manufacturer's NameCook | Dannin Fo | her | 29 |
| | Type STAIN F32 Model No. | | | |
| | Diam. Slot size 2 from 30 ft. to 3 ft. to 15. | | | |
| | | RECEIVED | | |
| | Gravel packed: No. Size of gravel Gravel placed from ft. to ft. | | | |
| | Surface seal: Yes No To what depth? | APR - 6 1994 | | |
| | Material used in seal Did any strata contain unusable water? Yes No Type of water? Depth of strata Method of sealing strata off | DEPT. OF ECOLOGY | | |
| (7) | PUMP: Manufacturer's Name | | | |
| (8) | WATER LEVELS: Land-surface elevation above mean sea level tt. below top of well Date Artesian water is controlled by (Cap. valve. etc.) | | | 4 |
| (9) | WELL TESTS: Drawdown is amount water level is lowered below static level | Work Started 19 Completed | | 19 |
| | Was a pump test made? Yes No K If yes, by whom? | WELL CONSTRUCTOR CERTIFICATION: I constructed and/or accept responsibility for construction compliance with all Washington well construction standards the information reported above are true to my best knowledge | . Materials | used and |
| | Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level) me Water Level Time Water Level Time Water Level | NAME WHIDBEY DRILL (PERSON FIRM OR CORPORATION) (TYPE OR Address OAK HARBOR (Signed Censis (WELL DRILLER) | MF | -9 |
| | Date of test | Contractor's Registration D2.85 M M Date (USE ADDITIONAL SHEETS IF NECESSA | (RY) | , 19 9 Y |

File Original and First Copy with Department of Ecology Second Copy — Owner's Copy Third Copy — Driller's Copy

WATER WELL REPORT

Application No. 33/01-13 N
Permit No.

STATE OF WASHINGTON

| 1) OWNER: Name | Address | . US |
|--|---|-----------------------------|
| | _ SW 1/4 SW 1/4 Sec 13 T.33 N., F | L.V.KW.M. |
| aring and distance from section or subdivision corner | CAN MILL TOC | |
|) PROPOSED USE: Domestic Mindustrial Municipal [| (10) WELL LOG: | ructure, and |
| Irrigation Test Well Other | Formation: Describe by color, character, size of material and st show thickness of aquifers and the kind and nature of the mate stratum penetrated, with at least one entry for each change o | rial in each f formation |
| 1) TYPE OF WORK: Owner's number of well (if more than one) | MATERIAL FROM | |
| New well R Method: Dug Bored | GANKY HARD PAN | 18 |
| Deepened ☐ Cable ☐ Driven ☐ Reconditioned ☐ Rotary ☐ Jetted ☐ | FINE SOURY SAND 18 | 25 |
| Reconstruction . | WATER IN SAND 25 | - 41 |
| Drilled ##0 ft. Depth of completed well ft. | WATER SAND (FINER) 40 | |
| 6) CONSTRUCTION DETAILS: | | |
| Casing installed: 6 " Diam. from O ft. to 35 1/2 ft. | | |
| Threaded D Diam. from ft. to ft. | | |
| Welded Diam. from ft. to ft. | | |
| Perforations: Yes 🗆 No 🙀 | | |
| Type of perforator used | | |
| SIZE of perforations in by in the perforations from the ft. to ft. | | |
| perforations from the to the perforations from the to the perforations from the total fit. | | + |
| perforations from ft. to ft. | | - |
| Screens: Yes No D | | |
| Manufacturer's Name COOK | | |
| Model No. 3 TAINING | | |
| Diam. Slot size of from 3.5 ft. to 7.9 ft. | | |
| Diam. Slot size from ft. to ft. | | |
| Gravel packed: Yes No Size of gravel: | | |
| Gravel placed from ft. to ft. | | |
| Surface seal: Yes W No To what depth? 18 + ft. | | |
| Material used in seal. BENTONITE | | |
| Did any strata contain unusable water? Yes 🗍 No Ĕ | · | |
| Type of water? Depth of strata | | |
| Method of sealing strata off. | | |
| (7) PUMP: Manufacturer's Name | | |
| Type: H.P. | | |
| (8) WATER LEVELS: Land-surface elevation above mean sea level. So ≠ ft | | |
| Static level 13 | | |
| Artesian pressure lbs. per square inch Date | | |
| Artesian water is controlled by(Cap. valve, etc.) | | |
| On the I TESTS. Drawdown is amount water level is | Work started See 1988 Completed See 1 | |
| (9) WELL TESTS: Drawdown is amount water level is lowered below static level Was a pump test made? Yes No If yes, by whom? | Work started | 10.70 |
| Was a pump test made? Yes No 11 yes, by whom: Yield: // gal./min. with // ft. drawdown after 4 hrs | - | |
| n u | This well was drilled under my jurisdiction and t | his report |
| 0 0 0 | true to the best of my knowledge and belief. | |
| Recovery data (time taken as zero when pump turned off) (water level | 11 HINREU DRILLERS | |
| measured from well top to water level) Time Water Level Time Water Level Time Water Level | NAME (Person, firm, or corporation) (Type of | or print) |
| | - NAW HARRAR INA | 9821 |
| | Address CMA AMILEON | |
| | The Daniel Follow | |
| Date of test Bailer test 1.5 gal/min. with 1.5 ft. drawdown after 2 hr | [Signed] (Well Driller) | |
| Bailer test gai/min with g.p.m. Date | | 106 |
| Temperature of water. Was a chemical analysis made? Yes No | License No. Date | 18.7 |

| 1 | | | Well | | | vel below surface | Pun | ıp | | |
|-------------|--|-----|-----------------|----------------|-------|----------------------|----------------|-------------------------|------|--|
| fell no. | Owner or tenant | | Depth (feet) | Diam. (in.) | Feet | Date | Yield (gpm) | Draw- down (feet) | Use | Remarks |
| . 33 | N., R. 1 E Continued | | | | | | , | | ···· | |
| 2M1 | | 220 | 9 | 48 | 4.32 | 7-15-64 | | | DS | Supplies 10 cattle, 3 horses. |
| 2 M2 | | 113 | 48 | 6 | 26 | 8- 1-60 | 16 | 16 | D | Supplies 2 families. L. |
| | | | | | 26.52 | 7-15-64 | | | | |
| 2N1 | | 38 | 46 | 6 | 21 | 8- 2-60 | 106 | 12.5 | D | Supplies 3 families. L. |
| 2N2 | | 45 | 55 | 6 | 29 | 9-20-58 | 15ь | 10 | D | Noticeable iron. L, P. |
| зм1 | | 20 | 15+ | | Dry | 1953 | | | D | |
| | | İ | | | 14.80 | 7-16-64 | | | | |
| 3Q1 | | 125 | 165 | 6 | 92 | 5- 1-61 | 4 | 1 | С | Used to wash sand and gravel. L, P |
| | | | | | 91.60 | 7-15-64 | | | | |
| 4D1 | U.S. Naval Air Sta., Ault Field (well 6) | 34 | 156 | 8-6 | | | 50 | | х | L. |
| 4M1 | U. S. Naval Air Sta., Ault Field (well 2) | 28 | 182 | | | | 100 | | x | Aquifer from 148 to 165 ft. L. |
| 5Q1 | U.S. Naval Air Sta., Ault Field (well 1) | 42 | 445 | | | | 30 | | x | Aquifer from 34 to 40 ft, from 67 to 130 ft, and from 165 to 172 ft. L |

Table 11 - Drillers' logs of representative wells, Whidbey Island - Cont.

| Materials | Thickness (feet) | Depth (feet) |
|---|----------------------|--|
| 33/1-12H2 - Continued | : | |
| Hardpan, softSand and gravel, water-bearing | 243 | 131 155 |
| 33/1-12J1. John Van Every. Altitude 205 ft. Drilled by Lambert Vander Stoep, 1962. | ļ | |
| Gravei | 46 36 46 13 | 46 54 90 94 94 112 118 |
| 33/1-12M2. Andy Kammenga. Altitude 113 ft. Drilled by Lambert Vander Stoep, 1960. | | |
| Gravel | 33 15 | 33 48 48+ |
| 33/1-12N1. Mrs. M. Prothero. Altitude 38 ft. Drilled by Lambert Vander Stoep, 1960. Screen, 10-slot, 41-46 ft. | | j |
| Topsoil | 18 10 | 18 28 46 |
| 33/1-12N2. Ida Jenkins. Altitude 45 ft. Drilled by Lambert Vander Stoep, 1958. Screen, 14-slot, 50-55 ft. | | |
| Topsoil Hardpan Clay, sandy Sand, gravelly near bottom | 3 21 11 20 | \(\alpha\) \(\omega\) \(\omega\) \(\omega\) \(\omega\) |
| 33/1-13Q1. Everett Bros. Const. Co. Altitude 125 ft. Drilled by Lambert Vander Stoep, 1961. Screen, 10-slot, 150-155 ft; 14-slot, 155-165 ft. | | |
| GravelClay, sandy | 10 | . 4 14 |

Table 11-Drillers' logs of representative wells, Whidbey Island - Cont.

| Altitude 42 ft. Gravel and boulders | 33/1-14M1. U. S. Naval Air Sta., Ault Field (well 2) Altitude 28 ft. Drilled in 1942. Clay | 33/1-14D1. U.S. Naval Air Sta., Ault Field (well 6), Altitude 34 ft. Drilled by J. J. Bell. Screen, 146-156 ft. Topsoil | Gravel | Materials |
|---|---|--|--|---------------------|
| 2000 3 62 3 62 64 64 65 65 65 65 65 65 65 65 65 65 65 65 65 | 23 22 24 17 17 | 32 122 | 13 6 34 15 16 10 | Thickness (feet) |
| 34 40 40 130 135 172 172 235 348 351 358 415 | 23 34 56 80 148 165 | 2 34 156 | 16 29 32 38 72 72 87 105 115 | Depth (feet) |

File Original and First Copy with Department of Ecology Second Copy — Owner's Copy Third Copy — Drifler's Copy

WATER WELL REPORT STATE OF WASHINGTON

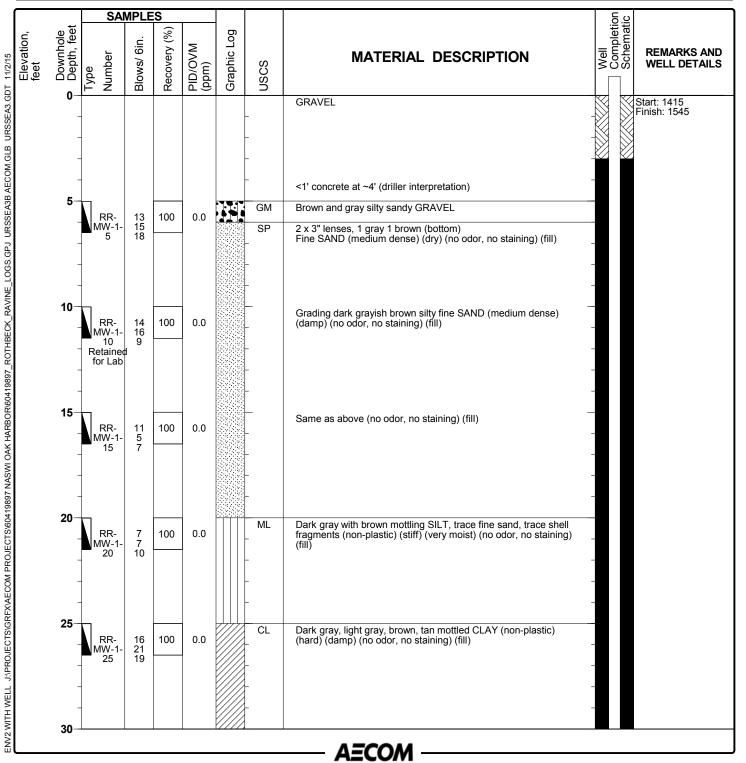
35/01-13R Application No.

Permit No. . .

| (1) OWNER: Nam | Address |
|--|---|
| (2) LOCATION OF WELL: County SLAND | _SE 14 SE 14 Sec. 13 T 33 N., RIE W.M. |
| (3) PROPOSED USE: Domestic Industrial Municipal Irrigation Test Well Other | (10) WELL LOG: Formation: Describe by color, character, size of material and structure, and show thickness of aquifers and the kind and nature of the metrial in each show the control of the metrial in each change of the metric for each change of formation. |
| (4) TYPE OF WORK: Owner's number of well 2 - New well Method: Dug Bored Deepened Cable Driven Reconditioned Deepened Jetted Detted | MATERIAL FROM TO SAMUELY HARD STATUM PERCENTIAL FROM TO 11' 21' |
| (5) DIMENSIONS: Diameter of well inches. Drilled 176 ft Depth of completed well 176 | WATER IN FINE SAND 60 16' STATE C 1AY DIX FINE SANTE 151' |
| (6) CONSTRUCTION DETAILS: Casing installed: | Clay Mix 15/174 |
| Perforations: Yes \(\subseteq \ No \(\subseteq \) Type of perforator used. SIZE of perforations \(\text{in. by } \) in. perforations from \(\text{it. to } \) ft. perforations from \(\text{ft. to } \) ft. perforations from \(\text{ft. to } \) ft. | |
| Screens: Yes No Dansen Manufacturer's Name Lohnsen Type STRINGSS Model No. Diam & Slot size 15 from 16 to 111 ft. Diam & Slot size 2.0 from 111 ft. to 176 ft. | 50 + GPM |
| Gravel packed: Yes No Size of gravel: Gravel placed from ft. to ft. Surface seal: Yes No To what depth? ft. Material used in seal. Did any strata contain unusable water? Yes No Type of water? Method of sealing strata off. | MAY 2 1 1000 |
| (8) WATER LEVELS: Land-surface elevation above mean sea level /50 t. ft. Static level 136 /2 ft. below top of well Date. MAY 81. Artesian pressure lbs. per square inch Date Artesian water is controlled by (Cap. valve, etc.) | DEPARTMENT OF ECOLOGY |
| (9) WELL TESTS: Drawdown is amount water level is lowered below static level Was a pump test made? Yes No If yes, by whom? Yield: gal./min. with ft. drawdown after n """ """ | Work started |
| Recovery data (time taken as zero when pump turned off) (water level measured from well top to water level) Time Water Level Time Water Level Time Water Level | NAME WHIDBEY WELL DRILLERS (Person, firm, or corporation) (Type or print) Address OAK HARBOR WASH |
| Date of test Bailer test 20 gal/min with 10 - ft. drawdown after hrs. Artesian flow g.p.m. Date Temperature of water Was a chemical analysis made? Yes No 12 | 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 |

Log of Boring RR-MW-1

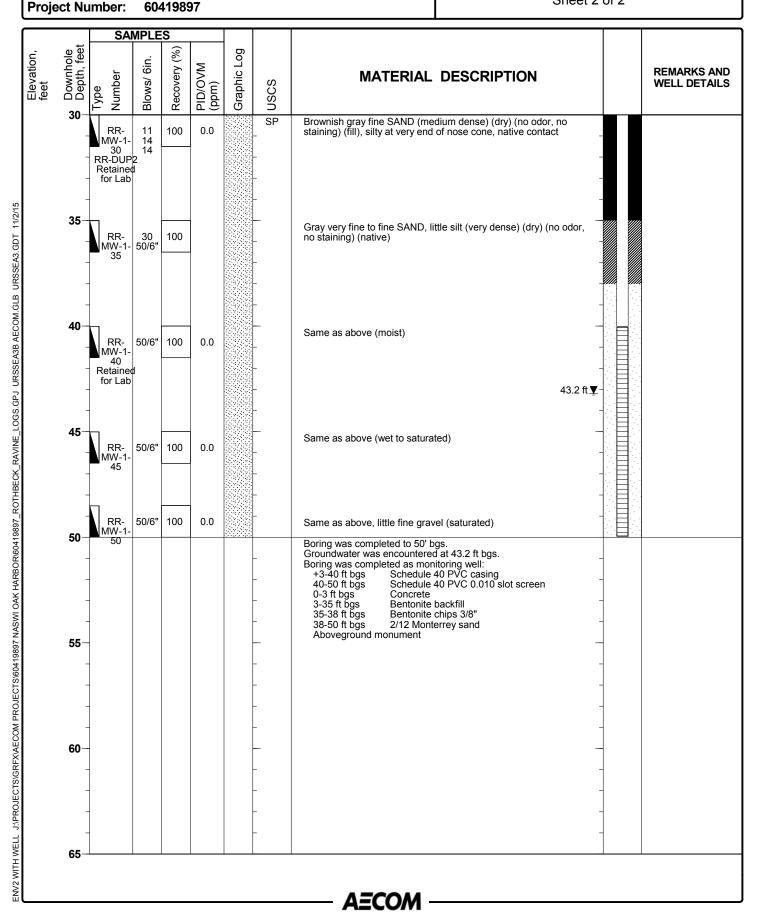
| Date(s) Drilled | 7/9/15 | Logged By | E. Lillywhite | Checked By |
|----------------------|---------------------------|------------------------|--------------------------|--|
| Drilling Method | Hollow Stem Auger | Drilling Contractor | Cascade Drilling | Total Depth of Borehole 50 feet bgs |
| Drill Rig Type | CME75 | Drill Bit Size/Type | 9" O.D. | Ground Surface Elevation (feet MSL) |
| Groundwat | ter Level 43.2 ft bgs ATD | Sampling Method | D&M | Hammer Data 140 lb wireline |
| Borehole Backfill | Well Installed | Location | N 492334.45, E 1201493.2 | |



Project: Rothbeck Ravine
Project Location: NAWSI

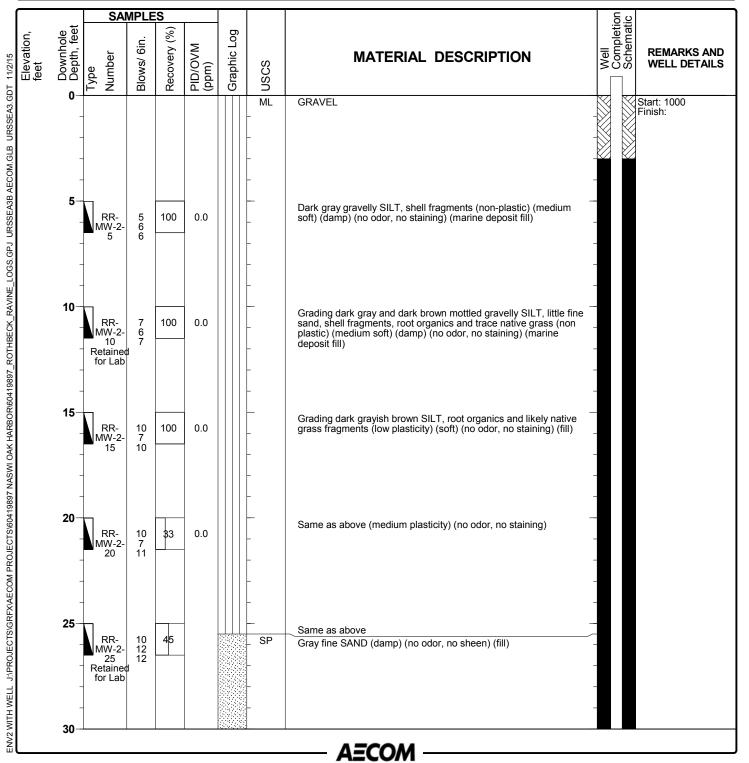
Log of Boring RR-MW-1

Sheet 2 of 2



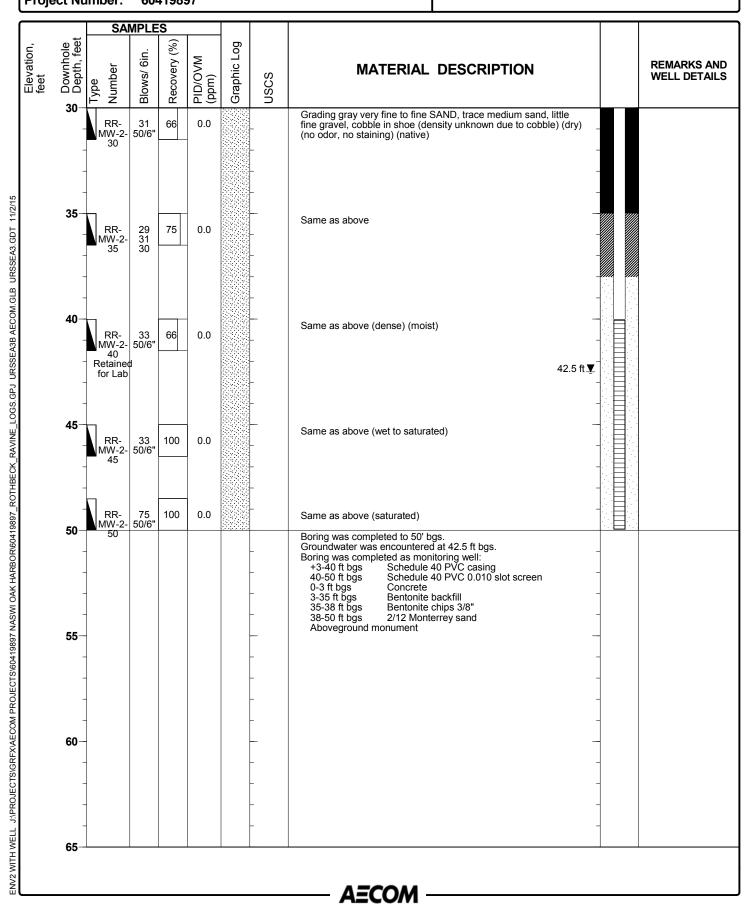
Log of Boring RR-MW-2

| Date(s) Drilled | 7/9/15 | Logged By | E. Lillywhite | Checked By |
|----------------------|---------------------------|------------------------|---------------------------|--|
| Drilling Method | Hollow Stem Auger | Drilling Contractor | Cascade Drilling | Total Depth of Borehole 50 feet bgs |
| Drill Rig Type | CME75 | Drill Bit Size/Type | 9" O.D. | Ground Surface Elevation (feet MSL) |
| Groundwat | ter Level 42.5 ft bgs ATD | Sampling Method | D&M | Hammer Data 140 lb wireline |
| Borehole Backfill | Well Installed | Location | N 492179.74, E 1201516.51 | |



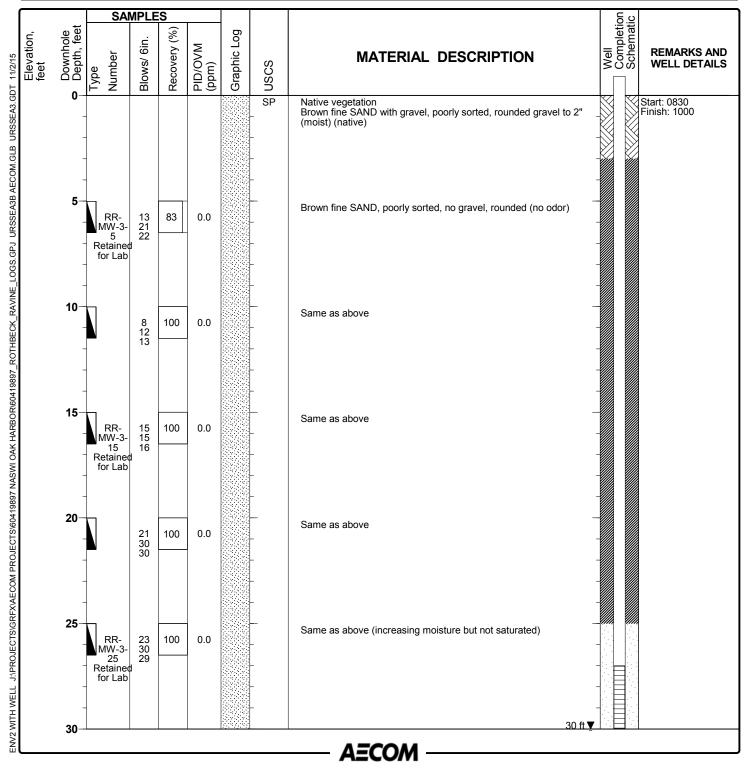
Log of Boring RR-MW-2

Sheet 2 of 2



Log of Boring RR-MW-3

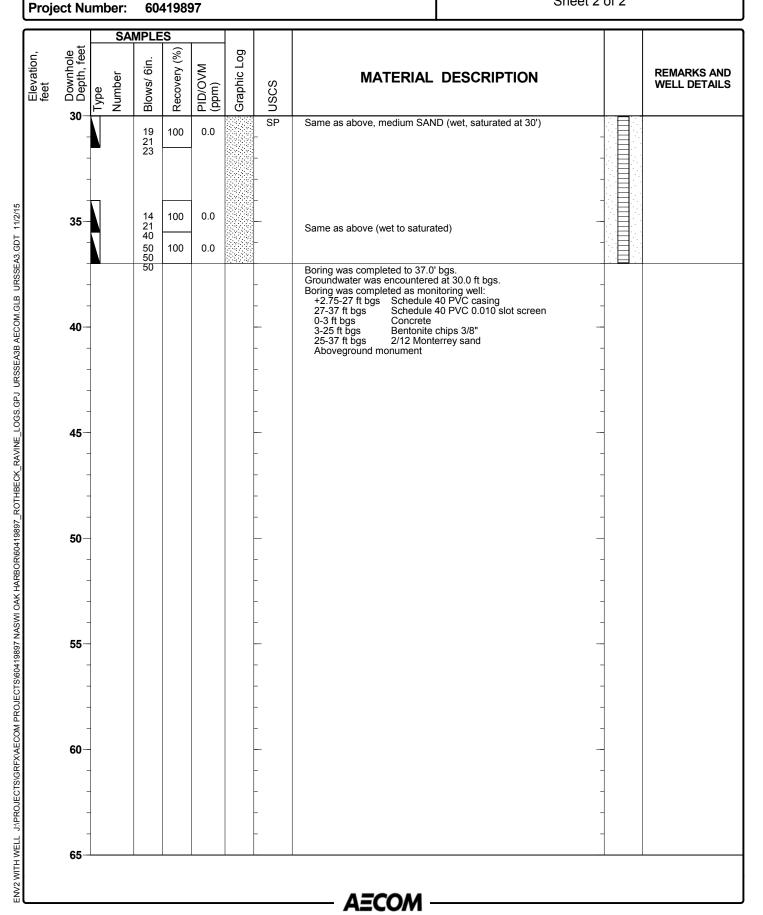
| Date(s) 7/16 | 6/15 | Logged By | D. Hose | Checked By |
|----------------------------------|-------------------|------------------------|---------------------------|--|
| Drilling Method Holl | low Stem Auger | Drilling Contractor | Cascade Drilling | Total Depth of Borehole 37 feet bgs |
| Drill Rig Type CME | E75 | Drill Bit Size/Type | 9" O.D. | Ground Surface Elevation (feet MSL) |
| Groundwater Lev | vel 30 ft bgs ATD | Sampling Method | D&M | Hammer Data 140 lb wireline |
| Borehole Backfill Well | II Installed | Location | N 492538.65, E 1201475.33 | |



Project: Rothbeck Ravine
Project Location: NAWSI

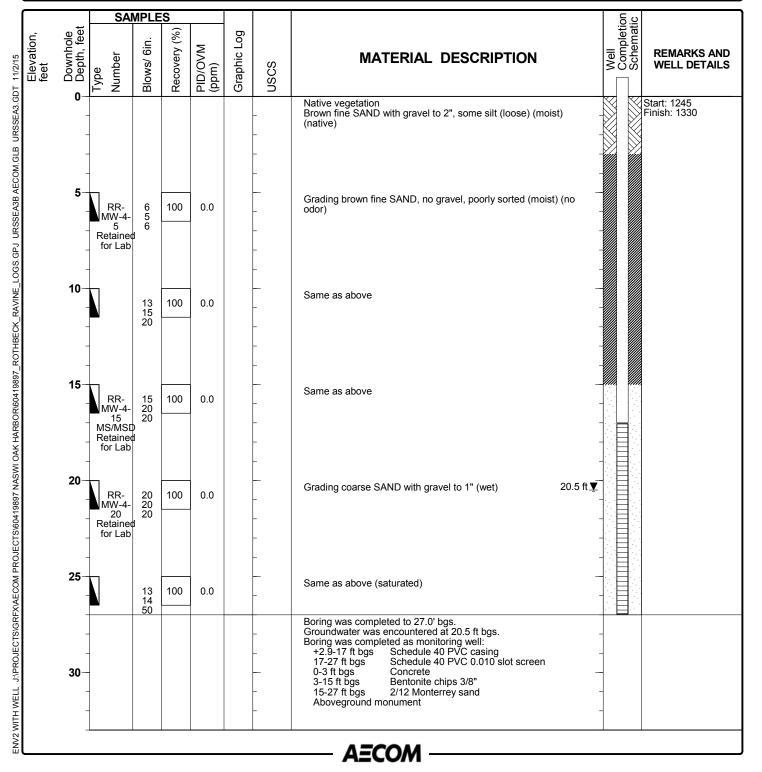
Log of Boring RR-MW-3

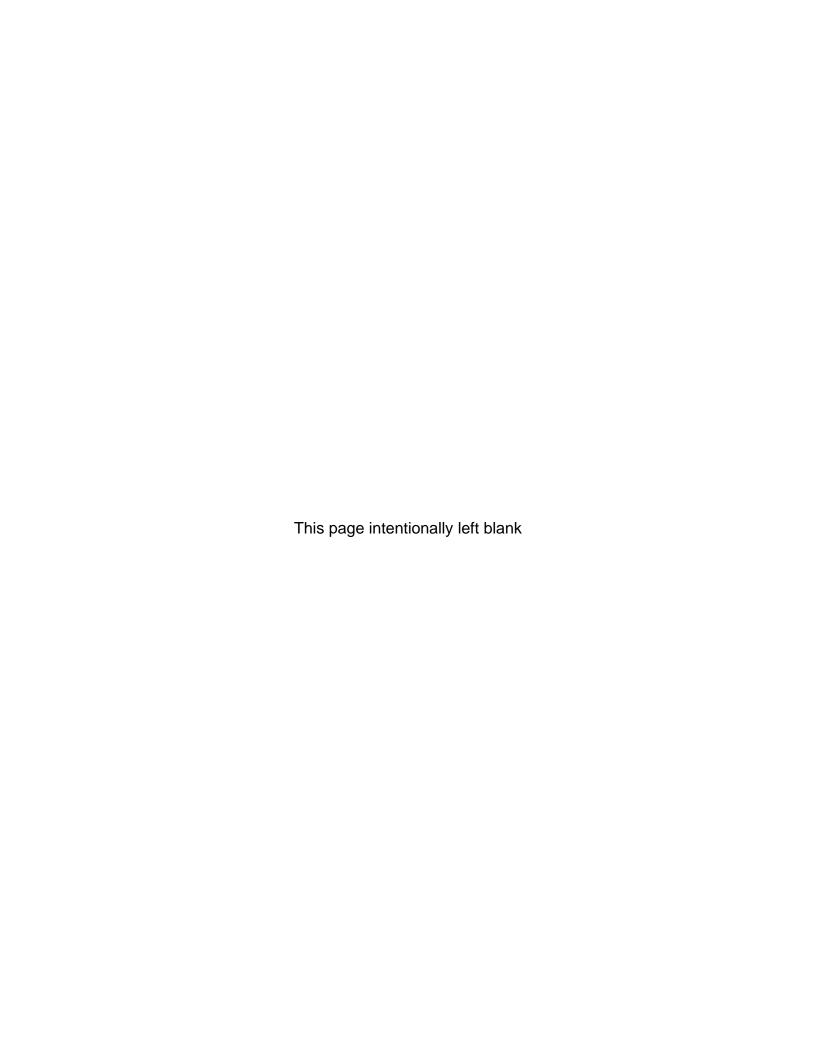
Sheet 2 of 2



Log of Boring RR-MW-4

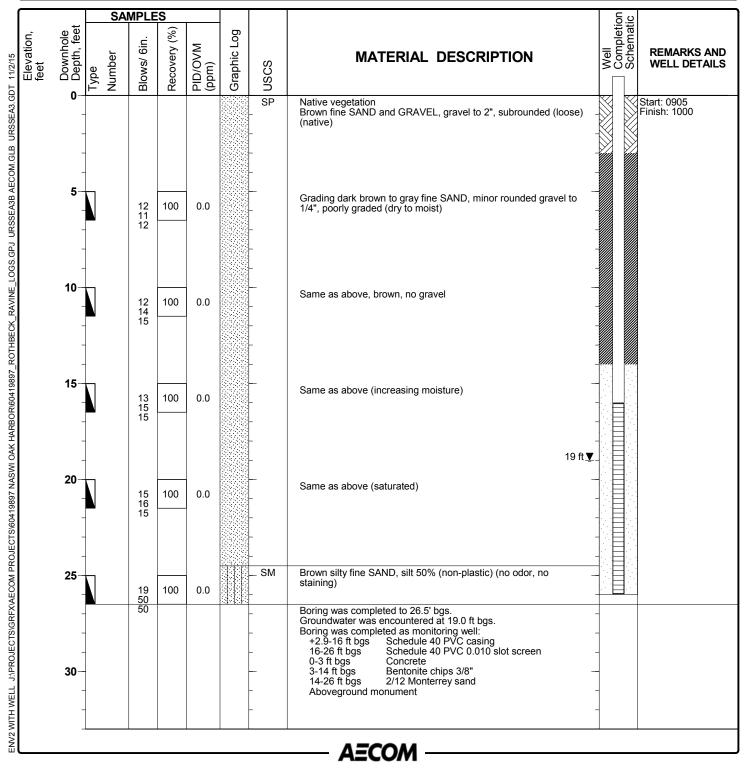
| Date(s) Drilled | 7/16/15 | Logged By | D. Hose | Checked By |
|----------------------|---------------------------|------------------------|--------------------------|--|
| Drilling Method | Hollow Stem Auger | Drilling Contractor | Cascade Drilling | Total Depth of Borehole 27 feet bgs |
| Drill Rig Type | CME75 | Drill Bit Size/Type | 9" O.D. | Ground Surface Elevation (feet MSL) |
| Groundwat | ter Level 20.5 ft bgs ATD | Sampling Method | D&M | Hammer Data 140 lb wireline |
| Borehole Backfill | Well Installed | Location | N 492447.82, E 1201306.4 | |

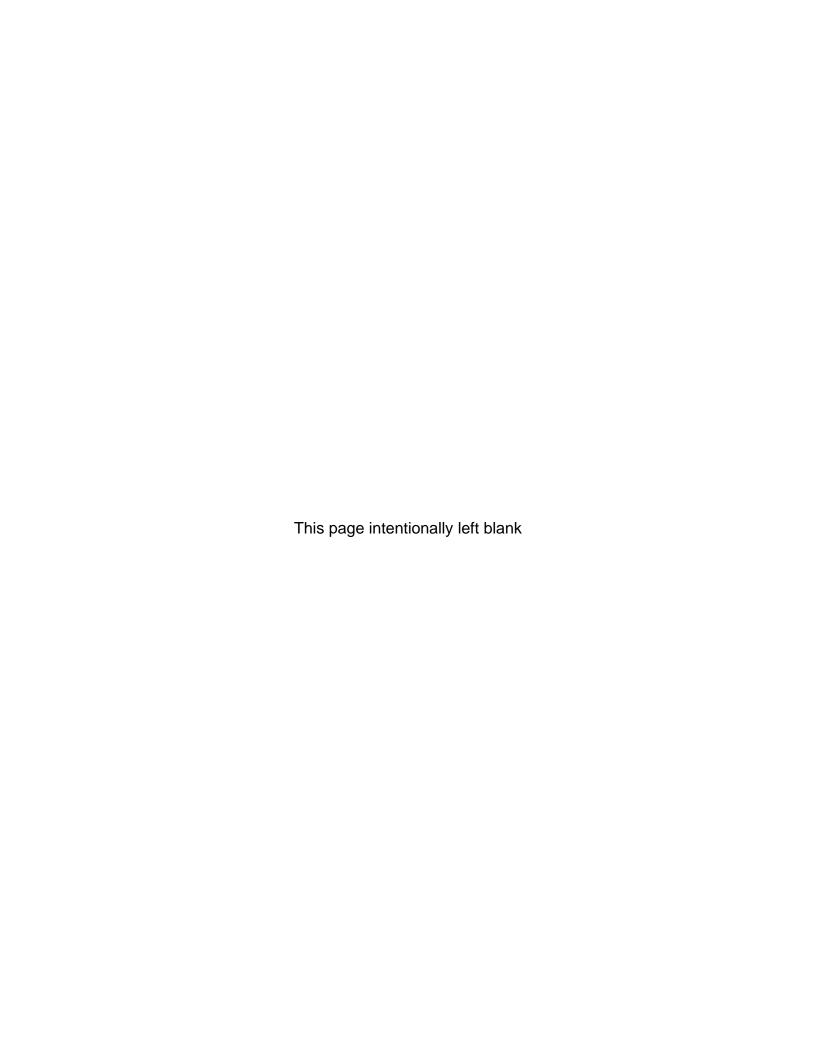




Log of Boring RR-MW-5

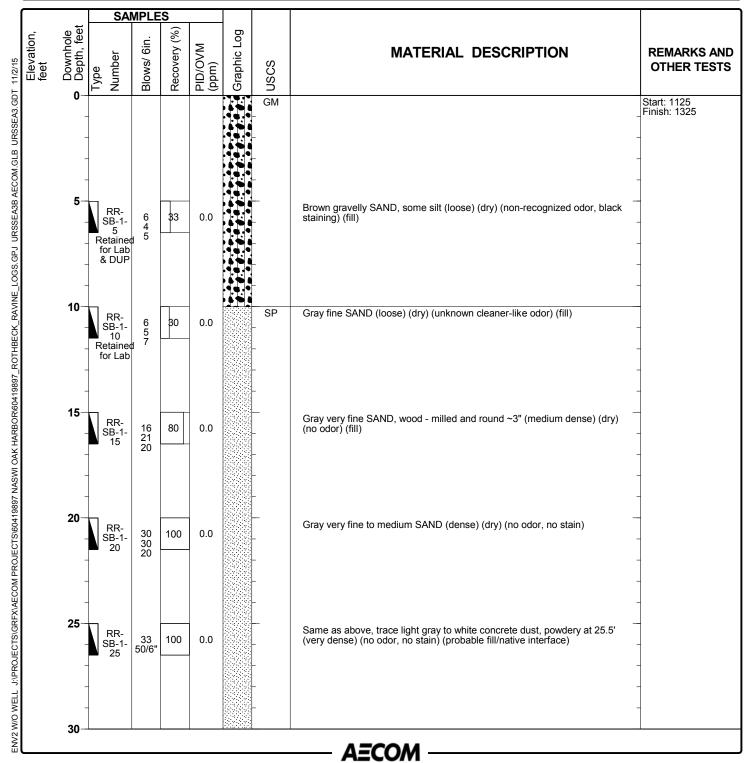
| Date(s) 7/17/15 Drilled | Logged By | D. Hose | Checked By |
|--------------------------------------|------------------------|---------------------------|--|
| Drilling Method Hollow Stem Auger | Drilling Contractor | Cascade Drilling | Total Depth of Borehole 26.5 feet bgs |
| Drill Rig Type CME75 | Drill Bit Size/Type | 9" O.D. | Ground Surface Elevation (feet MSL) |
| Groundwater Level 19 ft bgs ATD | Sampling Method | D&M | Hammer Data 140 lb wireline |
| Borehole Backfill Well Installed | Location | N 492248.19, E 1201292.06 | |





Log of Boring RR-SB-1

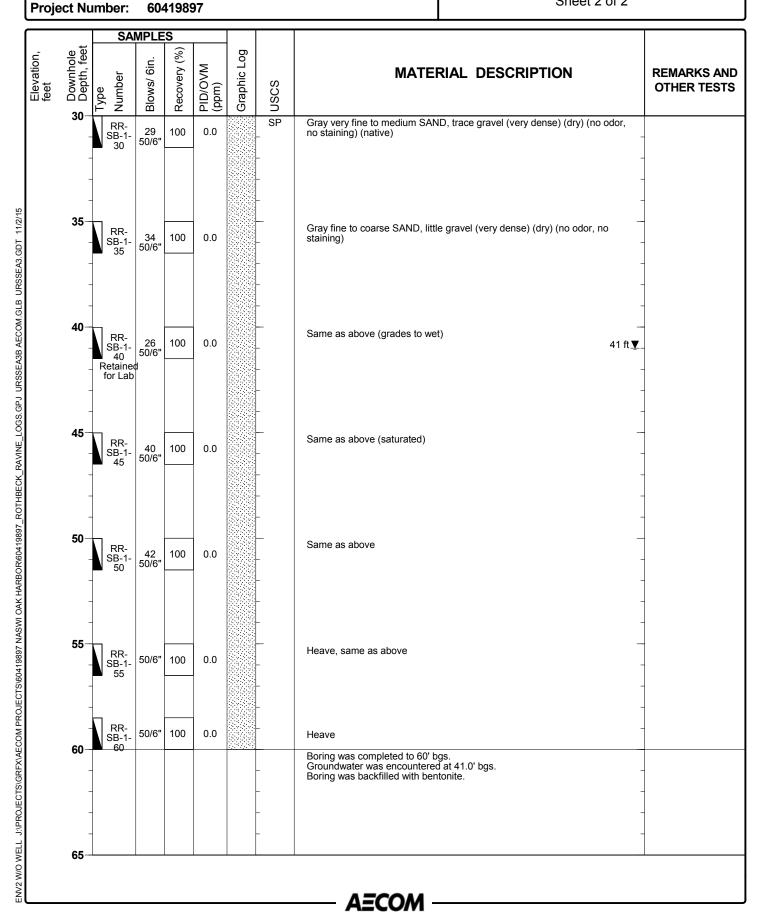
| Date(s) Drilled | 7/8/15 | Logged By | E. Lillywhite | Checked By |
|----------------------|------------------------------------|------------------------|--------------------------|--|
| Drilling Method | Hollow Stem Auger | Drilling Contractor | Cascade Drilling | Total Depth of Borehole 60 feet bgs |
| Drill Rig Type | CME75 | Drill Bit Size/Type | 9" O.D. | Ground Surface Elevation (feet MSL) |
| Groundwat | ter Level (feet bgs) 41 ft bgs ATD | Sampling Method | D&M | Hammer Data 140 lb wireline |
| Borehole Backfill | Bentonite Chips | Location | N 492466.8, E 1201599.42 | |



Project: Rothbeck Ravine
Project Location: NAWSI

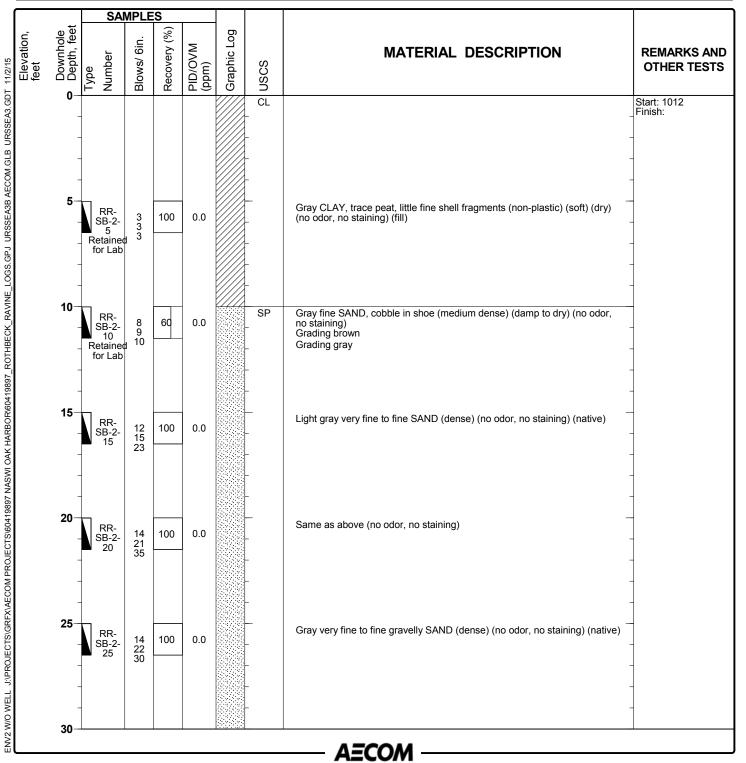
Log of Boring RR-SB-1

Sheet 2 of 2



Log of Boring RR-SB-2

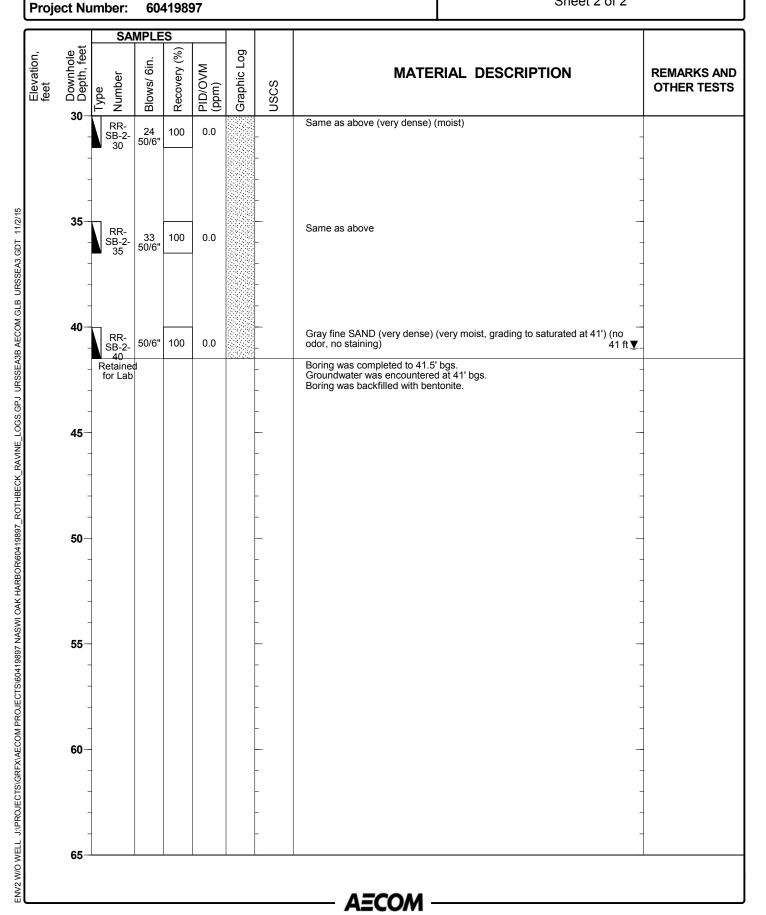
| Date(s) Drilled | 7/20/15 | Logged By | E. Lillywhite | Checked By |
|--|-------------------|------------------------|---------------------------|--|
| Drilling Method | Hollow Stem Auger | Drilling Contractor | Cascade Drilling | Total Depth of Borehole 41.5 feet bgs |
| Drill Rig Type | CME75 | Drill Bit Size/Type | 9" O.D. | Ground Surface Elevation (feet MSL) |
| Groundwater Level (feet bgs) 41 ft bgs ATD | | Sampling Method | D&M | Hammer Data 140 lb wireline |
| Borehole Backfill | Bentonite Chips | Location | N 492359.04, E 1201631.06 | |



Project: Rothbeck Ravine
Project Location: NAWSI

Log of Boring RR-SB-2

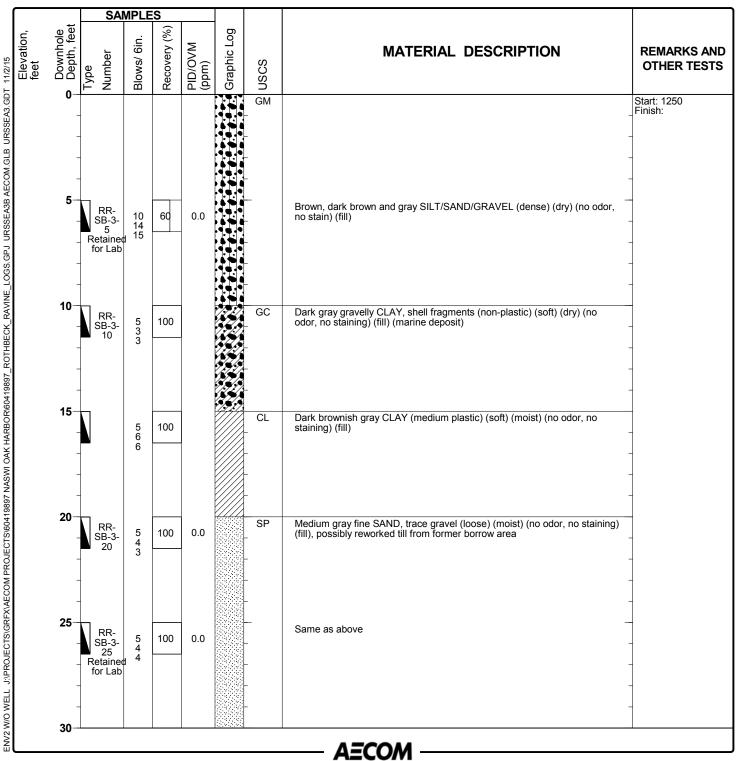
Sheet 2 of 2



Log of Boring RR-SB-3

Sheet 1 of 2

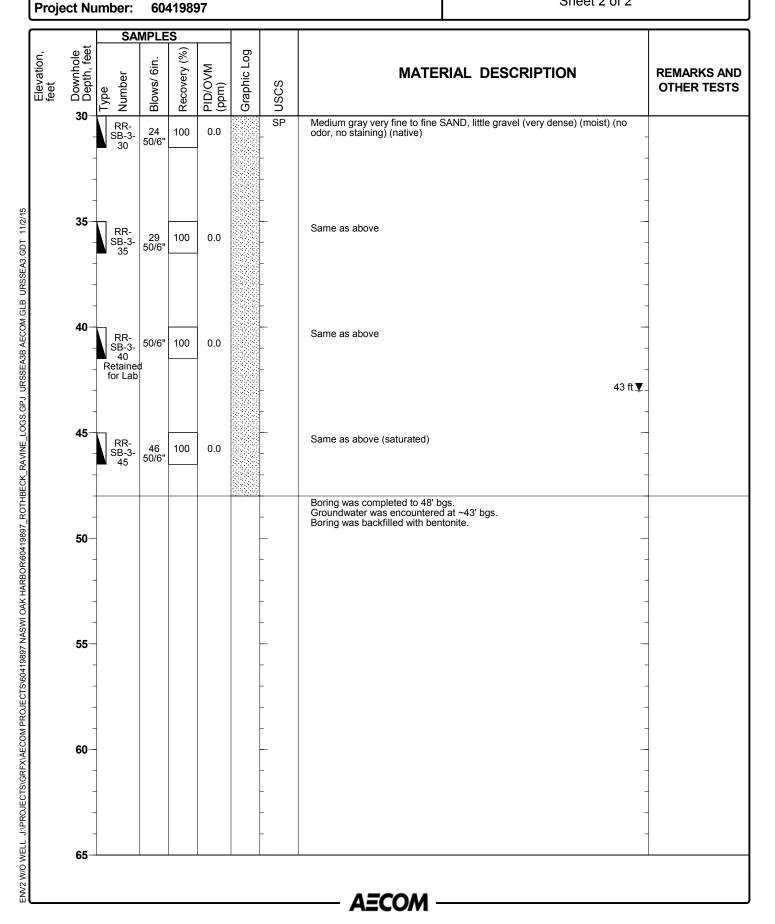
| Date(s) Drilled | 7/17/15 | Logged By | E. Lillywhite | Checked By |
|----------------------|-------------------------------------|------------------------|---------------------------|--|
| Drilling Method | Hollow Stem Auger | Drilling Contractor | Cascade Drilling | Total Depth of Borehole 48 feet bgs |
| Drill Rig Type | CME75 | Drill Bit Size/Type | 9" O.D. | Ground Surface Elevation (feet MSL) |
| Groundwat | ter Level (feet bgs) ~43 ft bgs ATD | Sampling Method | D&M | Hammer Data 140 lb wireline |
| Borehole Backfill | Bentonite Chips | Location | N 492443.93, E 1201506.56 | |



Project: Rothbeck Ravine
Project Location: NAWSI

Log of Boring RR-SB-3

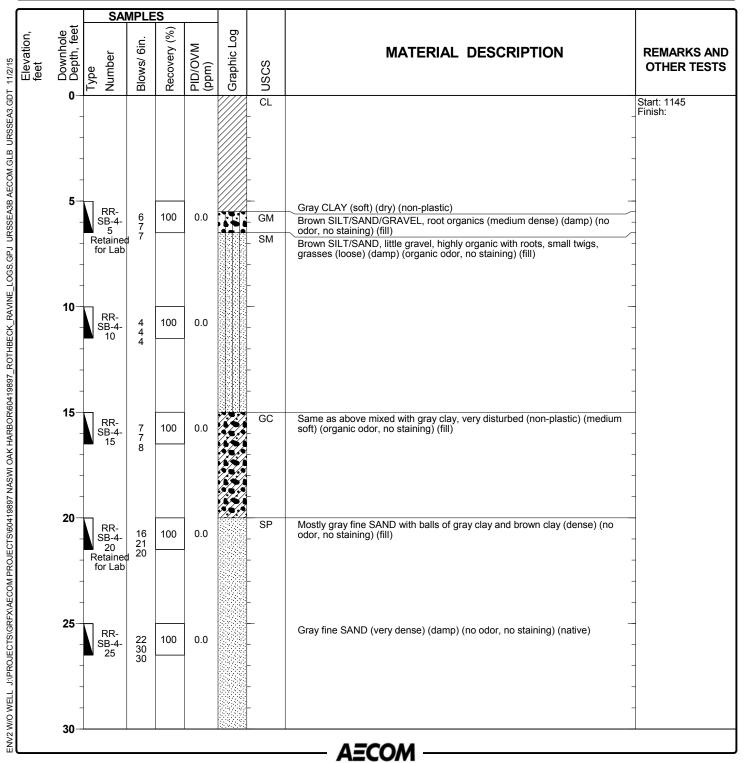
Sheet 2 of 2



Log of Boring RR-SB-4

Sheet 1 of 2

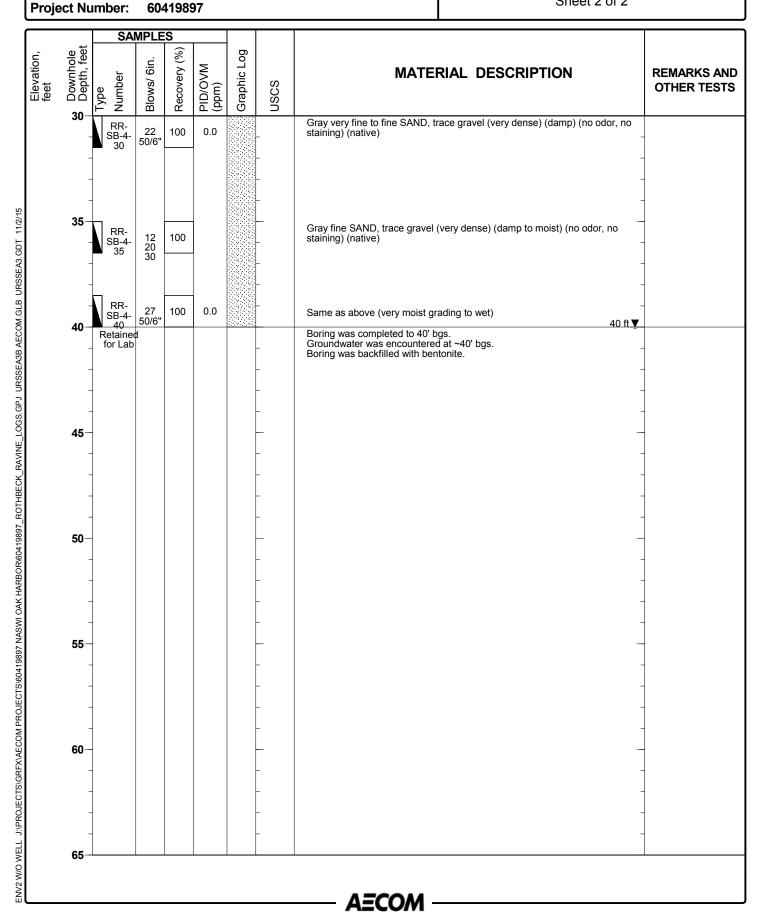
| Date(s) Drilled | 7/20/15 | Logged By | E. Lillywhite | Checked By |
|----------------------|-------------------------------------|------------------------|---------------------------|--|
| Drilling Method | Hollow Stem Auger | Drilling Contractor | Cascade Drilling | Total Depth of Borehole 40 feet bgs |
| Drill Rig Type | CME75 | Drill Bit Size/Type | 9" O.D. | Ground Surface Elevation (feet MSL) |
| Groundwat | ter Level (feet bgs) ~40 ft bgs ATD | Sampling Method | D&M | Hammer Data 140 lb wireline |
| Borehole Backfill | Bentonite Chips | Location | N 492277.89, E 1201582.15 | |



Project: Rothbeck Ravine
Project Location: NAWSI

Log of Boring RR-SB-4

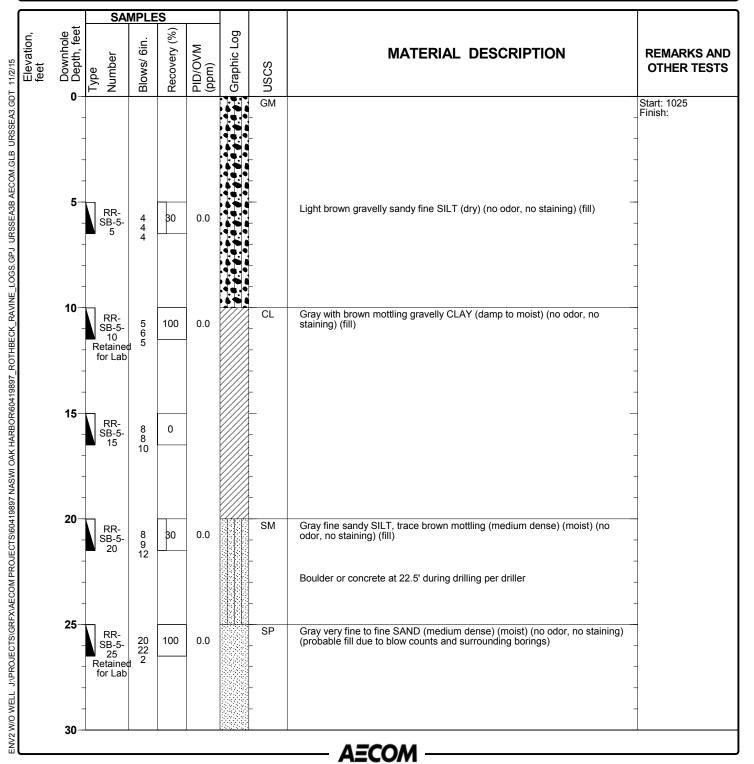
Sheet 2 of 2



Log of Boring RR-SB-5

Sheet 1 of 2

| Date(s) Drilled | 7/12/15 | Logged By | E. Lillywhite | Checked By |
|----------------------|-------------------------------------|------------------------|---------------------------|--|
| Drilling Method | Hollow Stem Auger | Drilling Contractor | Cascade Drilling | Total Depth of Borehole 60 feet bgs |
| Drill Rig Type | CME75 | Drill Bit Size/Type | 9" O.D. | Ground Surface Elevation (feet MSL) |
| Groundwat | ter Level (feet bgs) ~45 ft bgs ATD | Sampling Method | D&M | Hammer Data 140 lb wireline |
| Borehole Backfill | Bentonite Chips | Location | N 492371.27, E 1201390.27 | |



Log of Boring RR-SB-5

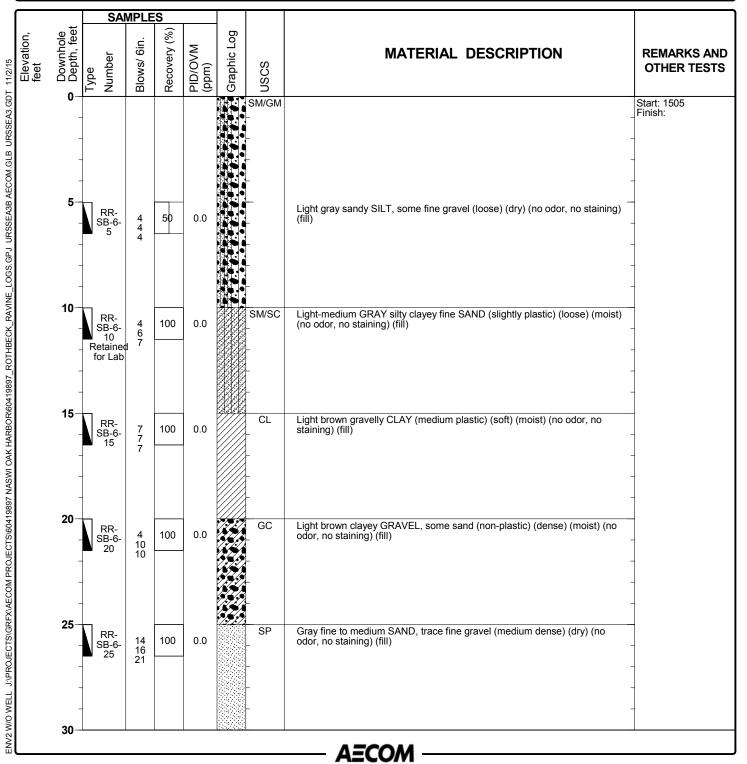
Sheet 2 of 2

| Elevation, feet | Downhole Depth, feet | Type Number | Blows/ 6in. Blows/ | Recovery (%) | PID/OVM (ppm) | Graphic Log | nscs | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS |
|--------------------|-------------------------|---|--------------------|--------------|------------------|-------------|-------------------|--|----------------------------|
| | 30 - - - - | RR- SB-5- 30 | 36 50/6" | 100 | 0.0 | | SP - - - | Gray fine SAND (very dense) (damp) (no odor, no staining) (native) | |
| | 35- | RR- SB-5- 35 | 41 50/6" | 100 | 0.0 | | - | Gray very fine to fine SAND (very dense) (damp) (no stain, no odor) (native) | |
| | 40 - | RR- SB-5- 40 Retained for Lab | | 100 | 0.0 | | - | Gray fine SAND (very dense) (very moist) (no odor, no staining) (native) | |
| | 45- - - - | RR- SB-5- 45 | 39 50/6" | 100 | 0.0 | | - | 45 ft ▼ Grayish brown very fine to fine SAND (very dense) (wet) (no odor, no staining) (native) | |
| | 50 - | RR- SB-5- 50 | 50/6" | 100 | 0.0 | | - | Gray fine SAND (very dense) (no odor, no staining) (saturated) (native) | |
| | 55- - - - | RR- SB-5- 55 | 50/6" | 100 | 0.0 | | - | Same as above | |
| | 60 - - - | RR- SB-5- 60 | 50/6" | 100 | | | - | Same as above Boring was completed to 60' bgs. Groundwater was encountered at ~45' bgs. Boring was backfilled with bentonite. | |
| | 65- | - | | | | | - | — A≡COM — | |

Log of Boring RR-SB-6

Sheet 1 of 2

| Date(s) Drilled | 7/8/15 | Logged By | E. Lillywhite | Checked By |
|----------------------|-------------------------------------|------------------------|---------------------------|--|
| Drilling Method | Hollow Stem Auger | Drilling Contractor | Cascade Drilling | Total Depth of Borehole 60 feet bgs |
| Drill Rig Type | CME75 | Drill Bit Size/Type | 9" O.D. | Ground Surface Elevation (feet MSL) |
| Groundwat | ter Level (feet bgs) ~45 ft bgs ATD | Sampling Method | D&M | Hammer Data 140 lb wireline |
| Borehole Backfill | Bentonite Chips | Location | N 492260.22, E 1201431.84 | |



Log of Boring RR-SB-6

Sheet 2 of 2

| | | SA | MPLE | IPLES | | | | | | | |
|--------|-------------------------|---|----------------|--------------|------------------|-------------|--------------|---|----------------------------|--|--|
| feet . | Downhole Depth, feet | Type Number | Blows/ 6in. | Recovery (%) | PID/OVM (ppm) | Graphic Log | nscs | MATERIAL DESCRIPTION | REMARKS AND OTHER TESTS | | |
| | 30- | RR- SB-6- 30 Retained for Lab | 30 20 30 | 100 | 0.0 | | SP - - | Same as above with little coarse sand, 2" silt lense, gray/brown and plastic at 31.25' (dense) (dry [sand], very moist [silt]) (fill) (no odor, no staining) (fill) | | | |
| | 35 | RR- SB-6- 35 | 36 50/6" | 100 | 0.0 | | | Gray fine to medium SAND, trace fine gravel (dense) (dry) (no odor, no staining) (native) | | | |
| | 40- | RR- SB-6- 40 Retained for Lab | | 100 | 0.0 | | | Gray fine SAND, trace silt in shoe as small "balls" (dense) (damp) (no odor, no staining) | - | | |
| | 45 - - | RR- SB-6- 45 | 27 31 30 | 100 | 0.0 | | | Same as above (wet) 45 ft ▼ | | | |
| | 50— | RR- SB-6- 50 | 50/6" | 100 | 0.0 | | - | Same as above (saturated) | | | |
| | 55 - | RR- SB-6- 55 | 50/6" | 100 | 0.0 | | - | Same as above (saturated) | | | |
| | 60- | RR- SB-6- 60 | 50/6" | 100 | 0.0 | | - | Same as above, some medium sand Boring was completed to 60' bgs. Groundwater was encountered at ~45' bgs. Boring was backfilled with bentonite. | - | | |

BOREHOLE NUMBER FIELD BOREHOLE LOG 6-I-8 PROJECT NUMBER 01-0817-07-0571-043 FIELD BOOK NO HS-1 PROJECT NAME NAS Whidbey Operable Unit 1 TOTAL DEPTH: 50.0 GROUND SURFACE ELEVATION: 154.6 LOCATION: Oak Horbor, Hashington DRILLING COMPANY: Ponderosa Drilling OF -SHEET RIG TYPE & NUMBER: Mobile 880 STATIC WATER LEVEL (BLS) DRILLING METHOD. Hollow Stem Auger HO-While Orilling AB*After Boring HEATHER: Sunny, Harm Depth(ft) 92.00 AB 90.62 AB FIELD PARTY: Robbi Mills, Steve Drown Time GEOLOGIST. Ton Oube, Pan Jenkins Date: 10/18/91 11/13/91 DATE BEGUN: 09/12/91 DATE COMPLETED: 09/12/91 HETH00 LOCATION DIAGRAM NUMBER HELL INSTALLATION SAMPLING ORGANIC \ SOIL Samples SAMPLE . 193 Riser pipe/Hell casing 2.1 ft above ground surface Protective casing & lockable cap 1.0 surface Protective casing & I 3.0 ft above ground elevation 0.0 Н 1 S1 2 1.0 Upper few inches of sample - dark brown gravelly upper rew inches or sample - dark brown gravel silt w/same fine sand, some roots, typical weathered sail; fl. Lower (most of sample) - yellowish olive gray (2.57 4.5/4) fine SAND (clean) w/ same fine gravel (15%); loose; unconsolidated; dry; SP (Vashon Advance Outwash) 2.6 3.0 1.0 Sl 3 5.0 Clean fine sand with some fine gravel (15%); same as above, yellow alive gray. SP (Vashon Advance Outwash) 6.0 70 8 0

Sharp color change to greener olive and less yellow, sand is slightly coarser (medium to fine) w/ same gravel (20%) that is coarser

Same as previous sample, gravel up to 1 5" (15%), olive gray (5Y 4/3), SP-SH (Vashon Advance Outwash)

than above

90

10.0

11.0

12.0

13.0

14.0

15.0

16 0

17.0

18 0

Sl

| | FIELD BOREHOLE L | ng _ | BOREI | IOLE NUMB | er | | | | | | | | |
|--|---|------------------------|-------|-----------|---------------------------|--|--|--|--|--|--|--|--|
| | 1 1223 33112,1322 3 | | | 6-1- | 3. | | | | | | | | |
| PROJECT NAME NAS Whidbey LOCATION: Ook Horbor, Hos ORILLING COMPANY Pondero RIG TYPE & NUMBER: Mobile ORILLING METHOD: Hollow S WEATHER: Sunny, Horm FIELD PARTY: Robbi Mills, GEOLOGIST: Tom Dube, Pom | FIELD PARTY: Robbi Hills, Steve Drown GEOLOGIST: Tom Dube, Pom Jenkins DATE BEGUN: 09/12/91 DATE COMPLETED: 09/12/91 DATE COMPLETED: 09/12/91 | | | | | | | | | | | | |
| DEPTH SOIL SAMPLES SAMPLE NUMBER ORGANIC VAPOR | LOCATION DIAGRAM | | | LITHOLOGY | ; HELL INSTALLATION | | | | | | | | |
| 20.0 — 21.0 — 22.0 — 23 | Same as previous samples, gravidecreasing: SP (Vashan Advance | el content Outwashi | | | | | | | | | | | |

عاجيدونون

BOREHOLE NUMBER FIELD BOREHOLE LOG 6-I-8 PROJECT NUMBER 01-0817-07-0571-043 FIELD BOOK NO. PROJECT NAME: NAS Whidbey Operable Unit 1 TOTAL DEPTH: 50.0 LOCATION: Oak Harbor, Washington GROUND SURFACE ELEVATION 154.6 DRILLING COMPANY: Ponderosa Drilling SHEET: RIG TYPE & NUMBER: Mobile 880 STATIC HATER LEVEL (BLS) ORILLING METHOD: Hollow Stem Auger MD=While Ocilling AB=After Boring HEATHER: Sunny, HOUSE 92.00 AB Depth(ft) 90.62 AB FIELD PARTY: Robbi Mills, Steve Drown Time GEOLOGIST: Tom Dube, Pom Jenkins Date: 10/18/91 11/13/91 DATE BEGUN: 09/12/91 DATE COMPLETED: 09/12/91 SAMPLING METHOD LOCATION DIAGRAM SAMPLE NUMBER ORGANIC VAPOR INSTALLATION SOIL Samples 39.0 40.0 Some as previous samples 41.0 12.0 13.0 44.0 15.0 €.0 17.0 **18** 0 19.0 А 50.0 Sand, gravel (15%), same as previous samples: SP. (Vashon Advance Outwash) 51.0 52.0 53.0 54 0 55.0 56 O 57 0

BOREHOLE NUMBER FIELD BOREHOLE LOG 6-I-8 PROJECT NUMBER 01-0817-07-0571-043 FIELD BOOK NO AR-1 PROJECT NAME: NAS Whidbey Operable Unit 1 TOTAL DEPTH: 159.5 LOCATION: Oak Harbor, Hashington GROUND SURFACE ELEVATION: 154.6 DRILLING COMPANY Ponderosa Drilling SHEET . OF: RIG TYPE & NUMBER: Reich 650 STATIC WATER LEVEL (BLS) DRILLING METHOD: Air Rotary with casing advance HO=While Ocilling AB=AFter Boring HEATHER: Cool, overcost Depth(ft) 92.00 AB 90.62 AB FIELD PARTY: Mike Robinson, Todd Lively Tise GEOLOGIST: Vickie Metcalft Date: 10/18/91 11/13/91 DATE BEGUN: 09/19/91 DATE COMPLETED: 10/01/91 LOCATION DIAGRAM SAMPLING METHOD ORGANIC VAPOR SAMPLE NUMBER INSTALLATION ITHOLOGY. SOIL Samples 핕 193 50.0 SAND Note - first 50 ft drilled with hollow stem auger rig; see original borehale log 51.0 52.0 53.0 54.0 55.0 **%**.0 57.0 58.0 **59.0** A 60.0 Sand (medium to coarse) H/ little gravel (10-15%, sub-rounded) dark alive gray (5Y 3/2). SP (Vashon Advance Outwash) 61.0 62.0 63 0 64.0 65 O 66.0 67 0 68 G

69 O

وجين الري

BOREHOLE NUMBER

6-I-8

PROJECT NUMBER: 01-0817-07-0571-043
PROJECT NAME: NAS Whidbey Operable Unit 1

LOCATION: Oak Horbor, Hashington
DRILLING COMPANY: Ponderosa Orilling

RIG TYPE & NUMBER: Reich 650

ORILLING METHOD. Air Rotory with casing advance

HEATHER Cool, overcast

FIELD PARTY Mike Robinson, Todd Lively

GEOLOGIST: Vickie Metcolft

FIELD BOOK NO AR-1 TOTAL DEPTH: 159.5

GROUND SURFACE ELEVATION: 154.6

SHEET: OF

STATIC HATER LEVEL (BLS)

| DATE BEGUN: (| | | | rt | DATE COMPLETED: 10/01/91 | Date: | 10/18/91 | | 11/13/91 |
|--|-----------------|---------------|---------------|-----|--|-------|----------|-----------|----------------------|
| DEPTH SOIL SAMPLES | SAMPLING METHOD | SAMPLE NUMBER | ORGANIC VAPOR | CGI | LOCATION DIAGRAM | | | LITHOLOGY | WELL INSTALLATION |
| 70.0 T 71.0 T 72.0 T 73.0 T 74.0 T 75.0 T 76.0 T 76 | D | | | | Fine sand H/ Little suit (10-15 gravel (less than 10%). Het; of SM (Vashan Advance Outwash) Medium sand H/ same gravel (15% of ive gray (5Y 4/2); SM (Vashan Advance Outwash) | | | | |

| | | | | | | FIELD BOREHOLE L | UC | BOREH | IOLE NUMBE | R | |
|---------------|----------|-----------------|---------------|---------|-----|---|-------------|----------------|------------|----------------------|-------------------|
| | | | | | - 1 | LIEED BOKEHOLE C | OG | | 6-I-8 | | |
| | | | | | | | | | | | |
| | | | | | | | FIELD BOOK | NO. AR-1 | | | 1 |
| | | | | | | | TOTAL DEPT | | | | 1 |
| | CON: Oal | | | | | | | FACE ELEVATION | | | 1 |
| | | | | | | | SHEET | OF. | | | |
| | PE & N | | | | | | | STATIC HATER | LEVEL (BL | .S1 | |
| | ING-TIET | | | | | with casing advance | | ile Orilling | | Boring | |
| | | | | | | Todd Lively | Depth(Ft) | 92.00 A8 | 90 | .62 AB | |
| | SIST V | | | | | 1000 211019 | Tiec | 104040 | | | |
| | BEGUN C | | | | | DATE COMPLETED: 10/01/91 | Oate: | 10/18/91 | 111 | /13/91 | |
| | | | | | | LOCATION DIAGRAM | | | | | |
| Ì | | 울 | 25 | 8 | | COCHI DIR ULHORINI | | | | ~ | j |
| | | 닏 | 臣 | VAPOR | | | | | | ă | |
| | ဟ | 吳 | 芝 | Ü | | | | | ITHOLOGY | 2 | |
| 프 | , L | 군 | 님 | ¥ | | . • | | | 호 | <u> </u> | |
| DEP TH | SOIL | SAMPLING METHOD | SAMPLE NUMBER | ORGANIC | g | • | | | E, | HELL INSTALLATION | |
| | U, UI | <u>"</u> | 3, | 3 | ۳ | - | | | | <u> </u> | |
| | | ا ۽ ا | | | | | | | - | | |
| 90.0 T | | A | | | | Medium sand w/ trace provet (le | ss than 101 | <u> </u> | | 555 | हर्दु व |
| † | | | | |] | Medium sand и/ trace gravel (le olive gray (5Y 4/2); 5W (Vashon | Advance 0 | ithash) | 1 | | 94 |
| 91.0 + | | | | l | | | | | | 27¢74 | इंडिंड इंडिंड् |
| † | | 1 | | ١ | | | | | | | |
| 92.0 + | | | | | | | | | | | |
| t | | | | | | | | | dan mid | 200 | |
| 93.0 + | | | | l | | , | | | | | |
| + | | | | | | | | | | | |
| 94.0 | | | | ł | | | | | | | |
| + | | | | | | | | | | | |
| 950 + | | ' | | | 1 | • | | | | | |
| +! | | | | | | | | | | | |
| 95.0 | | 1 | | | Ι΄. | | | | | | |
| + | | | | | } | | | | | | 軸 |
| 97.0 | | l | | | l | | | | | | |
| 1 | | 1 | | | 1 | - | | i | | | |
| 98.0 + | | | | 1 | l | | | | | 200 | |
| 1 | | 1 | | | | | | | | 2000 | |
| 99.0 | | ł | | | | | | | | | |
| 1 | | | | | 1 | | | | | 700 | |
| 100 0 | | A | | | 1 | | | | | 222 | |
| | | | ĺ | | | Sand (medium to Fine) H/ Increa and decreasing gravel (5%); dar SP (Vashon Advance Outhash) | sing silt | (15%) 4/1) | | | |
| 101 0 |] | 1 |] | | | SP (Vashon Advance Outwash) | - Gray (a) | W 21.4 | | | 圝丨 |
| | | 1 | | | | | | | [| | 闘 |
| 102.0 | Į | | | 1 | 1 | | | | | N | |
| 1 | 1 | } | 1 | 1 | } | | | P.V.C | | | |
| 103.0 | Ì | | | 1 | 1 | | | | • | 1 | |
| ··········· |] | } |] | 1 |] | | | Stainless | | | |
| 101.0 | 1 | | [| | | | | Steel | | | |
| שייש <u>ד</u> | 1 | |] | | | | | | | | |
| ,ne n T | [| | | 1 | | | | | H | 2000 2000 | 5.6.d 5.6.d |
| 105.0 | 1 | | | | | | | | | 200 | 500 |
| 1 | | | | | | 1 | | | | 200 | 7.0.4 |
| 106.0 | 1 | | | | | | | | ľ | 2.0.d | 5.6.3 |
| <u> </u> | | | | | | | | | | 2.0.d | |
| 107.0 | Ì | | 1 | | | | | | | p.o.d | 5.0.0 5.0.0 |
| t | | | | | 1 | | | | F 3 | 5.01g | 5.5.d |
| 108 0 | | | 1 | 1 | 1 | 1 | | | 1 | P. 6.4 | 5.0.d |
| ł | | | 1 | | | | | | | p.8.9 | 5.0.0 5.0.0 |
| 109.0 | | | | | | | | | | D.000 | 2.0.0 2.0.0 |
| ł | 1 | | | | | | | | | 8.9.9 8.0.9 | 0.0.0 |
| 1100 1 | | | 1 | 1 | 1 | • | | | L | 8.6.4 | 8.8.9 |

Section 2.

BOREHOLE NUMBER FIELD BOREHOLE LOG 6-I-8 PROJECT NUMBER: 01-0817-07-0571-043 FIELD BOOK NO AR-1 PROJECT NAME: NAS Whidbey Operable Unit 1 TOTAL DEPTH: 159.5 LOCATION: Oak Horbor, Hashington GROUND SURFACE ELEVATION: 154.6 DRILLING COMPANY Ponderosa Drilling SHEET: OF RIG TYPE & NUMBER: Reich 650 STATIC HATER LEVEL (BLS) DRILLING METHOD. Air Rotary with casing advance WO-While Ocilling AB=After Baring WEATHER Cool, overcost Depth(Ft) 92.00 AB 90.62 AB FIELD PARTY Hike Robinson, Todd Lively Time GEOLOGIST. Vickie Netcalft Date: 10/18/91 11/13/91 DATE BEGUN: 09/19/91 DATE COMPLETED: 10/01/91 LOCATION DIAGRAM VAPOR SAMPLE NUMBER INSTALLATION SAMPL ING ORGANIC 1 SOIL Samples 핖 193 А 110.0 SAND AND SILT, sand (fine to medium, 50%), silt (50%), dark gray (5Y 4/1), SM (Vashon Advance Dutwash) 111.0 112.0 113.0 114.0 115.0 116.0 117.0 118.0 119.0 A 120.0 SAND (Fine) w/ trace silt (5%), dark gray (5Y 4/1). SM (Vashon Advance Outwash) 121.0 122.0 123.0 124.0 125.0 126.0 127 0 128.0 129 0

| | | | | | | | 00 | Γ | BOREI | HOLE NUI | MBER | |
|--|--|-----------------|---|--|---|--|--|-----|-------------|-----------|--------------|----------------------|
| | | | | | | FIELD BOREHOLE L | .UG | | | e-I | | |
| PROJEI LOCAT. ORILL RIG T' ORILL MEATH FIELD GEOLO | CT NAME ION: Oc ING COM YPE & N ING MET ER: Coo | NA Ha | S Lib rbor : Po R: F Air vero :e Ro | nidbe c, ke conder Rote Rote cost cobine | sy G sahiii road n 65i rory son, | Drilling | FIELD 800K NO AR-1 TOTAL DEPTH: 159.5 GROUND SURFACE ELEVATION: 154.6 SHEET OF STATIC HATER LEVEL (BLS) HO-While Orilling AB-After Bor Depth (ft) 92.00 AB 90.62 A Time Date: 10/18/91 11/13/9 | | | 8 | | |
| | SOIL | SAMPLING METHOD | SAMPLE NUMBER | ORGANIC VAPOR | cer | LOCATION DIAGRAM | | | | LITHOLOGY | | HELL Installation |
| | | | | | | | | | | - | | |
| 130.0 | | А | | | | Same as previous sample | <i></i> | | | | | 200 |
| 131.0 | | | | | | | | | | | 2:0: 2:0: | 700 |
| 132.0 | | | | | | | | | | | 1000 E | 707 |
| 1 } | | | | | | - | | | | | | |
| 133.0 + | | | | | | • | | | | | | |
| 134.0 | | S1 | 5 | | | CLAY (Uhidbey Formation Unit 1) |) | | | | | |
| 135.0 | | | | | | _ | | | | | | |
| 136.0 | | | | | | | | | | | | |
| \ | <u> </u> | | | | | | | | | | | |
| 137 0 + | | | | | | · | | | | | | 52639 |
| 138 0 | | | | | | | | | | | | |
| 139.0 | | | | | | | | | | | | |
| 140.0 | l | А | | | | | | | | | | |
| l † | | | | ļ | | CLAY AND SILT, gray (5Y 5/1), (Formation Unit 2) | CL-ML (Whidt | Dey | | | | 3. |
| 1410+ | 1 | | | | | | | | | | | |
| 1420 | | | | | | · | | | | | | |
| 143 0 | | | | | | | | | | | | |
| 144 0 + | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| 145.0 | | | | | | | | | | | | |
| 146 0 | | | | | | | | | | | 着開 | |
| 1470 | | | | | | | | | | | 劉開 | |
| 1480 + | | | | | | | - | | | | 翻開 | |
| 100 7 | | | | | | | | | | | 選 開 | |
| 149 0 | | | | | | | | | | | 3 II | |
| _{150 0}] | | | 1 | 1 | 1 | 1 | | | | | 選 聞 | |

dicter-

BOREHOLE NUMBER

6-I-8

PROJECT NUMBER 01-0817-07-0571-043 PROJECT NAME NAS Whidbey Operable Unit 1 LOCATION: Oak Harbor, Hashington DRILLING COMPANY Ponderosa Drilling RIG TYPE & NUMBER Reich 650 DRILLING METHOD: Air Rotary with casing advance WEATHER Cool, overcost FIELD PARTY Mike Robinson, Todd Lively

GEOLOGIST Vickie Metcalft

FIELD BOOK NO TOTAL DEPTH 159.5 GROUND SURFACE ELEVATION 154.6 SHEET OF

AR-1

| | STATIC WATER | LEVEL (BLS) |
|-----------|--------------|-----------------|
| 40±4hile | Drilling | AB=After Boring |
| Depth(ft) | 92.00 A8 | 90.62 AB |
| Time | | |
| Date | 10/18/91 | 11/13/91 |

| DATE B | | | | , | | DATE COMPLETED: 10/01/91 | Date | 10/18/91 | . [11 | /13/91 |
|---------|------|-----------------|---------------|---------------|-----|---|------|----------|-----------|----------------------|
| ОЕРТН | SOIL | SAMPLING METHOD | SAMPLE NUMBER | ORGANIC VAPOR | cei | LOCATION GIAGRAM | | | LITHOLOGY | WELL INSTALLATION |
| 150 0 T | | A | | | | SILT with some fine sand (10-20 (SY 4/1). SM (Whidbey Formation CLAY (Whidbey Formation Unit 3) | | | | |

BOREHOLE NUMBER

6-0-5

PROJECT NUMBER 5330860.30
PROJECT NAME CTO 0086, Whidbey Area 6 Landfill
LOCATION NAS Whidbey Island, WA
DRILLING COMPANY Soil Sampling Service
RIG TYPE & NUMBER Reverse Air Rotary
DRILLING METHOD Percussion
WEATHER Rainy, Cold
FIELD PARTY Rob Rau, Soil Sampling Service

GEOLOGIST Rob Rau

TOTAL DEPTH 220 feet
GROUND SURFACE ELEVATION Approx. 171 feet
SHEET 1 OF 12

| | (BLS) | | | | |
|-------------------------------------|-----------|--|--|--|--|
| . WD=While Drilling AB=After Boring | | | | | |
| Depth (ft) | 158.58 AB | | | | |
| Time | 0800 | | | | |
| Date | 12/7/92 | | | | |

DATE BEGUN 12/2/93 MC THOO LOCATION GIAGRAM SAMPLE NUMBER INSTALLATION SAMPLING SOJL Samples ORGANIC **193** 10 Riser pipe/well casing 1 8 ft above ground surface Protective casing & lockable cap 2 5 ft above ground surface 0 0 SAND, SILT AND GRAVEL, Sond W/ some silt, some gravel and cobbles, sond is medium to coorse, brown, dense, dry. SU-GN (Vashon Advance Dutwash, weathered) 1.0 2.0 3.8 10 50 GRAYEL AND SAND - No sample recovered ot 5 ft due to rocks (cobbles or boulders), sond, gravel, and cobbles below, SU-GU (Vashon Advanced Outwash) 60 76 8 0 9 0 10 0 Sand H/ same cobbles (up to 75mm), medium to coorse, dark brown-gray, moderately dense. SU-GU (Vashan Advance Outhash) 11 0 120 13 0 140 **IS 0** 16 0 17 0 18.0

BOREHOLE NUMBER

6-0-5

PROJECT NUMBER 5330860,30

PROJECT NAME CTO 0086, Whidbey Area 6 Landfill

LOCATION NAS Whidbey Island, WA DRILLING COMPANY Soil Sampling Service RIG TYPE & NUMBER Reverse Air Rotary DRILLING METHOD Percussion

WEATHER Rainy, Cold
FELD PARTY Rob Rau, Soil Sampling Service
GEOLOGIST Rob Rau

DATE BEGUN 12/2/93

TOTAL DEPTH 220 feet GROUND SURFACE ELEVATION Approx. 171 feet SHEET 1

| | STATIC WATER LEVEL | . (BLS) | | | |
|-----------------------------------|--------------------|---------|--|--|--|
| WD=While Drilling AB=After Boring | | | | | |
| Depth (ft) | 158.58 AB | | | | |
| Time | 0800 | | | | |
| Date | 12/7/92 | | | | |

| DATEB | BEGUN | 12/2 | /93 | | | | Date | 12/7/9 | 2 | |
|---|-----------------|-----------------|---------------|---------------|-----|--|--------------|--------|-----------|----------------------|
| . нт 030 | SOIL SAMPLES | SAMPLING METHOD | SAMPLE NUMBER | ORGANIC VAPOR | 190 | LOCATION DIAGRAM | | | LITHOLOGY | HELL INSTALLATION |
| 21.0 - 22.0 - 23. | | | | | | Same as obove - Sand M/ some g (Vashon Advance Outwash) | rovel. Su-Gu | | | |

BOREHOLE NUMBER FIELD BOREHOLE LOG 6-0-5 PROJECT NUMBER 5330860.30 TOTAL DEPTH 220 feet PROJECT NAME CTO 0086, Whidbey Area 6 Landfill LOCATION NAS Whidbey Island, WA GROUND SURFACE ELEVATION Approx. 171 feet DRILLING COMPANY Soil Sampling Service SHEET 1 OF 12 RIG TYPE & NUMBER Reverse Air Rotary STATIC WATER LEVEL (BLS) DRILLING METHOD Percussion WD=While Orilling AB=After Boring WEATHER Rainy, Cold 158.58 AB Depth (ft) FIELD PARTY Rob Rau, Soil Sampling Service Time 0800 GEOLOGIST Rob Rau Date 12/7/92 DATE BEGUN 12/2/93 LOCATION DIAGRAM SAMPLING METHOD SAMPLE NUMBER ORGANIC VAPOR HELL Installation LITHOLOGY SOIL Samples CGI **39** 0 100 Same as above - Sand W some gravel. SU-6U (Vashon Advance Outwash) **11.0 2**0 **13.0** 11 0 €.0 Sand 11/ some gravel, trace silt: SH-GH (Yashon Advance Outwash) Hnu = 30 ppm in hole, 10 ppm on sample CGI = Background ≪ 0 47 Q **48** 0 49 O 50 O SI 0 SZ 0 S3 0 54 0 SS 0 % O 57.0

59 G

BOREHOLE NUMBER

6-0-5

PROJECT NUMBER 5330860.30
PROJECT NAME CTO 0096, Whidbey Area 6 Landfill

LOCATION NAS Whidbey Island, WA DRILLING COMPANY Soil Sampling Service RIG TYPE & NUMBER Reverse Air Rotary

DRILLING METHOD Percussion

WEATHER Rainy, Cold FIELD PARTY Rob Rau, Soil Sampling Service

GEOLOGIST Rob Rau DATE BEGUN 12/2/93

TOTAL DEPTH 220 feet

GROUND SURFACE ELEVATION Approx. 171 feet

SHEET 1

OF 12

| | STATIC WATER LEVEL (BLS) | | | | | | |
|------------|--------------------------|--------------|--|--|--|--|--|
| | WD=While Drilling AB= | After Boring | | | | | |
| Depth (ft) | 158.58 AB | | | | | | |
| Time | 0800 | | | | | | |
| Oate | 12/7/92 | | | | | | |

| DATE BEGUN | 12/2/93 | 500 (5110 | <u> </u> | |
|--------------------------|---|--|-----------|----------------------|
| OEPTH SOIL SAMPLES | SAMPLING HETHOD SAMPLE NUMBER ORGANIC VAPOR CGI | LOCATION DIAGRAM | LİTHOLOGY | HELL Installation |
| 81.0 | | Sand w/ trace or less gravel to 10mml. SP (Vashon Advance Outwash) Fine sand w/ trace silt. alive gray, moderately dense, wet. SP-SN (Vashon Advance Outwash) | | |

BOREHOLE NUMBER

6-0-5

PROJECT NUMBER 5330860.30

PROJECT NAME CTO 0086, Whidbey Area 6 Landfill

LOCATION NAS Whidbey Island, WA DRILLING COMPANY Soil Sampling Service
RIG TYPE & NUMBER Reverse Air Rotary
DRILLING METHOD Percussion

WEATHER Rainy, Cold

FIELD PARTY Rob Rau, Soil Sampling Service

GEOLOGIST Rob Rau DATE BEGUN 12/2/93

TOTAL DEPTH 220 feet

GROUND SURFACE ELEVATION Approx. 171 feet SHEET 1

OF 12

STATIC WATER LEVEL (BLS) WD=White Drilling AB=After Boring 158.58 AB Depth (ft) Time 0800 12/7/92 Date

| | 18ER | 5 | LOCATION DIAGRAM | | |
|--|---------------|-----|--|-----------|----------------------|
| DEPTH SOIL SAMPLES | SAMPLE NUMBER | CGI | | LITHOLOGY | HELL INSTALLATION |
| 59.0 60.0 61.0 63.0 64.0 | | | SAND (medium to Fine) H/ trace fine grave), medium dark alive gray (5Y 4/1). SP-GP, (Vashon Advance Outwash) | | |
| 65 0 + 66 0 + 67 0 + 68 0 + 69 | | | Similar to obove - fine Sond W/ trace or less fine gravel. SP-GP (Vashon Advance Outwash) | | |
| 73 0 + | | | | | |

BOREHOLE NUMBER

6-0-5

PROJECT NUMBER 5330860.30

PROJECT NAME CTO 0086, Whidbey Area 6 Landfill

LOCATION NAS Whidbey Island, WA
DRILLING COMPANY Soil Sampling Service
RIG TYPE & NUMBER Reverse Air Rotary

DRILLING METHOD Percussion

WEATHER Rainy, Cold

FIELD PARTY Rob Raw, Soil Sampling Service GEOLOGIST Rob Raw DATE REGUN 12/2/93

TOTAL DEPTH 220 feet

GROUND SURFACE ELEVATION Approx. 171 feet

SHEET 1

OF 12

| | STATIC WATER LEVE While Drilling AB= | |
|------------|---|--|
| Depth (ft) | 158.58 AB | |
| Time | 0800 | |
| Date | 12/7/92 | |

| Sand, fine to very fine, sedius dark alive gray 151 4/11. dense, very wet; SP 1Vashon Advance Outwashi 102.0 - 107.0 - | DATE BEGUN | Į. | 93 | Date | 12/7/92 | L_ | |
|--|-------------------------------|---|---------------------------------------|----------------------|---------|----------------------|----------------------|
| Sand, fine to very fine, aedium dark alive gray IST 4/11. dense, very wet; SP IVashan Advance Outwash I IO2.0 - IO3.0 - IO5.0 | DEPTH SOIL SAMPLES | | SAMPLE MUNBER ORGANIC VAPOR CGI | | | г I Тнос о бт | HELL INSTALLATION |
| 107 0 - 108 6 - 109 0 - 110 0 - 111 0 - 112 0 - | 100.0 - | Sand fine to very fine, medium gray 151 4/11, dense, very wet; TVashon Advance Outwashi | | m dark olive : SP | | • | |
| 112 0 | 108 6 + 108 0 + 108 0 + | | | • | - | | |
| 115 0 + | 112 0 | | | | | | |

BOREHOLE NUMBER

6-0-5

PROJECT NUMBER 5330860.30

PROJECT NAME CTO 0086, Whidbey Area 6 Landill

LOCATION NAS Whichbey Island, WA
DRILLING COMPANY Soil Sampling Service
RIG TYPE & NUMBER Reverse Air Rotary
DRILLING METHOD Percussion

WEATHER Rainy, Cold

FIELD PARTY Rob Rau, Soil Sampling Service GEOLOGIST Rob Rau

DATE BEGUN 12/2/93

TOTAL DEPTH 220 feet GROUND SURFACE ELEVATION Approx. 171 feet SHEET 1 OF 12

| STATIC WATER LEVEL (BLS) WD=While Drilling AB=After Boring | | | | | | |
|--|---------|--|--|--|--|--|
| | | | | | | |
| Time | 0800 | | | | | |
| Date | 12/7/92 | | | | | |

| DATE BEGUN | 12/2/93 | Date 1 1811 | <u>** </u> | |
|---|--|--|--|----------------------|
| OEPTH SOIL SAMPLES | SATPLING NETHOO SATPLE NUNBER ORGANIC VAPOR CGI | LOCATION DIAGRAN | LITHOLOGY | HELL INSTALLATION |
| 119 0 120 0 121 0 122 0 123 0 126 0 127 0 128 0 127 0 128 0 127 0 128 0 127 0 128 0 127 0 128 0 127 0 128 0 127 0 128 0 127 0 128 0 127 0 128 0 127 0 128 0 127 0 128 | | Same as obove - very fine Sand (Yashan Advance Outwash) | | |

BOREHOLE NUMBER

6-0-5

PROJECT NUMBER 5330860.30

PROJECT NAME CTO 0086, Whidbey Area 6 Landfill

LOCATION NAS Whidbey Island, WA DRILLING COMPANY Soil Sampling Service

RIG TYPE & NUMBER Reverse Air Rotary DRILLING METHOD Percussion

WEATHER Rainy, Cold

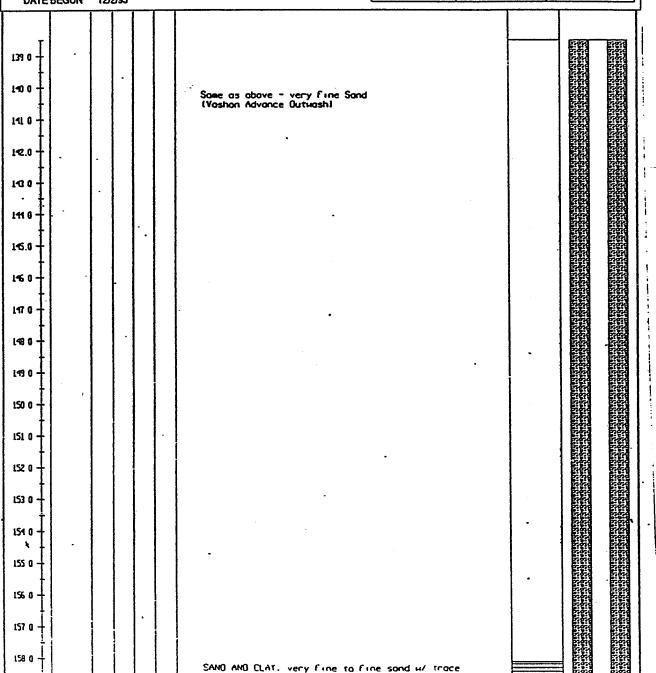
FIELD PARTY Rob Rau, Soil Sampling Service

GEOLOGIST Rob Rau DATE BEGUN 12/2/93 TOTAL DEPTH 220 feet GROUND SURFACE ELEVATION

Approx. 171 feet SHEET 1

OF 12

| STATIC WATER LEVEL (BLS) | | | | | | |
|-----------------------------------|-----------|--|--|--|--|--|
| WD=While Drilling AB=After Boring | | | | | | |
| Depth (ft) | 158.58 AB | | | | | |
| Time | 0800 | | | | | |
| Date | 12/7/92 | | | | | |



BOREHOLE NUMBER

6-D-5

PROJECT NUMBER 5330860.30

PROJECT NAME CTO 0086, Whidbey Area 6 Landfill

LOCATION NAS Wridboy Island, WA
DRILLING COMPANY Soil Sampling Service
RIG TYPE & NUMBER Reverse Air Rotary DRILLING METHOD Percussion

WEATHER Rainy, Cold
FIELD PARTY Rob Rau, Soil Sampling Service
GEOLOGIST Rob Rau
DATE BEGUN 12/2/93

TOTAL DEPTH 220 feet

GROUND SURFACE ELEVATION Approx. 171 feet SHEET 1 OF 12

STATIC WATER LEVEL (BLS) WD=While Drilling AB=After Boring Depth (ft) 158.58 AB Time 0800 Date 12/7/92

| DATE BEGUN | 12/2/93 | | | Date | | 12/7/92 | |
|--|-----------------|---------------|-----|---|-------|-----------|----------------------|
| DEPTH SOIL SAMPLES | SAMPLING METHOD | ORGANIC VAPOR | CGI | LOCATION GEAGRAM | | LITHOLOGY | HELL INSTALLATION |
| 153 0 150 0 151 0 152 0 153 0 155 0 156 0 157 0 170 0 171 0 172 0 173 0 173 0 175 0 176 0 177 0 178 0 178 0 | | | | clay (10%), medium dark alive gray (SY sand, and gray (N 4/0) clay, dense, well (Whidbey Formation - Unit 2) Similar to above - Sand w/ trace clay of trace silt, sand is fine grained. SP-SC (Whidbey Formation - Unit 2) CLAY, alive gray (SY 4/1), very dense, CL (Whidbey Formation - Unit 3) | and C | | |

BOREHOLE NUMBER

6-D-5 -

PROJECT NUMBER 5330860.30
PROJECT NAME CTO 0086, Whidbey Area 6 Landfill LOCATION NAS Whidboy Island, WA
DRILLING COMPANY Soil Sampling Service
RIG TYPE & NUMBER Reverse Air Rotary

DRILLING METHOD Percussion

WEATHER Rainy, Cold
FIELD PARTY Rob Rau, Soil Sampling Service
GEOLOGIST Rob Rau
DATE BEGUN 12/2/93

TOTAL DEPTH 220 feet

GROUND SURFACE ELEVATION Approx. 171 feet SHEET 1 OF 12

| | STATIC WATER LEVE | 1 /01 €\ | | | | | |
|--|-------------------|----------|--|--|--|--|--|
| STATIC WATER LEVEL (BLS) WD=While Drilling AB=After Boring | | | | | | | |
| Depth (ft) | 158.58 AB | | | | | | |
| Time | 0800 | | | | | | |
| Date | 12/7/92 | | | | | | |

| DATE BEGUN | 12/2/93 | | r. | Date | 12/7/9 | 2 | |
|---|----------------------------------|---------------|--|-------------|--------|-----------|----------------------|
| DEPTH SOIL SAMPLES | SAMPLING METHOO SAMPLE NUMBER | ORGANIC VAPOR | LOCATION DIAGRAM | | | LITHOLOGY | HELL INSTALLATION |
| 173 0 - 180 0 - 181 0 - 182 0 - 183 0 | | | SANO AND SILT, Hedium to coorse silt-clay (20% fines), alive grower. SP-SM (Whidbey Formation - income silt, alive gray, dense, villhidbey formation - Unit 11 | ravel (<5I) | | | |

BOREHOLE NUMBER

6-D-5

PROJECT NUMBER 5330860.30
PROJECT NAME CTO 0086, Whidbey Area 6 Landfill LOCATION NAS Whidbey Island, WA
DRILLING COMPANY Soil Sampling Service
RIG TYPE & NUMBER Reverse Air Rotary
DRILLING METHOD Percussion
WEATHER Rainy, Cold
FIELD PARTY Rob Rau, Soil Sampling Service
GEOLOGIST Rob Rau
DATE BEGUN 12/2/93

TOTAL DEPTH 220 feet
GROUND SURFACE ELEVATION Approx. 171 feet
SHEET 1 OF 12

| STATIC WATER LEVEL (BLS) | | | | | | | | | |
|--------------------------|-----------------------------------|--|--|--|--|--|--|--|--|
| W | WD=While Drilling AB=After Boring | | | | | | | | |
| Depth (ft) | 158.58 AB | | | | | | | | |
| Time | 0800 | | | | | | | | |
| Date | 12/7/92 | | | | | | | | |

| DATE BEGUN | 12/2/93 | | - | Date | 12/7/9 | 2 | |
|--|---|-----|---|--------------------------|--------|-----------|----------------------|
| DEPTH SOIL SAMPLES | SAMPLING METHOD SAMPLE MUNBER ORGANIC VAPOR | 193 | OCATION DIAGRAM | | | L11H0L061 | HELL INSTALLATION |
| 200.0 201.0 202.0 203.0 204.0 205.0 | | - | Similar to above - Redium to common gravel, minor sood, very (Unidbey Formation - Unit 4) | Danse Sand W/ Wet: SP | | | |
| 205 0 207 0 208 0 205 0 210 0 | | | | • | | L | |
| 211 0 - | | | | | | | |
| 215 0 | | | No split-spoon sample recovere wet "saupv" beaving sands | d due to | | , | |

BOREHOLE NUMBER

6-0-5

PROJECT NUMBER 5330860.30
PROJECT NAME CTO 0086, Whidbey Area 6 Landfill

LOCATION NAS Whidbey Island, WA
DRILLING COMPANY Soil Sampling Service
RIG TYPE & NUMBER Reverse Air Rotary

DRILLING METHOD Percussion

WEATHER Rainy, Cold
FIELD PARTY Rob Rau, Soil Sampling Service
GEOLOGIST Rob Rau

DATE BEGUN 12/2/93

TOTAL DEPTH 220 feet

GROUND SURFACE ELEVATION Approx. 171 feet OF 12

SHEET 1

| STATIC WATER LEVEL (BLS) WD=While Drilling AB=After Boring | | | | | | |
|--|---------|--|--|--|--|--|
| | | | | | | |
| Time | 0800 | | | | | |
| Date | 12/7/92 | | | | | |

| DATE | BEGUN | 12/2 | 793 | | | | Uali | | |
|----------------|-----------------|-----------------|---------------|---------------|------|------------------|---------|-----------|----------------------|
| 0EP1H | SOIL Samples | SAMPLING METHOD | SAMPLE NUMBER | ORGANIC VAPOR | 193 | LOCATION GIAGRAM | - | L11H0L067 | HELL INSTALLATION |
| | | | | | | | | | |
| 219 0 - | | | | | | | | | |
| 220 0 + | | | | | | | | | |
| 221 0 + | | | | | | | | | |
| 222.0 | | | | | | • | | | |
| 223 0 | | | | | | | | | |
| Z21 0 - | | | | | | | • | | |
| 225 0 - | | | | | | | | | |
| 225.0 | | | | | | | - | | |
| 227 O | | | | | | | · | | |
| 228 0 - | i | | | | | | | | |
| 229 0 | | | | | | | | | ÷ |
| 230 0 | | | | | | | i e e e | | |
| 231 0 | | | | | | | | | |
| 222 0 | | | | | | | • | | |
| 533 0 | | | | | | | | | |
| k234 0 - | | İ | | | | | | | |
| 532 0 1 | | | | | | | | | |
| 236 0 | | | | | | , | | | 1 |
| 237 c - | | | ! | 1 | | | | | |
| 238 9 ÷ | | | | ! | | | | | |

BOREHOLE NUMBER FIELD BOREHOLE LOG 6-5-26 PROJECT NUMBER 01-0817-07-0571-043 FIELD BOOK NO HS-1 PROJECT NAME: NAS Whidbey Operable Unit 1 TOTAL DEPTH: 76.5 LOCATION: Oak Harbor, Hashington GROUND SURFACE ELEVATION: 125.7 ORILLING COMPANY: Ponderosa Drilling SHEET OF: RIG TYPE & NUMBER: Mobile 880 STATIC HATER LEVEL (BLS) DRILLING METHOD. Hollow Stem Auger HO=While Ocilling AB=AFter Boring HEATHER: Sunny, HOPE Depth(ft) 39.00 AB 41.67 AB FIELD PARTY: Robbi Mills, Ron Bogenreif Time GEOLOGIST: Anne Exe 09/27/91 11/13/91 Date: DATE BEGUN: 08/22/91 DATE COMPLETED: 08/23/91

| DATE | BEGUN: | 08/2 | 5/91 | | | DATE COMPLETED: 08/23/91 | | |
|---|-----------------|-----------------|---------------|---------------|-----|--|------------|----------------------|
| ОЕРТН | SOIL SAMPLES | SAMPLING METHOD | SAMPLE NUMBER | ORGANIC VAPOR | CGI | LOCATION DIAGRAM | L ITHOLOGY | HELL INSTALLATION |
| 1.0 - | | н sı | 2 | | | Riser pipe/Hell casing 2.8 ft above ground surface Protective casing & lockable cap 3 0 ft above graund elevation SAND, SILT, AND GRAVEL; gravel (35-40%, up to 1.5"), sand (40%, medium), silt (20-25%); alive gray (5Y 4/2), SP-6P (Vashon Advance Outhash) | - | HEREN OF PROPERTY |
| 5.0 - 6.0 - 7.0 - 8.0 - 9.0 - | | S1 | 3 | | | SAND (90%, fine to medium, rounded) w/ little gravel (10%); olive gray (5Y 4/2); SP (Vashon Advance Outwash) | | |
| 11.0 - | | S1 | 5 | | | Sand, predominantly medium grains; dark alive gray to alive gray (5Y 3 5/2); SP (Vashon Advance Outwash) Sand (90-95%, fine to coarse) w/ trace grave) | | |
| 16 0 | | | | | | Sand (90-95%, fine to coorse) w/ trace gravel (5-10%, rounded, to 1"), damp, firm; SW (Vashon Advance Outwash) | | |

BOREHOLE NUMBER FIELD BOREHOLE LOG 6-5-26 PROJECT NUMBER: 01-0817-07-0571-043 FIELD BOOK NO - HS-1 TOTAL DEPTH: 76.5 PROJECT NAME: NAS Whidbey Operable Unit 1 LOCATION: Oak Harbor, Hashington GROUND SURFACE ELEVATION: 125.7 DRILLING COMPANY: Ponderosa Drilling SHEET: RIG TYPE & NUMBER: Mobile 880 STATIC HATER LEVEL (BLS) DRILLING METHOD - Hollow Stem Auger HO-While Orilling AB-AFter Boring HEATHER: Sunny, Harm Depth(ft) 41.57 AB 39.00 AB FIELD PARTY Robbi Mills, Ron Bogenreif Time GEOLOGIST: Anne Exe 09/27/91 11/13/91 Date: DATE BEGUN: 08/22/91 DATE COMPLETED: 08/23/91 **METHOD** LOCATION DIAGRAM VAPOR SAMPLE NUMBER WELL INSTALLATION SAMPLING ITHOLOGY ORGANIC SOIL Samples CGI 19.0 Sl 6 20.0 Sand, fine to medium, occasional coorse; slightly damp; olive gray (SY 4/2); SP (Yashon Advance Outwash) 21.0 22.0 23.0 24.0 S1 7 25.0 Same as previous sample 26.0 27.0 28 0 29.0 SI 8 30.0 Sand, decrease in grain size to fine grains; olive gray (5Y 4 5/2). SP (Vashon Advance Outwash) 31.0 32.0 33.0 P.V.C. 34 0 Stainless Steel Sl 9 35.0 Sand (85-90%, Fine to coorse) w/ little gravel (10-15%, rounded, to L*); SH (Vashon Advance Outwash) 36.0 37 O

38 Q

المراجعة المرابع

BOREHOLE NUMBER FIELD BOREHOLE LOG 6-S-26 PROJECT NUMBER - 01-0817-07-0571-043 FIELD BOOK NO HS-1 PROJECT NAME: NAS Whidbey Operable Unit 1 TOTAL DEPTH: 76.5 GROUND SURFACE ELEVATION: 125.7 LOCATION: Oak Horbor, Washington 0F DRILLING COMPANY: Ponderosa Drilling SHEET RIG TYPE & NUMBER: Mobile 880 STATIC WATER LEVEL (BLS) ORILLING METHOD: Hollow Stem Auger HO=Hhile Drilling AB=After Boring HEATHER: Sunny, HOTE 41.67 AB 39.00 AB Depth(ft) FIELD PARTY: Robbi Mills, Ron Bogenreif Time GEOLOGIST: Anne Exe 09/27/91 11/13/91 Date: DATE BEGUN: 08/22/91 DATE COMPLETED: 08/23/91 LOCATION DIAGRAM SAMPLING METHOD SAMPLE NUMBER WELL INSTALLATION ORGANIC \ SOIL. Samples CGI 39.0 Sl 10 40.0 Sand (90%, fine to medium, occasional coarse) w/less than 5% each small gravel and silt; wet; v. dark gray to dark olive gray (5Y 3/1.5); SP (Vashon Advance Outwash) 11.0 **12.0** 43.0 41.0 SI 15.0 11 Same as previous sample 46.0 170 48.0 19 0 Sl 12 50.0 Sand (80-85%, Fine to medium) H/ same silt (15-20%); Het and soupy; v.dark gray to dark alive gray (5Y 3/1.5), battom 2" calar change to black (5Y 2.5/1), SM (Vashon Advance Outwash) 51.0 **52.0** 53.0 54.0

Sand, medium grains, rounded, a feн larger pieces of mico; black (5Y 2 5/1)

А

55.0

56.0

57 0

| | | | | | FIE | _D | BOREHOLE | L | og - | BORE | HOLE N | | |
|--|-----------------|---------------|---------------|-----|----------------------|-------------|---------------------------------------|-----|--------------------------------|---------------------------------|----------------|--|----------------------|
| PROJECT NUMBER: 01-0817-07-0571-043 PROJECT NAME NAS Whidbey Operable Unit 1 LOCATION: Oak Harbor, Hashington ORILLING COMPANY: Ponderosa Orilling RIG TYPE & NUMBER: Mobile 880 ORILLING METHOD: Hollow Stem Auger WEATHER: Sunny, warm FIELD PARTY: Robbi Mills, Ron Bogenreif GEOLOGIST: Anne Exe DATE BEGUN: 08/22/91 OATE COMPLETED: 08/23/91 | | | | | | | | | 76.5 Œ ELEVATIO | N 125 F · R LEVEL AB=A | (BL: | | |
| DEPTH SOIL SAMPLES | SAMPLING METHOD | SAMPLE NUMBER | ORGANIC VAPOR | cei | LOCATION DIA | AGR/ | M 1 | | | | i LITHOLOGY | | WELL INSTALLATION |
| 59 0 | . α | | | | CLAY, vei gray (2 | ry e SYR | sticky clay mixed 4/01. CL (Whidbe | y F | th silt; dark ormation Unit | 1) | | | |

RECEIVED

SEP 2 1 1993 RESOURCE PROTECTION WELL REPORT

| 33/14 | = /20A |
|-------|--------|
| - 1 | |

| DEPT. OF ECOLOGY PROJECT NAME: AVA AVA WELL DEPTENDATION NO. TO DISLUMG METHOD: ECULYSON DIS | ntal Services, Inc. | ETREET ADDRESS OF WELL: NAS OAK HAKON | | | | |
|--|---|--|---|--|--|--|
| AS-BULT | WILLDATA | PORMA | HOITHIRGEEG HOIT. | | | |
| | Flush Mounted Mon-Expansion plug willock -Concrete Surface - to 5 Well csg - to 0 O SCH 5 TFJ Rec | seal oft ft O-4 Brown cond ft H-35 36 | To mad thing w sult & sure; mosts. le may filty mod w sure; | | | |
| | Annular Sealant 5' to 97 Volcky Grant Seal 98' to 10 | 2 ft (47'-150' : | inc gray med. in come in gravel in up brie sound e cong : Tilt, with | | | |
| | Filter Pack 102 to 15 | 50' Et | with way wo time | | | |
| Total Depth 150 ft Hole Diameter 12 in | Screened Interval 108 to 14 0 sch 5 TFJ FF COND Factory Slotte 148 - 149 Sump | 18 ft 30455 | | | | |

Attachment 2 Well Development Logs

| LC Evn: A | AVF ult F Vell |
|--|----------------------|
| Total Depth Depth to wa Water Colum Well Volum Total Purge | nter: mn: e: |
| Purge Devi | |
| Time Stabiliza | P |
| 1518 | lon |
| 1520 | - |
| 1558 | |
| 1608 | |
| 16/3 | 1 |
| 1633 | 1 |
| | |
| Observatio | ns/N |
| | |

| CM | 12m: |
|--------------------|--------|
| Client: Lc Evn: | NAVFAC |

Ault Field, Oak Harbor, WA

Well development

NSOOF

WELL DEVELOPMENT DATA SHEET

Project Number: 695610.04.FI.WI

Well ID: WI-AF-MW - 60

Sample ID: NA

MBI LNO/ANI Sampling Team: M

HORIBA USONO a was mere

Measuring Device: Soling moder 100 wh mater

Date and Time:

Well Dia. Volume (gallons/foot) (inches) 0.041 1

0.064 1.25 (2) 0.163 0.653

Before After

120.6 FT.(BTOC)

13.75 13.7 FT.(BTOC) 166.85 FT. (x) 0.163 GAL/FT. B,163 GAL. 17.5

155

GAL.

olume: Purge Vol.:

Mini Monson

| - | She a receive | | the state of the s | 1 50 1 1 1 1 | FIELD PARA | METERS | | was and a second state of | Service and servic |
|-------------|----------------------|----------|--|--------------|------------|-----------|------------------|---------------------------|--|
| Time | Purge Vol. (gals) | Temp. | Cond. mS/cm | DO mg/L | pH SU | ORP mV | Turbidity NTU | Other: DTW | Color / Odor / Comments |
| Stabiliza | ton Criteria | constant | ± 3% | ± 10% | ± 0.1 | ± 10 mV | <10 | | The second secon |
| 1518 | Ø | | | | | | | | Sar |
| | | | | | | | | | |
| | | | | | 1 | | | | |
| 1520 | Ч | 9.3 | 10,100 | 1.93 | 10.00 | 1-2- | . ~ | 15.7 | |
| 1533 | 30 | 9.41 | W.2'28 | 0.77 | 9.47 | 371 | 206 | 15,3 | |
| 15 48 | 60 | 9,29 | 0.237 | 0.55 | 18.11 | 1-70 | 46.8 | 15.8 | |
| 1558 | 80 | 9.67 | 10,242 | 0.00 | 7,84 | - 93 | Sb.2 | 15.8 | |
| 160 | 918 | 9.61 | 0.241 | 1,47 | 7.42 | -238 | 40.4 | 18.8 | |
| 608 | 100 | 9.29 | 0,244 | 7.93 | 7.87 | -92 | 27.4 | 15,8 | |
| 163 | 110 | 9.36 | 0.243 | 1.31 | 7.95 | 23 | 24,3 | 1385 | |
| 1/6/2 | 1200 | 9.64 | 0.245 | D.3t | 7.90 | -85 | 13.7 | 15.8 | |
| 1623 | 130 | 965 | 0.246 | 3,84 | 7.81 | -87 | 18,5 | 158 | |
| - (628 | 140 | 9.66 | 0.248 | 5.93 | 78 | -87 | 11.5 | 15.5 | |
| 1633 | 150 | 9.68 | 0,277 | 1.27 | 1.84 | -22 | 9,1 | 15,2 | GND |
| | | | | | - | | - | | |
| | - | | | | | | - | | |
| | | | | | | | | | - |
| | - | | | - | - | - 3 | - | | |
| Observation | Notes: | D | ge Start Time: | 1513 | | | Purge Ra | ate: CYM | 1 |

Bailed ~ 5 gallons Total Pugevol. - 155 gallons

Signature(s):

ch2m.

| 6 2 | | | | WELL | DEVELOPM | ENT DATA SI | HEET | | |
|--------------|-------------------|---------------|-----------------------|-----------|---------------|--------------|------------------|--|--|
| Client: | NAVFAC | | | | oject Numbe | | | the state of the s | LOS ANAMERON NEW COLORS CONS. DEPOSITOR |
| Li bn: | Ault Field, Oa | ak Harbor WA | | - " | U II II Wall | D: WI-AF-MW | 1-606 | | |
| Event: | Well develop | | 1 | _ | Sample II | | 000 | | |
| Date: | 2/2/18 | THO THE | | | Sample it | 2. M. C. | m/SAC, M | 13/mo/AN | C |
| Weather: | | 1 | _ | Sa | impling reali | 1. 7. 610 | M/ 3FC, 12 | <u> </u> | |
| ···cather. | Overc | 26 | | - | | | | 121 1 | Coaro I.(O Ast.C |
| | | Before | After | | | | | HORIBA | seed will meter |
| Total Dep | th: / | 03.95 | 143,74 | FT.(BTOC) | 1 | N | Measuring Device | : Solinst mode | 1 les or men |
| Depth to | _ | 10,25 | 142,11 | FT.(BTOC) | | | Date and Time | 2/2/18 | |
| Water Col | | 62,7 | 1 | FT. | | | 2 | | |
| | _ | xD,163 | + | GAL/FT. | | Well Dia. | Volume | 1 | |
| Well Volu | | (6.9 | | GAL. | | (inches) | (gallons/foot) | | |
| Total Purg | _ | (0.1 | + | GAL. | | 1 | 0.041 | | |
| | _ | | | | | 1.25 | 0.064 | 1 | |
| Purge Dev | /ica· | minimon | DAA. | | | 2 | 0.163 | 1 | |
| r urge bev | | 7 17 17 1 200 | J1104 | | - | 4 | 0.653 | 1 | |
| | | | | | | | | | and the second terms of the second second |
| | | | TANK CLASS CONTRACTOR | | FIELD PARA | | | | The state of the s |
| Time | Purge Vol. | Temp. | Cond. | DO | pН | ORP | Turbidity | Other: DTW | Color / Odor / Comments |
| Time | (gals) | °C | mS/cm | mg/L | SU | mV | NTU | | * |
| Stabiliza | aton Criteria | constant | ± 3% | ± 10% | ± 0.1 | ± 10 mV | <10 | Coowland | Sert |
| 1212 | 0 | _ | | _ | <u> </u> | - | | 0).25 | 34. |
| 0 | | - | | (| nd | | | | |
| -0- | | | | | | | 150 | 12.0 | |
| 1217 | (17) | 10,7 | 0,299 | 1.62 | 5,97 | 86 | 635 | 13,2 | |
| 1232 | 40 | 10.98 | 0.275 | 2,08 | 7.25 | -31 | 113 | 12.6 | |
| 1247 | 70 | 11.11 | 0.273 | 1,06 | 7,69 | -74 | 79.6 | | |
| 1257 | 90 | 11.44 | 0.274 | 1,73 | 7.69 | -81 | 64.2 | 12.65 | |
| 1307 | 110 | 11.10 | D275 | 0.61 | 1.84 | -80 | 63.3 | 12.65 | Engine turned |
| 1317 | 1300 | 11.17 | (2).7.33 | 1,94 | 7.76 | - 960 | 32,4 | 11.1 | Off, buttery Shill |
| 1327 | 150 | 11.21 | 0.277 | 7.96 | 7,77 | -80 | 48,8 | 10.85 | Oct buriet shi |
| 1332 | 160 | 11.13 | 0.276 | 1.92 | 7,76 | -85 | 38.9 | | runing, Still |
| 1337 | 170 | 100,94 | 0.276 | 1.92 | 7,76 | - 36 | 30,9 | 11.8 | ~260M |
| 1342 | 184 | 16.81 | 4,277 | 1.92 | 6.93 | - 8 8 | 38.5 | 11.66 | |
| 1347 | 190 | 10.63 | 0.269 | 1.57 | 7.64 | -70 | 11.4 | 11.72 | |
| 1267 | 200 | 10.64 | 4.274 | 4.75 | 7.66 | -85 | 35.4 | 11.73 | |
| 1352 | 214 | 14.62 | 0.275 | 1.76 | 7.64 | | 35. | 11.66 | |
| 1357 | 224 | 16.55 | 4.274 | | 7.64 | - 65 | 36.4 | 11.72 | (3) |
| 1402 | 779 | | | | | | | 11-61 | (M/S) |
| 447 | | | | | | | - 1 .V | | |
| Observation | s/Notes: | Purg | e Start Time: | 1212 | | Se . Se | Purge Rate: _ | ~ ZGPI | h |
| | NO ONCE | line or | builing ' | beruse | , swa | | builer con | ed not be | , s., |
| | (nsered TURBIO | aust 1 | 120 FL | 0000 | | | | ,. | |
| | TURBIC | ,,,,, | | | | | | | |
| Signature(s) | · ~ | ~ ~ | - | 2.0 | | | | | |

Ch2ma

Client:

NAVFAC

Ault Field, Oak Harbor, WA Well development

Date:

Weather:

WELL DEVELOPMENT DATA SHEET

Project Number: 695610.04.Fl.Wl

Well ID: WI-AF-MW - 607

Sample ID: NA

M. Bruno/ANC Sampling Team: M, Creen/SAC

Total Depth:

Depth to water: Water Column:

Before After 104,8 FT.(BTOC) () 3,85 FT.(BTOC) 100.95 FT. (x) 0.163 0.163 GAL/FT. GAL. 16.5

GAL.

Well Volume:

Total Purge Vol.:

Purge Device:

436 MINIMONSOON

Measuring Device: HORTBA USOBG WOLLAR
Measuring Device: HORTBA USOBG WOLLAR
Measuring Device: HORTBA USOBG WOLLAR
Measuring Device: HORTBA USOBG WOLLAR
Measuring Device: HORTBA USOBG WOLLAR
Measuring Device: HORTBA USOBG WOLLAR
Measuring Device: HORTBA USOBG WOLLAR
Measuring Device: HORTBA USOBG WOLLAR
Measuring Device: HORTBA USOBG WOLLAR
Measuring Device: HORTBA USOBG WOLLAR
Measuring Device: HORTBA USOBG WOLLAR
Measuring Device: HORTBA USOBG WOLLAR
Measuring Device: HORTBA USOBG WOLLAR
Measuring Device: HORTBA USOBG WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring Device: HORTBA WOLLAR
Measuring

Date and Time:

| Well Dia. (inches) | Volume (gallons/foot) |
|-----------------------|--------------------------|
| 1 | 0.041 |
| 1.25 | 0.064 |
| (2) | 0.163 |
| 1 | 0.653 |

| Γ | were the contract of the contr | | Annual de La Maria | Address of Marian | CALL THAT THE THE THE THE THE | FIELD PARAM | METERS | William Control of the Control | Proposition of the paint of the No. | W. (2) . (3) |
|---|--|----------------------|--------------------|-------------------|-------------------------------|-------------|-----------|--------------------------------|-------------------------------------|-------------------------|
| - | Time | Purge Vol. (gals) | Temp. | Cond. mS/cm | DO mg/L | pH SU | ORP mV | Turbidity NTU | Other: UTU | Color / Odor / Comments |
| H | Stabiliza | aton Criteria | constant | ± 3% | ± 10% | ± 0.1 | ± 10 mV | <10 | constant | 2 |
| 5 | 1616 | (1) | Constant | ^ | - | | _ | _ | | Start |
| 1 | 1610 | | | | | | | | | a 2/2/18 |
| H | → | | | | | | | | | |
| ŀ | 1910 | 10 | 9.85 | 0,379 | 1.38 | 9,37 | 40 | | 14.2 | |
| ŀ | 1615 | 40 | 9.49 | 0,337 | 2,05 | 8,83 | 45 | _ | 13.9 | |
| ŀ | _ | 46 | 1, 1 | ~ | - | - | 1 | - | - | Start on 2/3/18 |
| 1 | 0729 | 80 | 8.33 | 0.355 | 1.02 | 6,24 | 150 | 814 | 12.6 | |
| μ | 0746 | | | 191 | 10.63 | 7.38 | -29 | 358 | 12.7 | |
| | 0861 0816 | 140 | 9,60 | 0.315 | 8.11 | 7.74 | ~53 | 205 | 12.6 | |
| H | 0831 | 170 | 9.8 | 0,299 | 2,47 | 7.96 | - 88 | 140 | 12-5 | |
| 1 | | 2:00 | 9.85 | 0.304 | 6.24 | 8.00 | -92 | 105 | 12.45 | |
| | 0846 | 230 | 9.80 | 0.299 | 1,90 | 8,03 | -97 | IŬ | 12,47 | |
| + | 0901 | 240 | 11.50 | - | , | , | - | _ | _ | tote full, ge |
| ŀ | 0956 | 178 | 9,94 | 0,299 | 12,53 | 2,25 | 5 | 201 | 13.65 | another Love |
| ŀ | | 320,5 | -10.000 | 0.181 | 10.06 | 7.62 | -77 | 102 | 13.70 | Nome Propy |
| ŀ | 12 0 | 358 | 10.21 | 0.150 | 10,18 | 7.48 | -77 | 66.8 | 13.72 | 0941 @ ~2.56 |
| ŀ | 1 | 398.5 | 10,31 | 0.262 | 9,21 | 7.83 | -92 | 59.6 | 12,38 | |
| 1 | 1045 | 428.5 | 10,21 | 0,179 | 10,17 | 7,47 | -75 | 67,2 | 12,50 | |
| 1 | 100 | 435 | - | - | - | 1 | - | - | | END |
| | Dbservation | | Dura | a Start Time: | 2/2/18 | luo | | Purge Ra | te: ~2 GP | |

· Ended @ 1633 W46 Coulder grouped on 2/2/18

. 0729 72/3/18 Beyin pumping @ ~ 2 GPM Bailed I Gar

on 2/3/18 at ~ 1041 flow rate dropped to ~2 gpm

| | 2M: | | WELL DEVELOPMEN | T DATA SHE | | | |
|--------------------------------|---|--|--|-----------------------|------------------------------------|---|--|
| Client: NA | AVFAC | | Project Number: | 695610.04.F | I.WI | | |
| Lc n: Au | ılt Field, Oak Harbor | , WA | A STATE OF THE STA | | | | |
| Event: We | ell development | | Sample ID: | NA | | | |
| Date: | 1/30/18 | | Sampling Team: | M. Green | 1SAC | | |
| Weather: | | cloudy | | | | | |
| | | | = 1 | | | | |
| | | | | | | | |
| | Bef | ore After | | | | HORIBA U-SOGO WQ MENT HOZ | |
| Total Depth: | 54.8 | ore After | _FT.(BTOC) | Me | | FIORTBA U-SOGOO WQ MENT HOZ Solint Model 101 UL men HE46 | |
| Total Depth: Depth to water | 54.8 | 54.5 | FT.(BTOC) _FT.(BTOC) | Me | easuring Device: Date and Time: | | |
| | 54.8 (-) 31.6 | 54.5 | | Me | | | |
| Depth to water | 54.8 (-) 31.6 | 54 S 31.7 22.8 | FT.(BTOC) | Mell Dia. | | | |
| Depth to water | 54.8 (-) 31.6 23.2 (x) 0.16 | 54 S 31.7 22.8 | FT.(BTOC) | | Date and Time: | | |
| Depth to water Water Colum | 54.8 (-) 31.6 23.2 (x) 0.16 3.8 | 54.5 31.7 22.8 8 0.163 | FT.(BTOC) FT. GAL/FT. | Well Dia. | Date and Time: | | |
| Depth to water Water Colum | 54.8 (-) 31.6 23.2 (x) 0.16 3.8 | 54,5 31.7 22.8 3 0,163 3.7 | FT.(BTOC) FT. GAL/FT. GAL. | Well Dia. | Volume (gallons/foot) | | |
| Depth to water Water Colum | 54.8 (-) 31.6 23.2 (x) 0.16 3.8 | 54,5 31.7 22.8 3 0,163 3.7 | FT.(BTOC) FT. GAL/FT. GAL. | Well Dia. (inches) | Volume (gallons/foot) 0.041 | | |

| | | | | | IELD PARA | METERS | | | |
|-----------|----------------------|----------|----------------|------------|-----------|------------|------------------|------------|-------------------------|
| Time | Purge Vol. (gals) | Temp. | Cond. mS/cm | DO mg/L | pH SU | ORP mV | Turbidity NTU | Other: DTW | Color / Odor / Comments |
| Stabiliz | aton Criteria | constant | ± 3% | ± 10% | ± 0.1 | ± 10 mV | <10 | | |
| 1532 | 0 | - | _ | _ | - | - | - | - | Start |
| - | | | | | | | | - | |
| | | | | Į (| (NG) | | | | |
| 537 | 12 | 11,12 | 0.323 | 1,05 | 8,4 | -161 | - | 37,7 | |
| 1542 | 24 | 11.11 | 0315 | 1,48 | 8.25 | -101 | 358 | 37.7 | |
| 1552 | 48 | 11.06 | 0.368 | 1,54 | 8,21 | -81 | 167 | 37.8 | |
| 602 | 72 | 11.01 | 7.306 | 1.38 | 2.05 | -82 -77 | 70,2 | 37.9 | |
| 1617 | 168 | 10,70 | 0304 | 1.52 | 3105 | | 10,9 | 38.0 | |
| 1622 | 120 | 10.84 | @ 306 | 2.36 | 7,94 | -81 | 210 | 38.0 | END |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | * | | | | | | |
| | | | | | | | | | |
| | | | | | | 1 | | | |
| | | | | | | | | 1 2 60 | |
| Observati | ons/Notes: | Pur | ge Start Time: | 1532 | | - 17 | Purge Rat | e: 2-3 GP | M |

Total : 136 Gallows purped ; bailed

Signature(s)



| | Z V V SM | WELL DEVELOPMENT DATA SHEET | - 5 |
|----------|----------------------------|---------------------------------|-----|
| Client: | NAVFAC | Project Number: 695610.04.Fl.Wl | |
| | Ault Field, Oak Harbor, WA | Well ID: WI-AF-MW - 609 | |
| Event: | Well development | Sample ID: NA | |
| Date: | 1/29/18 | Sampling Team: M. Green/SAC | |
| Weather: | Reining | | |
| | Before Aft | | |

| | Before | After | |
|-------------------|-----------|-------|-----------|
| Total Depth: | 59.7 | 39,7 | FT.(BTOC) |
| Depth to water: | (-) 35,05 | 35.4 | FT.(BTOC) |
| Water Column: | 24.65 | 24.3 | FT. |
| 4 | (x) 0,163 | 0.163 | GAL/FT. |
| Well Volume: | 4.02 | N C | GAL. |
| Total Purge Vol.: | | 133 | GAL. |
| | | | |

| Purge Device: | Mini Monsoon | |
|-------------------|--------------|--|
| Conference of the | 2,2 GPM rump | |

| Well Dia. (inches) | Volume (gallons/foot) |
|-----------------------|--------------------------|
| 1 | 0.041 |
| 1.25 | 0.064 |
| (2) | 0.163 |
| 4 | 0.653 |

Date and Time:

| Time | Purge Vol. (gals) | Temp. °C | Cond. mS/cm | DO mg/L | pH SU | ORP mV | Turbidity NTU | Other: DTV Bas | Color / Odor / Comment |
|-----------|----------------------|-------------|----------------|------------|----------|-----------|------------------|----------------|------------------------|
| Stabiliza | ton Criteria | constant | ± 3% | ± 10% | ± 0.1 | ± 10 mV | <10 | | |
| 948 | (7) | - | 0.245V | 3 | - | - | 1 | 35,4 ftbgs | Start |
| du's | 10 (01 | 7,17 | Stra | 1,25 | 7:07 | -94 | | 4 | |
| 7956 | 20 Gal | 9,77 | 0240 | 0,00 | 7,77 | -115 | 105 | - | |
| 0100 | 40 Gui | 9.74 | 0.239 | 0.47 | 7,74 | -107 | 66.7 | 2 | |
| 000 | 50 EU | 9.86 | 0.236 | 0,00 | 7.84 | -113 | 47.3 | - | |
| 1015 | 200 Gal | 9.85 | 0.234 | 0.12 | 7.92 | -105 | 33,4 | 70 | 5 |
| 1025 | 90 GON | 10.72 | D1238 | 0,40 | 7.89 | -107 | 19.3 | 38 F1 Bas | JD. |
| 1035 | 110 Gal | 10,49 | 0.235 | 0.26 | 7.98 | -101 | 10.5 | 38 | |
| 1040 | 120 Ga1 | 10.53 | 0.235 | 0,14 | 7.91 | -103 | 9.06 | 38 | |
| | | | | 1 | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | 1 | | | |
| | | | | | | | | | |
| bservatio | ns/Notes: | Pur | ge Start Time: | 0940 |) | | Purge Rat | e: 2,2 GPM | |

DTW: 35.2 Ft 5500 / 39. DTB: 59,9 Pt BTOC at end of 1/24/18

Signature(s):

| <u>55</u> (+) 2 | Before I S. I D. I b3 | After | | Well ID Sample ID npling Team | M. Gure | 610 n/5AC, M | HORIBA - U- Solinst m 1/31/18 | Swea # wa |
|-------------------------------|--------------------------------|-------------------------------|---|-------------------------------------|--------------------------|---|---|---|
| evelopmen / / | Before I S. I O O. 163 | After | FT.(BTOC) FT.(BTOC) FT. GAL/FT. GAL. GAL. | Sample ID npling Team | Well Dia. | easuring Device: Date and Time: Volume (gallons/foot) | HORIBA - U. Soli-St m | Swea # wa |
| 55 (-) 2 (x) (x) | Before IS I D OILS I | After | FT.(BTOC) FT.(BTOC) FT. GAL/FT. GAL. GAL. | npling Team | Well Dia. | Date and Time: Volume (gallons/foot) | HORIBA - U. Soli-St m | Swea # wa |
| | Before I S. 1 D O. 1 b3 .4 | After | FT.(BTOC) FT.(BTOC) FT. GAL/FT. GAL. GAL. | | Well Dia. (inches) | Date and Time: Volume (gallons/foot) | HORIBA - U. Soli-St m | Swea # wa |
| <u>SS</u> | Before I S. 1 D O. 1 b3 .4 | After | FT.(BTOC) FT. GAL/FT. GAL. GAL. | | Well Dia. (inches) | Volume (gallons/foot) | Solinst m | 2001 |
| (-) 2 (x) (x) | 25.1 D O.163 .4 | | FT.(BTOC) FT. GAL/FT. GAL. GAL. | | Well Dia. (inches) | Volume (gallons/foot) | 1/31/18 | |
| (x) | Oilb3 | | GAL/FT. GAL. GAL. | | (inches) | (gallons/foot) | | |
| rge Vol. | nini Mon | 500A- (| GAL. | | - | | 4 | |
| rge Vol. | 1 40 | 500m | | | | 0.041 | | |
| (gals) | 1 40 | 5001- (| Scotech = cosquir | | 1.25 | 0.064 | 1 | |
| (gals) | 1 40 | (| = 6024 01 | | (2) | 0.163 | | |
| (gals) | Temn | | - 6974 MI | - | 4 | 0.653 | | |
| (gals) | Temp | | | 1 | - | 0.000 | 1 | |
| (gals) | Temp | | 6.23 | FIELD PARA | METERS | | | |
| Criteria | °C | Cond. mS/cm | DO mg/L | pH SU | ORP mV | Turbidity NTU | Other: DTW | Color / Odor / Comment |
| - itoria | constant | ± 3% | ± 10% | ± 0.1 | ± 10 mV | <10 | constant | |
| 0 | - | - | 13- | | - | 2 | 37.7 | Start |
| | | | | | | | | |
| 1 | 0 11 | 012 | 2 C | 7 7 | 120 | | | |
| - | | | | | 1.73 | | DC | |
| 2 | | ~ | - | - | | | 014 | - |
| - | | | 1 | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | 1 | 0 7 | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | 4 46 | | |
| | - 1 | | | | | | | |
| | | | | - | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | 0 | | | | | 1 | |
| tes: | Purge | | | - | - | By Lale | : ~ 1 Ela | n |
| Herse (mb) Allows = | 14901 1473 | 22000- 523+47 1 Volumer | 220 ft > | the capture | Page | - Well from for 15 mi | united mum t | 70th opened. Let 5it |
| | | 1 9. y 2 | es: Purge Start Time: | es: Purge Start Time: | 9. 4 0,775 2.5 7.75 2 | es: Purge Start Time: | es: Purge Start Time: Purge Rate Purge Rate | 9. 4 0.775 2.5 7.75 133 — Dry es: Purge Start Time: 1 |

| APPENDIT | THE PERSON N | 15/2 | 0) | GROUNDWA | TER SAMPL | ING DATA S | HEET | EST VILLE | 9593 | NA. |
|--|---|---------------|----------------|----------------|--------------------------|-------------|--|-----------------|-------------------|---------------|
| Client: N | NAVFAC | (0. | - | Proje | ct Number: 6 | 95610.04.FI | .FS | Page: \ | of (| |
| | Ault Field | Aurae | .00/ | | | NI-AF- MV | | | | |
| Event: F | ebruary 2018 (| Groundwater- | Sampling | | Sample ID: \ | | | | | |
| ACCOUNT OF THE PARTY OF THE PAR | 2/17/18 | | | Sami | oling Team: | | Irlau Cr. | Crardyler | S Fitz | SIMMUNS |
| Weather: | dizzlu 1 | undy c | 11°F | J, | | V/OCI | ir inch , is. | Carepor | 1-1-1-1 | |
| Total Depth | 1,- | - | T (DTOO) | | - | - 0 | | A 10 | | |
| Depth to wa | | | FT.(BTOC) | | | Me | asuring Device: | NA | | |
| Water Colu | 3.10 | 39.97 | FI.(BIOC) | with pur | np in well before pur | 12 | | | | |
| water Colu | | 14.03 | FI. (| 37.95 ft | before pur | yp . | | • | | |
| Man Malana | | 0.163 | GAL/FT. | in we | (1) | Well Dia. | Volume | | | |
| Well Volum | | 2,61 | GAL. | | | (inches) | (gallons/foot) | | | |
| Total Purge | . vol.: | | GAL. | | | 1 | 0.041 | | | |
| | n | 1. 1 | | 4-1-4-7 | 100 | 1,25 | 0.064 | | | |
| Purge Devi | ce: Bl | adder Yu | imp: Gro | tech # 14 | 178 | (2) | 0.163 | | | |
| | Con | adder Pu | teo Contro i | Pro # C- | 103130 | 4 | 0.653 | | | |
| Contraction | - down the second | | | | | | | | | |
| ME TO | HE TON THE | 10 CV (10 CV) | At . 10 80 | | ER STABILIZ | | | Marine Page | 570 | |
| | Asset III | Temp. | Cond. | DO | pН | ORP | Turbidity | DTW | | |
| Par | ameter | °C | mS/cm | mg/L | SU | mV | NTU | ft BTOC | 200 | |
| Cr | riteria | ±0.1 | ±0.01 (if <1) | ±0.05 (if <1) | ±0.1 | ±10 | ±10 % | +0.3 (low flow) | Discharge | 11 |
| COLUMN DESIGNATION OF THE PERSON OF THE PERSON OF THE PERSON DESIGNATION OF THE PERSON | | 20.1 | ±0.02 (if >1) | ±0.2 (if >1) | 20.1 | IIU | ≤ 10 NTU | ±0.3 (low flow) | D"(S) | (8) |
| | 因以使用的 | | | | IELD PARAM | METERS | (2) (1) (1) | THE PERSON WE | A STATE OF | |
| Time | Purge Vol. | - Fempale | Cond. mS/cm | DO | рН | ORP | Turbidity | DTW | C-1 101- | |
| | (gals) | Fred wh | mS/cm | mg/L | SU | mV | NTU | ft BTOC | -Color / Odor | Comments |
| 1020 | Pump | on | | | | | | 38.97 | 7 | 15 |
| 1025 | 0,5 | 228 | | | | | | 38.52 | 7 | 15 |
| 1045 | 1.5 | 240 | | | | 77. | | 41.40 | 7 | 15 |
| 1105 | 2.75 | 240 | | | | | | 42.21 | 7 | 15 |
| 1125 | 4.0 | 240 | | | | | | 42.42 | 7 | 15 |
| 1145 | 5.25 | 240 | | | | | | 42.45 | 1 | 15 |
| 1205 | 10,50 | 240 | | | | | | 42,50 | 7 | 15 |
| 1225 | 7.75 | 240 | | | (2) | | | 42.101 | 7 | 15 |
| 51245 | 9.08.5 | | r batte | N dead | 1. Switch | ect to por | table Bab | KN @ 1250 | 1 3 | 15 |
| 1310 | 9.25 | 240 | | | | | | 70.200 | 7 | 15 |
| 1325 | 10.5 | 240 | Jenn talk | pcl to pete | - can stop | purgin | A | | 7 | 15 |
| 1330 | 10.75 | 240 | pump o | | | , , | | 42.10 | 1 1 | 15 |
| | | K-14 | 1 | 1 | | | | | 1 | 13 |
| Sample info | ormation: meth | od, container | number, size | , and type, pr | eservative use | ed. | William William | | 100 STEELS VILLEY | MINCHES TOWNS |
| - CAJA-CALLES | | alysis | | | ervative | | Container require | ements | No of c | containers |
| | | | | | | - | | | 140.010 | ontainers |
| | | | | | | HE | | | | |
| Observatio | ns/Notes: | | 10. | | L. Salat | 1 | 1 12 | Air Monitoring | : HS | BZ |
| 1230 | Shanno | n/Gen | rit Tean | N TOOK | the water | or leve | I meter. oriba, in aptw of 42 ft. | VOC (ppm)= | 1. 110 | <u>DZ</u> |
| 17114 | Cooke to | Tinn Ul | rich - SI | nce I di | on't hav | e an Ho | nba | H36 (ppiii)- | | |
| 1290 | shooting f | DC 10 X | water u | ieil Volui | ne ("Iu | gail w | in a DTW | H2S (ppm) | | |
| Pump Star | t Time | 0. 10 % | JES 2/17/18 | | | 0.0 | 07 42 91. | LEL (%)= | | |
| . amp otal | Initial Fill Tim | ofFT sect | 15 | | Final Fill Ti | ma: 15 | | CO (ppm)= | | |
| | Initial Discha | | | | | arge Time: | 7 | O2 (%)= | | |
| Pump End | Time: 133 | 0 | | | Purge Rate | : 240 | mc/min | | | |
| Pump Dep | oth: 48' | | | | | | 1 | | | |
| Sample /T | ime: NA | | | 1 | | | | | | |
| MS/MSD Signature/ | al. | | | | | | Duplicate ID: | | | |
| Lainnatural | 111111111111111111111111111111111111111 | | | | | | | | | |

Ch2m.

Client:

ration: Ault Field, Oak Harbor, WA

Well development a ent:

Date: Weather:

2/27/18 Cloudy, 400

162,28

1300

WELL DEVELOPMENT DATA SHEET

Project Number: 695610 04 FI WI

Well ID: WI-AF-MW - G LI

Sample ID: NA

Sampling Team: D. Butler

S. Fitzsimmons

Total Depth:

Depth to water: Water Column:

Before After 169.74 170, 20 FT.(BTOC) 1)59,21 110,47

81.75 FT.(88.45 FT. .75 FT.(BTOC) (x) 1.469 GAL/FT.

9.93 GAL.

Well Volume: Total Purge Vol.:

Purge Device:

NA GAL. Grundfog 5015-290

Horiba Measuring Device: Date and Time: 2/27/18

Well Dia. Volume

1.469 galliat 6:n

| (inches) | (gallons/foot) |
|----------|----------------|
| 1 | 0.041 |
| 1.25 | 0.064 |
| 2 | 0.163 |
| 4 | 0.653 |

| | Down W.L | the state of | TAC W | | FIELD PARA | METERS | | | | |
|------------|----------------------|--------------|----------------|------------|------------|-----------|------------------|---------|----------------|---------|
| Time | Purge Vol. (gals) | Temp. °C | Cond. mS/cm | DO mg/L | pH SU | ORP mV | Turbidity NTU | Other: | Color / Odor / | Comment |
| Stabiliza | ton Criteria | constant | ± 3% | ± 10% | ± 0.1 | ± 10 mV | <10 | +4 BYCZ | | |
| 1011 | Begin 5 | | 156-16 | | | | | | - | _ |
| 1026 | Stop sur | aig ng | 1/6 | | 100 00 | 145-155 | | | | |
| 1041 | (1 | 129 145- | | in surg | | 165 ft | btoc | | | |
| 1047 | Begin | CI. VIVI | | · btoc, | DTW= 5 | 1.62 4 | toc | | | |
| 1055 | | bailing | | | | | | | | |
| | Stob po | lling, t | ullina | 50 baile | 1~1099 | , DTW = | 67-10 FE | btoc. | | |
| | start | numpin | 1. Pump | at 126 . | ft bto E | | | 64.60 | | |
| 1150 | | | 0.122 | 7.59 | 5.68 | 179 | 848 | 96.10 | Murky . A | in Ador |
| 1200 | (08 | 12.53 | 0.197 | 10.82 | 6.02 | 135 | OOR | 44,40 | 1,1 | 11 |
| 1210 | 168 | 13.22 | 0.362 | 6.26 | 7.05 | 26 | OUR | 94.09 | 4 | N |
| 220 | 228 | 13.41 | 0,424 | 6,23 | 7,57 | -29 | 733 | 93,97 | k | н |
| 230 | 288 | 13.6 | 0.372 | | 37,237 | - 82 | 467 | 93.90 | u | 12 |
| 1240 | 3 48 | 13.72 | 0.466 | 6.76 | 7.48 | -90 | 331 | | 100 | 17 |
| 250 | 408 | 13 in4 | 0.466 | 6.83 | 7.50 | -87 | | 13.07 | | |
| 3:00 | 168 | 13.51 | 0.469 | 6.82 | 7.51 | -97 | 265 | 93.79 | ii. | 11 |
| 3:10 | 528 | 1 | 0.479 | 6.01 | 7.50 | | 102 | 93.75 | 4 | . 10 |
| | 1.00 | | | | | -100 | 114 | 93.75 | Slighty clos | dy, 11 |
| 320 | 588 | | 0,333 | 7,17 | 7.31 | -111 | 101 | 93.74 | 11 | 11 |
| 336 | 648 | 13,23 | 01255 | 7.27 | 7.10 | -100 | 82,1 | 95.70 | 11 | " |
| 340 | 708 | 13.26 | U,484 | 6.99 | 7.51 | -102 | 58.7 | 93.68 | - 0 | 11 |
| 3900 | | arn off | pump | | y full t | emp. St | exact. speno | | | |
| bservation | s/Notes: | Purge | e Start Time: | 1142 | | | Purge Rate: | ~6 gpm | n | |

BZ and HS = normal

OBR = Out of Range Signature(s):

DIW Time 1143 84,10 91.00 1145 96,50 1147 96.57 1149 95.72

1156

| Client: | NAVEAC | | | | | NT DATA SH | | | | |
|---------------------------|----------------------|-------------------------|----------------------------|------------------------|-------------|-----------------------|--------------------------|---------|----------------|--------|
| | Ault Field, Oak | | | Proj | | 695610 G4 # | | | | |
| Event: | Mali deserte | Harbor WA | | | | WEAF-MW | - 611 | | | |
| Date: | Well developme | | | | Sample ID: | - | | | | |
| 7000 | 2/27/16 | | | Sam | pling Team: | DiBu | tler | | | |
| weather: [| activ class | x, 40" | wind | | | | 25immon | | | |
| Total Depth Depth to w | 76 | Before 9.74 59.27 | After | FT.(BTOC) | | м | easuring Device: | | 1142 | |
| Water Colu | | | | | | | Date and Time: | 1/27/18 | 1175 | |
| Well Volum | (x) | 1.469 | 1.469 | FT. GAL/FT. GAL. | | Well Dia. (inches) | Volume (gallons/foot) | | | |
| Total Purge | | 300 | 11.4 | GAL. | | 1.0/100/0200 | 0.041 | 1 | | |
| | _ | | NA | | | 1 | 0.041 | 1 | | |
| Purge Dev | ice: /. | rundfos | 5015 | -290 | | 1.25 | | 1 | | |
| 30.7.5 | 0 | Juno 103 | , J.W., | | | 2 | 0.163 | | | |
| | | | | | | 4 | 0.653 | | | |
| | | | | 1 1 23 | FIELD PARA | METERS | | | | - 21 |
| Time | Purge Vol. (gals) | Temp. | Cond. mS/cm | DO mg/l | pH SU | ORP | Turbidity NTU | Other: | Color / Odor / | Commer |
| Stabiliza | aton Criteria | constant | ± 3% | mg/L ± 10% | | mV | | th bloc | | |
| 1439 | n 1 1 | | The Control of the Control | | ± 0.1 | ±10 mV | <10 | | | |
| 15 | 756 | 12.71 | Flow ra | | | gpm | 265 | 91.25 | St. II | 01. 1 |
| | 816 | 13.24 | 0.381 | 6.67 | 7.64 | -105 | | 91.25 | Slightly | |
| 1505 | 876 | 13.20 | 0.478 | 7.26 | 7.61 | -86 | 40.0 | 92.47 | Less clo | ucu . |
| 1515 | 936 | 13,24 | 0,481 | 6.76 | 7.65 | -93 | 25,3 | 92,51 | | |
| 1525 | 996 | 12-92 | 0.479 | 6.93 | 7.44 | -78 | 36.9 | 92.74 | Clear | V |
| 1535 | 1056 | 12.64 | | 7.27 | 7.39 | -77 | 32.0 | 92.70 | | 11 |
| 1545 | 1036 | 12.42 | 0.425 | 7.28 | 7.33 | -67 | 20 | 12.74 | i, | 17 |
| 1555 | 1176 | 12.92 | 0,486 | 6.66 | 7.59 | -89 | 250 | 92.77 | 111 | n |
| 1605 | 1236 | 12.97 | | 6.36 | 7.62 | -97 | 19.6 | 92.82 | li | 11 |
| 1005 | 12960 | | 0.489 | 6.27 | 7.62 | -112 | 24.9 | 92.84 | u | - 1 |
| 16/16 | Turn of | Fpump | | | npty | temp. | storage. | 12.01 | | |
| | rha oi | 72000 | JACKIK | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| Observation | ns/Notes: | Purg | e Start Time: | 1142 | | | Purge Rate | ~6 g | 01 | |
| OD361 VAIIO | | | | Time | 170 | i | Time | wig | | |
| | Recovery | DYLL | , | 16:15 | 89. | | 16:20 | 83,05 | | |
| 4 | Time | 92.8 | | | A - | | 16126 | | | |
| | 16:14:30 | | 0 | 16:16 | 86. | 89 | 16:25 | 82,42 | | |
| | 1 | 00 | | | 0 3 1 | | | | | |
| |): Dowal | 1/4 1/1 | | | | | | | | |

Ch2m:

| Client: | NAVFAC | a trade of the state of | post has when a | allates looker | ect Number: | | Co. Marine | all and the state of the state of | |
|-------------|--------------------------|-------------------------|-----------------|----------------|--|-----------|--------------------------|-----------------------------------|-------------------------|
| Lo n: | Ault Field, Oak | Harbor, WA | | | Well ID: | WI-AF-MW- | 612 | | |
| event: | Well developm | ent | | • | Sample ID: | NA | in- | | |
| Date: | | 8 2/61 | 18 | Sam | pling Team: | Mark | Green | | , . |
| Weather: | Cloudy. | 4019 65 | ecte, show | vers | | David | Butlet | | |
| | 1 | 1 | / | ومخادامه | Installe | d | | 23 | |
| Total Dana | | Before | | | | Ma | easuring Device: | Horiba | 4-53 |
| Total Dept | | 76.1 | 84.45 | FT.(BTOC) | | IIIC | Date and Time: | 2/5/18 | 1600 |
| Depth to w | | 50.85 | 50,30 | FT.(BTOC) | | : | bate and raine. | - 171.0 | |
| Water Colu | | 5,25 | 34.15 | FT. | | Well Dia. | Volume | | |
| Well Volun | | 0.163 | 0.163 | GAL/FT. | | (inches) | (gallons/foot) | | |
| | | 1,16 | 5.57 | GAL. | | 1 | 0.041 | | |
| Total Purg | | 1060 | NA | GAL. | | 1.25 | 0.064 | | |
| Down Davi | | 112,5 | | | | 2 | 0.163 | | |
| Purge Dev | ice: _/ | Mini M | 007001 | | | 4 | 0.653 | | |
| | | | | | | | 0.000 | | |
| | | | | | FIELD PARAM | METERS | | | |
| | Purge Vol. | Temp. | Cond. | DO | рН | ORP | Turbidity | Othor | Color / Odor / Comments |
| Time | (gals) | °C | mS/cm | mg/L | SU | mV | NTU | Other: | Color / Odor / Comments |
| Stabiliza | aton Criteria | constant | ± 3% | ± 10% | ± 0.1 | ± 10 mV | <10 | | |
| 1425 | Begin | surgin | | | | | | | , |
| (1/2) | | | 5 WEI | 25.11 | Stoc TD= | 84.7 41 | bloc | | |
| F - | Stop sur | ling | | VELY 2 | 144 | | | | |
| 14 45 | Begin h | iling | bailed | ~6.5 | | TW=51,1 | Y.TD = 85. | 2_ | |
| 1600 | 6 30 | 4.07 | 0.533 | 11.93 | 18.43 | 140 | OOR | 60,75 | |
| 1615 | 1 | 9,20 | 0.341 | 11.17 | 8.60 | -72 | 981 | 61.00 | † |
| 1630 | 36 | 9.64 | 0.549 | 6.83 | 8.70 | -91 | 364 | 60,75 | |
| 1645 | 51 | 9.70 | 0.543 | 9.81 | 8.64 | -94 | 361 | 60.75 | · |
| | | 9.05 | 0.619 | 20,31 | 5,74 | 235 | 92.3 | 5877 | |
| 1805 | 60 75- | 9.30 | 2.398 | 12.18 | 7.79 | ~47 | 24.5 | 58.72 | |
| 0820 | 90 | 4.9.62 | | 10.59 | 3.45 | -38 | 14.0 | 50.77 | |
| 0335 | 95 | 9.74 | 1 | 8.91 | 8.56 | -93 | 150 | 58.77 | |
| 0840 | | 9.81 | 0.557 | 11.42 | 8.32 | -84 | 15.0 | | |
| 0845 | 100 | 7, 48 | 0.557 | 9.90 | 257 | -97 | 3,46 | 53 77 | - |
| 0120 | 105 | 1, 413 | U.3 \$ P | 1 | 2,37 | - 17 | 3,78 | 52:77 | |
| | | | | <u> </u> | | | | | |
| | | | <u> </u> | | | - | <u> </u> | | |
| | | - | | | | | 1 | | |
| | | | | | | | <u> </u> | | - |
| | no/Notes: | Purc | je Start Time: | 155 | 1 00 2/6 | 1.0 | Purge Rate: | 1 | 1 |
| Observatio | HS/NOIGS. | | | | -1 on 2/9 | 10 . | , digeriale. | | |
| | Timo | 1 FI | ow rat | e 0121 | on FIG | 10 0015= | 1 to 200- | ange | |
| | 1554 | - | [GPM | _ | | ; | * On 2/6 (c | OPSS DI | W = 51.01 |
| 1 | Time 1554 2/6 0756 | : } | 1 9312 | | | | * 0-2/6 (C) *Pump off | Was 7 | |
| 1 | 2/0 0/3 | , (| . 11 | | | | • | C 4. | |
| | | | | | | | | | |
| | ٠١٠ | | | | | | | | |
| Signature(s | 5). | , | | | | | | | |
| | | | | | | | | | |

ch2m

| Client: | NAVI AC | a marin man | | and the second second | EVELOPMEN ect Number: | | a promotion of the confidence of | in the second | |
|-------------|-----------------|--|---------------|-------------------------|--------------------------|--------------|----------------------------------|---------------|--|
| 11110 | Ault Field, Oak | Harbor WA | | Proj | | WI-AF-MW | | | |
| | Well developm | A Comment of the Comm | - | | Sample ID: | | - 61) | | |
| Date: | 215/18 | | | Sam | | | Green | | |
| Weather: | | 140,1 | or-tere | | | Doute | B. Her | | |
| , | | • | - | | 10 4 | e market | on imfall) | TO0 2/6/1 | 61 |
| _ | | Before | After D | evelopmant | belove | complete | on regulary | 2011 - 1011 | |
| Total Dept | **** | 78,4 | 78.6 | FT.(BTOC) | 39) | Me | easuring Device: | Horiba | u-53 |
| Depth to w | winds. | 55.5 | 55.76 | FT. (BTOC) (| 9 695 | | Date and Time: | 2/5/13 | 1055 |
| Water Colu | Warner | 2, 9 | 22.84 | | | | · | ı | |
| Wall Value | 86.4 | 0.163 | 0.163 | | | Well Dia. | Volume | 3 | |
| Well Volun | - | 1 | 3.72 | GAL. | | (inches) | (gallons/foot) | | |
| Total Purg | e voi.; | 0913 | NA | GAL. | ř. | 1 | 0.041 | | |
| Duros Dav | ice | M - M | . (| | | 1.25 | 0.064 | | |
| Purge Dev | | Migi M | 0,1001/ | | | 2 | 0.163 | 4 | |
| | ` | | | | | 4 | 0.653 | | |
| | | | | | FIELD PARAM | METERS | | | |
| Time | Purge Vol. | Temp. | Cond. | DO | рН | ORP | Turbidity | Other: b tw | 1 |
| Time | (gals) | °C | mS/cm | mg/L | SU | mV | NTU | Other: | Color / Odor / Comments |
| Stabiliza | nton Criteria | constant | ± 3% | ± 10% | ± 0.1 | ± 10 mV | <10 | | |
| 0931 | Begin | surging | | | | | | | |
| 10 | End ont | ing | | | | | | | |
| 10 37 | Baylin | bailin | | | | | | | |
| 1015 | Ind b | riling | bailed | ~ 49 | | W= + | | ft tyres | cc |
| 1055 | اليا | 4.085 | 9273 | 14.65 | 5.24 | 288 | 510 | 56,05 | |
| 1110 | 25.2 | 4.39 | 0.221 | 12.24 | 7.48 | 90 | 355 | 56.05 | |
| 1125 | 38.1 | 9,93 | 0.224 | 11,49 | 7.78 | -23 | 261 | 56.00 | |
| 1140 | 52.2 | 10.05 | 0.356 | 10.81 | 20.3 | - 27 | 214 | 56.00 | |
| 1155 | 65.1 | 10.01 | 0.442 | 8,22 | 8.48 | 28 | 117 | 56.00 | |
| 1205 | 74.1 | 10,11 | 0.443 | 7.74 | 8,40 | 9 | 48.3 | 56,00 | |
| 1215 | £3.1. | 10.10 | 0 225 | 109 | 11 | 21 | 24.9 | 56.00 | |
| 11.25 | 92,7 | 1030 | 0.448 | 6.79 | 8,27 | - 4 | 14.1 | 56.00 | |
| 231 | 46.1 | 10.35 | 0.449 | 4.95 | 8, L' | 7 | 144 | 56.00 | |
| 123 5 | 101.7 | 10,46 | 0,45 | 9.96 | 8.13 | 25 | 774 | 56,00 | |
| 4++406 | 105.3 | 10,55 | 0'421 | 1101 | 8.32 | | 7.74 | 56,06 | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | - | | | | |
| Observation | ns/Notes: | Purg | e Start Time: | (04) | | | Purge Rate: | 0.9 | Tie. |
| | | | | | | | - 9.5 | |) F |
| | 2.00 | rate | Time | | | | | | |
| 1 | 0.4 | 26. | IOUL | | | | | | |
|) | | / | | | | | | | |
| | | | | | | | | | |
| | | 400 | A- | | | | | | |
| Signature(s |): Dave | of pu | | | | | | | |

| L. Carlotte | and the contract of | | | WELL D | EVELOPMEN | NT DATA SHE | ET | angan an ar ar ar ar ar ar ar ar ar ar ar ar ar | apatan mengapat meneri sebagai mengapat mengapat mengapat meneri sebagai meneri sebagai meneri sebagai meneri Sebagai meneri sebagai meneri sebagai meneri sebagai meneri sebagai meneri sebagai sebagai sebagai sebagai seb |
|-------------------|---------------------|-------------|----------------|-------------|--------------|-------------|------------------|---|---|
| and the | NAVFAC | | | _ Pro | ject Number: | | | | |
| Lc on: | Ault Field, Oal | Harbor, WA | | _ | Well ID: | WI-AF-MW | -614 | | |
| Event: | Well developm | ent | | | Sample ID: | NA | | | |
| Date: | 261 | 8 | | San | npling Team: | E. Cnt | le D. Be | atler | |
| Weather: | | 4 96 F | | | | | + | | |
| | |) Before | After C | iompletio | n Inntal | ltd | | | |
| Total Dept | h: | 70.20 | 69.80 | FT.(BTOC) | | Me | easuring Device: | Harriba | 4-53 |
| Depth to w | vater: (-) | | 52,75 | FT.(BTOC) | | | Date and Time: | | 1134 |
| Water Colu | | 17.44 | | FT. | | | | | |
| | (x) | | 0.163 | GAL/FT. | | Well Dia. | Volume | | |
| Well Volun | - | 2.34 | 2,78 | GAL. | | (inches) | (gallons/foot) | | |
| Total Purg | | -6-6 | NA | GAL. | | 1 | 0.041 | | |
| | | 66 | NA | - | | 1.25 | 0.064 | ÿ | |
| Purge Devi | ice: | | ΛΛ. | | | 2 | 0.163 | | |
| . uigo Devi | | Mini | Monie | ~ | | | 0.163 | | |
| | | | | | | 4 | 0.003 | I | |
| | | r | | | FIELD PARA | | | | |
| Time | Purge Vol. | Temp. | Cond. | DO | рН | ORP | Turbidity | Other: | Color / Odor / Commer |
| | (gals) | °C | mS/cm | mg/L | SU | mV | NTU | | |
| Stabiliza | ton Criteria | constant | ± 3% | ± 10% | ± 0.1 | ± 10 mV | <10 | | |
| 1029 | Begin | burgin | 4 | | | | | | |
| 57 | | 17:09. | DINS | 52.9 | ft bto | c, TD | = 70.22 | ft btoc | |
| 1020 | Begin | Lailen | | | | , | | | |
| 1134 | ston b | | Bailed | 5 101. | DTW= F | 2.83, | 10 = 70 12 | | 1 |
| 1310 | 141 | 10.01 | 0.324 | 12,52 | 8.82 | 125 | TIB | 52.87 | 1 |
| 1325 | 29 | 10,24 | 0.541 | 10,70 | 8.70 | 69 | 53.9 | 52,84 | 1 |
| 1340 | 44 | 10,30 | 0.544 | 8.64 | 8.05 | -47 | 10: | 52,83 | |
| 1355 | 59 | 16.31 | 0,545 | 9,01 | 7,98 | -56 | 7,40 | 52.83 | |
| 733 | 3.1 | 10/3/ | 0.545 | 4,01 | 1,40 | 130 | 1,70 | 32,83 | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | - | | |
| | | | | | | - | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | ••• | | | | | | | | - |
| Observation | ns/Notes | Puros | Start Time: | 1256 | | | Puras Data | 1 | L |
| Chael valion | ia/110103, | ruige | Julian Tillie. | 1770 | | | ruige Hate: | 1 gpn | 1 |
| | Tim | e Flo | w rate | | Pu | imp en | d time | - 1363 | |
| 1 | - | 7 | ADM | - | | | יו יויתצ | - 172/ | 7 |
|) | (1) | · φ γ Ι | 21 | | | | | | |
| | | • | | | | | | | |
| | | | | | | | | | |
| | 2 | | | | | | | | |

Client: NAVFAC

Location: Ault Field, Oak Harbor, WA

Event:

Well development

Date:

2/20/18

Weather: Partly coudy, 301, breeze

WELL DEVELOPMENT DATA SHEET

Project Number: 695610.04.FI.WI

Well ID: WI-AF-MW - 615

4

Sample ID: NA

Sampling Team: D, Butler

5, Fitzsimmons

Total Depth: Depth to water:

Measuring Device: Horiba
Date and Time: 2(26/18)

Horiba U-53

6in

Water Column: Well Volume:

Total Purge Vol.:

(x) (1469 GAL/F 58.51 GAL. 996 GAL.

 Well Dia.
 Volume (gallons/foot)

 1
 0.041

 1.25
 0.064

 2
 0.163

0.653

1,469 gal/foot

Purge Device:

Grundfos 5015-290

| | BW SEE | | 14 | | FIELD PARA | METERS | | | 一点,但是是国际企业 设置 |
|------------|----------------------|-------------|----------------|---------------|------------|----------|-------------|--------------|--------------------------|
| Time | Purge Vol. (gals) | Temp. °C | Cond. mS/cm | DO mg/l | рН | ORP | Turbidity | Other: | Color / Odor / Comment |
| Stabiliza | aton Criteria | constant | ± 3% | mg/L ± 10% | SU | mV | NTU | 20 t 01 17 | Color / Cdol / Collinell |
| 1028 | Begin | | 80-90 | 11 | ± 0.1 | ± 10 mV | <10 | and the same | |
| 043 | P Y | urging | | TH Sec | tion of | screen | | | |
| 044 | Begin s | | 80-90- | 1 | el . | | | | |
| 100 | F 4 | arging | 70-80 | ft sec | | focre | en | | |
| | | . 4 | 70-80- | + Di | W= 55. | 39 ft | ptoc | | |
| 1111 | Begin 6 | ailing | | | | | | | |
| (22 | | | | 7,50 fd | btoca | Continue | bailing. | | |
| 1126 | Stop bai | ling Dri | N= 56,49 | Baile | d ~380 | 631 | 1 14 | umping, | |
| 327 | Begin pu | mping, F | tui amn | akp at | 64 ++ 6 | | TW = 55, 10 | ft bler | |
| 1331 | Flow vo | te=-10 | gpm, D | TW = 63, | 0+6 +70 | | 110-22,00 | 1 1 10 to | |
| 333 | Flow ray | te = 26 | gomi Dt | | | oc | | | |
| 336 | 78 | | 0,553 | (3,80 | 5,42 | 210 | OOR | COULO | |
| 346 | 138 | 15,07 | 0.817 | 8,43 | 7,39 | -52 | | 60.48 | Cloudy, loss of sed |
| 400 | 222 | 14.72 | 0.865 | 7.71 | 7.87 | -110 | OOR | 60,53 | 11 |
| 410 | 282 | 14,49 | 0,938 | 6.45 | 7.91 | | OOR | 60,53 | 11 |
| 120 | 342 | 14,23 | 0.842 | | | -130 | OOR | 60.53 | 11 |
| 430 | 402 | 14.06 | 0974 | 8.33 | 7.89 | -100 | 000 | 60,53 | 11 |
| 440 | 462 | 13.91 | 0970 | | 8.02 | -129 | 664 | 60.53 | (()) |
| 145 | 492 | 1 | 0.111 | 5.70 | 8.05 | -136 | 381 | 60.53 | Slightly cloudy |
| 445 | 1 600 | | 0.906 | 7.33 | 8.04 | -138 | 302 | 60.53 | 1 |
| | Stop P | imping, | Totes | | acity | | | | |
| bservation | is/Notes: | Purge | Start Time: | 1327 | , | | Purge Rate: | -6 9PI | m |

OOR = out of range

Signature(s): David Butt

12M:

WELL DEVELOPMENT DATA SHEET

Project Number: 695610.04.FI.WI

Well ID: WI-AF-MW- G (5

Sample ID: NA

Sampling Team: D. Butler

51 Fitzgimmons

Client:

NAVFAC

Location: Ault Field, Oak Harbor, WA

Event:

Well development 2/26/18

Date:

Weather: Partly cloudy, 40th, breeze

Total Depth: Depth to water:

Water Column:

Before After 94.40 FT.(BTOC) 39.83 FT.(BTOC) FT.

Well Volume: Total Purge Vol.:

GAL/FT. (x) 1.469 58,51 GAL. GAL. NA 996

Purge Device:

5915-290 Grundfos

Measuring Device: Horiba 4-53

Date and Time: 2/26/18

| Well Dia. | Volume |
|-----------|----------------|
| (inches) | (gallons/foot) |
| 1 | 0.041 |
| 1.25 | 0.064 |
| 2 | 0.163 |
| 4 | 0.653 |

6 in 1.469 gall foot

| | | | TELESCOPE TO | | IELD PARAM | METERS | | | THE PERSON NAMED AND ADDRESS. |
|-------------|----------------------|----------|----------------|------------|------------|-----------|------------------|-----------|-------------------------------|
| Time | Purge Vol. (gals) | Temp. | Cond. mS/cm | DO mg/L | pH SU | ORP mV | Turbidity NTU | Other: | Color / Odor / Comments |
| Stabiliza | ton Criteria | constant | ± 3% | ± 10% | ± 0.1 | ± 10 mV | <10 | | NEW YORK DESIGNATION |
| 1521 | Restard | - pumpi | ng D | TW= 5 | 5,05 ft | bloc | : 4 = | 59.80 | Clear No od |
| 1530 | 546 | 13.46 | 0,981 | 7.64 | 8.22 | 160 | 145 | 59,92 | Clear. |
| 1540 | 606 | 13.41 | 0,483 | 6.90 | 8.13 | -78 | 33,2 | 59.98 | Clear. |
| 1550 | 666 | 13,58 | 0,912 | 7.45 | 8.06 | -70 | 22.4 | 60.03 | 11 11 |
| 1600 | 726 | 14 08 | 1.01 | 10.02 | 8.07 | -42 | 20.9 | 60.05 | (t ii |
| 1620 | 846 | 14,11 | 1.01 | 6.12 | 8.16 | -97 | 18.2 | 60.06 | (1 1) |
| 1630 | 906 | 14.08 | 0.806 | 7.55 | 8-11 | -89 | 19.8 | 60.09 | (()) |
| 1640 | 960 | 13.91 | 1.00 | 6,90 | 8.22 | -86 | 18.2 | 60.10 | ((1) |
| 1640 | Pump of | 6 | | | | | | | - |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| Fig. | | | | | | | | | |
| | | | | | | | | | |
| Observation | na/Nlatas: | Dur | ge Start Time | : 1327 | | | Purge Rat | e: ~ 6 g1 | \ isa |

Total pumped vol = 966 sal Total bailed vol = 30 sal Total purge vol = 996 gal

Signature(s): Dage

Attachment 3 Survey Report



Existing Monitoring Wells Whidbey Island Naval Air Station - Ault Field Oak Harbor, WA

Survey Date: May 2018

| | Top of PVC | Top of Metal | |
|-----------------------|------------|--------------|-------------|
| Existing Wells | Casing | Case | Ground |
| Point Id | Elev | Elev | Elev |
| 29-MW-4 | 96.159 | 96.423 | 94.266 |
| N29-22D | 99.521 | 99.834 | 95.933 |
| 4-MW-3 | 85.212 | 85.733 | 82.832 |
| MW-201 | 99.654 | 100.023 | 97.533 |
| MW-200 | 95.922 | 96.495 | 93.864 |
| MW-202 | 89.462 | 90.031 | Flush Mount |
| MW-204 | 96.609 | 97.165 | Flush Mount |
| MW-3 | 89.331 | 89.556 | Flush Mount |
| N2-7S | 97.999 | 98.275 | 96.665 |
| N2-3 | 122.403 | 122.852 | 121.971 |
| N2-8 | 87.884 | 88.598 | 87.474 |
| N2-9 | 87.564 | 88.212 | 86.986 |
| N3-12 | 99.112 | 99.701 | 98.248 |
| 3-MW-2 | 84.948 | 85.223 | 82.708 |

^{*}Horizontal Coordinates were not established for Existing Wells because CH2M already has that information

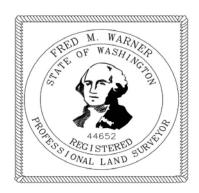
Notes:

1. VERTICAL DATUM: NAVD88

BENCHMARKS USED (PER NGS DATA SHEET)

FIRE ELEV: 97.870 *STANDARD BRONZE DISK STAMPED "FIRE, 1951" SET IN CONCRETE BLOCK

2. EQUIPMENT USED: LEICA DNA10 DIGITAL LEVEL





Set Monitoring Wells Whidbey Island Naval Air Station - Ault Field Oak Harbor, WA

Survey Date: March 2018

| | | | Top of Metal | Top of PVC |
|-----------|------------|-------------|--------------|------------|
| New Wells | | | Case | Casing |
| Point Id | Northing | Easting | Elev | Elev |
| MW-605 | 496011.657 | 1200073.919 | 30.562 | 30.269 |
| MW-606 | 496551.205 | 1200405.991 | 16.337 | 16.112 |
| MW-607 | 496664.598 | 1200992.787 | 19.153 | 18.895 |
| MW-608 | 494698.521 | 1200421.099 | 49.469 | 49.184 |
| MW-609 | 494571.867 | 1200607.071 | 53.094 | 52.754 |
| MW-610 | 494401.082 | 1200544.453 | 56.991 | 56.717 |
| MW-611 | 494569.614 | 1203629.960 | 101.126 | 100.660 |
| MW-612 | 490240.070 | 1189445.221 | 87.423 | 87.143 |
| MW-613 | 490272.463 | 1188887.696 | 92.939 | 92.688 |
| MW-614 | 489730.101 | 1189248.989 | 89.360 | 89.108 |
| MW-615 | 488678.088 | 1189640.435 | 92.061 | 91.667 |

| | | | | Top of Metal | Top of PVC |
|----------------|----------|---------|--------|--------------|------------|
| Existing Wells | | | Ground | Case | Casing |
| Point Id | Northing | Easting | Elev | Elev | Elev |
| MW-N26C | | | 87.550 | 89.420 | 89.195 |
| MW-N2-5 | | | 91.807 | 93.112 | 92.906 |
| MW114 | | | | 96.095 | 95.289 |

^{*}Horizontal Coordinates were not established for Existing Wells because CH2M already has that information

Notes:

1. HORIZONTAL DATUM: NAD83/11, WASHINGTON STATE PLANE COORDINATE SYSTEM, NORTH ZONE NAD83/11 US SURVEY FOOT

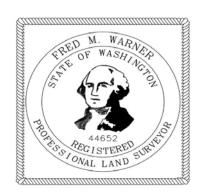
HORIZONTAL COORDINATES WERE OBTAINED BY RTK USING THE WASHINGTON STATE REFERENCE NETWORK (WSRN)

2. VERTICAL DATUM: NAVD88

BENCHMARKS USED (PER NGS DATA SHEET)

TORPEDO ELEV: 137.780 *STANDARD BRONZE DISK STAMPED "TORPEDO, 1951" SET IN CONCRETE BLOCK FIRE ELEV: 97.870 *STANDARD BRONZE DISK STAMPED "FIRE, 1951" SET IN CONCRETE BLOCK

3. EQUIPMENT USED: LEICA GS15 RECEIVER, LEICA DNA10 DIGITAL LEVEL



Attachment 4 Sampling Forms

Signature(s):

| | A | 14 | a | A | 4 | Δ | |
|---|---|----|---|---|-------|---|---|
| | | 1 | 4 | | (/ / | | 0 |
| - | | | | | | | |

| | | | Bill Days | GHOUNDW | ATEH SAMP | LING DATA | SHEET | | Part of the second |
|--------------------------|------------|---------------|-------------------|---------------|----------------|------------|---|-----------------|---|
| Client: N Location: A | AVFAC | | | Proj | ect Number: | | | Page: | of |
| | | | | | | WI-AF-MW | - Contract of the contract of | 1 | |
| | | 7 Groundwate | | | | | W-605-0 | | 4 |
| Date: | | 118-02 | | | npling Team: | | zsimmons | | 11/2 |
| Weather: | 1 1 | 7 | 28 mph | Slight | | Ca (3 | ordner, | ISEA | 1.4 |
| Total Depth: | 1 | 20.57 | FT.(BTOC) | | | M | easuring Device: | Honba | 21-53 lot |
| Depth to wat | ter: (-) | 13.47 | FT.(BTOC) | 02/17 | t I | (Late I) | | | U-53 Lot |
| Water Colum | nn: 1 | 06.53 | FT. | Livi | pump du | plugea) | 1 0 | | |
| | - | 0.163 | GAL/FT. | | | Well Dia. | Volume | | |
| Well Volume | _ | 17.36 | - | | | (inches) | (gallons/foot) | | |
| Total Purge | | 15,5 | GAL. | | | 1.25 | 0.041 | | |
| Purge Device | . (| TOO CC | NTROI | Pump | | 2 | 0.163 | | |
| u go borio | | 21011 | er Pu | mn | | 4 | 0.653 | 1 | |
| | - | Dieau | er ru | TOP- | • | | 0.000 | ¥ | |
| | | | | PARAMET | ER STABILIZ | ZATION CRI | TERIA | | |
| | | Temp. | Cond. | DO | pН | ORP | Turbidity | DTW | 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 |
| Paran | neter | °C | mS/cm | mg/L | SU | mV | NTU | ft BTOC | |
| * * | 1 | | | | | | | | THE RESERVE OF |
| Crite | eria | ±0.1 | | ±0.05 (if <1) | ±0.1 | ±10 | ±10 % | ±0.3 (low flow) | 34 1 |
| | MIT TO | 1 | ±0.02 (II >1) | ±0.2 (if >1) | | | ≤ 10 NTU | | 1 1 1 1 1 1 1 1 1 |
| | | | | | FIELD PARAM | METERS | | | |
| | Purge Vol. | Temp. | Cond. | DO | рН | ORP | Turbidity | DTW | 0-110410 |
| , IIIIe | Ld(gale) | °C | mS/cm | mg/L | SU | mV | NTU | ft BTOC | Color / Odor / Comments |
| 12:18 | 8 inital | 10.00 | 0.374 | 2.70 | 7.94 | -49 | 2.47 | 13.10 | Stigntly Clouds |
| 12:23 2 | ,500 | 10,64 | 0,305 | 0.56 | 7,25 | -53 | 2.47 | 13.10 | 10 0 11 |
| 12:28 5 | ,000 | 10.80 | 0.321 | 0,53 | 7.36 | -79 | 2.10 | 13.10 | 11 |
| 2:33 7 | ,500 | 10,01 | 0.324 | 0.53 | 7.38 | -82 -88 | 2,10 | 13.10 | (t) |
| 100 | 2,500 | 10.65 | 0,331 | 0.52 | 7.44 | -88 | 1.88 | 13.10 | |
| 12:48 1 | \$ 000 | 10.73 | 0,338 | 0.51 | 7.48 | -93 | 0.96 | 13.02 | Clear, Slight A |
| 12.53 | 7,500 | 10.80 | 0340 | 6.50 | 7.57 | -99 | 0.88 | 13.03 | ii n |
| 2:58 2 | | | 0.343 | 0,50 | 7.60 | -101 | 0.89 | 13.03 | 11 |
| AII | postam | neters | meet " | Stabali | rotes | criter | W. Proca | ed w/ 50 | mpling. |
| | ı. | | | | 4 | | | | |
| sample inform | | lysis | number, size, | | servative use | | Santala sa sa salara | escata | No let execute and |
| PFF | | 37 | | 000000 | rvative | | Container requirer | | No. of containers |
| 1 1 1 | ,,, , | | | onpie | 3,,10 | 123 | 170 | 7 | |
| | | | | 90 | | | | | |
| | | | | | | | | 7. | 1 (85) |
| Observations/ | Notes: O | eplayed | pump | at 108 | ift o | n 02/1 | 6/18. | Air Monitoring: | Breathi |
| | | 100 | returne | ol to sa | smple c | 2/17/1 | | VOC (ppm)= 🔾 | |
| Pump Start T | | | | | = 1 | 10 | | H2S (ppm) | Oppr |
| | | e(FT; sec): \ | The second second | | Final Fill Tim | e: \ | 12 | LEL (%)= () | 0% |
| In | | ge Time(DT; | | | Final Discha | rge Time: | 17 | CO (ppm)= 0 | 91/ 2000 |
| | | ure-5 | | | Purge Rate: | 500m | L/min. | 02 (10)= 20. | 10.9 |
| | | ar Put | slightly a | allo of or | reen Hy Water | TI | THON | 4 | |
| | | | DAT TO | rate V | | | the same of the Art of | TOTAL TOTAL A | |
| oump Depth: | 10 | d tt | . du | ie to sil | ity water | 12 | 105 500 | | |

| Client: Location: | NAVFAC Ault Field | | | - Pro | | : 695610.04.F : WI-AF-MW | A SA COLUMN TO THE REAL PROPERTY OF THE PARTY Page: \ | of \ | _ |
|----------------------|----------------------|----------------|---------------|-------------------------------|----------------|-----------------------------|--|--|----------------|---------|
| Event: | of Children Stronger | 17 Groundwat | er Sampling | - | | | 4-606-0 | 218/WI | -AF-MV | 6-60 |
| Date: | 02-16 | | | San | | | Simmon | | 116-1-16 | · vw |
| Weather: | Rainy | 45°F , | Slight | are civatati | 20 | - 100 | rdner / | SEA | | |
| Tatal David | 0 | - | FT (PTOO) | orecipatati | n) | | | 120 | OI CO | 25 7 |
| Total Dept | _ | 03.85 | FT.(BTOC) | | , | M | easuring Device | | U-500 | |
| Depth to v | - | 10,00 | FT.(BTOC) | | 1 | | | Solmst 1 | Model 10 | 2 Lot |
| Water Col | - | 03.85 | FT. | | | F | | 1 | | |
| Well Volum | | x)0,163 | GAL/FT. | | | Well Dia. | Volume | | | |
| | _ | 10,93 | GAL. | 4 | | (inches) | (gallons/foot) | - | | |
| Total Purg | e voi.: | ~ 12 | GAL. | | | 1 | 0.041 | | | |
| Purge Dev | ice. I | 3 ladder | Rimn | - | | 1.25 | 0.064 | | | |
| r urge Dev | | geo Con | | | | 4 | 0.163 0.653 | - | | |
| | - | Jeo CCI | OTROLI | OULTHO | | 4 | 0.653 | | | |
| | | | | PARAMET | ER STABILI | ZATION CRIT | TERIA | | | |
| | | Temp. | Cond. | DO | рН | ORP | Turbidity | DTW | | |
| Par | ameter | °C | mS/cm | mg/L | SU | mV | NTU | ft BTOC | | 7.8 |
| C | riteria | ±0.1 | | ±0.05 (if <1) ±0.2 (if >1) | ±0.1 | ±10 | ±10 % | ±0.3 (low flow) | 9 | |
| | | X | ±0.02 (II >1) | ±0.2 (IT>1) | | | ≤ 10 NTU | | | |
| | 3 7 1 11 | | | | FIELD PARA | METERS | | | | |
| The | Purge Vol. | Temp. | Cond. | DO | рН | ORP | Turbidity | DTW | est a day | e e 1 |
| Time | (gats) m | 4 °C | mS/cm | mg/L | SU | mV | NTU | ft BTOC | Color / Odor / | |
| 13:25 | 9,374 | 11.71 | 0,519 | 0.00 | 7.38 | -115 | 207 | 0,00 | Yerry C | oudy |
| 13:35 | 3 318 | 11.78 | 0.518 | 0.30 | 7.49 | -130 | 123 | 0.00 | (() | Y |
| 13:45 | 11,31 | 311.++ | 0.518 | 0.30 | 7,50 | -115 | 151 | 0,00 | (1 | 1, |
| 14:25 | 1434 | 11. +2 | 0.515 | 0.51 | 7,42 | -102 | 128 | 0.00 | u | 1 |
| 14:28 | 18,570 | 1102 | 0,516 | 0.71 | 7.54 | -120 | 118 | 0.00 | 4 | 7 |
| | 100,5 H | 11.84 | 0.516 | 0.17 | 7.54 | -126 | 113 | 0.00 | ((| 31 |
| 14:41 | 102/37 | 5 11.82 | 0515 | 0.81 | 7.55 | -129 | 113 | 0.00 | Cr | 7 |
| 14:45 | 105/27 | 5 11.80 | 0.515 | 077 | 7.55 | -130 | 113 | 0.00 | 11 | Ø11 |
| Turb | - | 7 mg | | ed w/ | Samoli | | rmstion | water is | | 3 |
| 10116 | Tay - | 1010 | 11000 | C XY/ | 3311/01 | ing. FC | THISTION | YVATER IS | turbic | |
| Sample info | rmation: met | hod, container | number, size | , and type, pre | eservative use | ed. | | | | |
| | Ar | nalysis | | Prese | rvative | (| Container requirer | nents | No. of cor | tainers |
| PF | as 5 | 37 | | Unpres | . 4°C | 125 m | Lunpies. | poly | 2 | |
| | | | | . 0 | 1110 | | | . 0 | | |
| | | | | | | | | | | |
| Observati | no/Notes | . 1 . 1 | | 120 5 1 | 00.0001 | | | | 1.0 | |
| Observation | is/Notes: | Achort Pu | ide Axa | into 03 | ramer | Turbid. | STORO WTU | Air Monitoring: VOC (ppm)= H2S (ppm) | 0 | reath |
| Pump Star | Time: 1-4 | urge si | Hyw | ster C | ogged | Honba. | twice. | H2S (npm) | Oppm (| 999 |
| O.U. | Initial Fill Tir | ne(FT; sec): | 12 | | Final Fill Tin | ne: 12 | | H2S (ppm) () | bbw C | PPW |
| | | arge Time(DT; | sec): \ = | | | rge Time: | Share | CO (ppm)= | | |
| | | | | | | | | 02 (%)= | 11 6 | ppr |
| | rres | ssure n | Cook | | Purge Rate: | 400 | nL/min- | 1 | 1 6 | 1. |
| Pump Dept | | Ft BT | oc | | (4) | | 1 | Flow 700mumin | | |
| Sample /Ti | ma: 14 | :50 | | | | 1 | 13:10 | | | |
| MS/MSD | NI/A | | ~ | | | 175 | 1 | The state of the s | 114/-1-01 | P-C |
| | 17/1/ | / | 1 | | | - | pupilicate in: M | 11-AF-1 | IN-W | |
| Signature(s | 1./ | un! | 11/4- | 2-1 | | | | | | |

| | Clients | NAVEAC | | | | | PLING DATA | | Page: | of \ | 01-16-1 |
|-----------|----------------------|----------------------|--------------|----------------|-------------------|----------------|--|--|---|---|------------------|
| | Client: Location: | NAVFAC Ault Field | 1.0 | 0.1.5 | Proj | | 695610.04.F WI-AF-MW | | raye. | OI 1 | Honba |
| | Event: | February 2017 | 7 Groundwate | r Sampling | - 0 | | | N-607- | 0218 | | had |
| | Date: | - | | 2/17/1 | Sam | | | simmons | ROD | | checkati |
| | | 43°F.S | light F | Rain CAM |) | · P9 | | indner/s | EA 2/1 | + J.Schrlau | /cvaexchim |
| | | | He 37 | Y Rain (| PM) | | | | | 1-5000 Lat 20 | nas Jon |
| | Total Dep | | | FT.(BTOC) | 02/17 - | 7 (07 | Me | easuring Device: | Horiba (| 1-5000 Lot:20 | 1005 2/17 |
| | Depth to v | _ | 3.88 | FT.(BTOC) | 02/17 - (W/pur | no dedo | red) | The Party | Solmst | Yode1102Lot# | 48925 |
| | Water Col | - | 10.01 | FI. | (An) bon | Lock | The second secon | | 1 | | Lot#: |
| | Wall Value | <u>(x</u> | | GAL/FT. | | | Well Dia. | Volume | | | 14259 |
| - | Well Volum | | 8. PZ | GAL. +02 | 16 ~2 | 5 | (inches) | (gallons/foot) | | | Pine . Envir. |
| | Total Purg | ge voi.: | 6.5 | GAL. | 10 102 | - | 1 1 25 | 0.041 | | | |
| | Purge Dev | dien. | 21 2 dala | Pump | , , | | 1.25 | 0.064 | - | | |
| 110 | ruige Det | | | | | -1 | 4 | 0.163 | | | |
| 11/2 | 100 | | Jeo con | ITROL | TRU | - | 4 | 0.003 | 1 | | |
| | | | N. | | PARAMET | ER STABILI | ZATION CRIT | TERIA | | | |
| | 100 | | Temp. | Cond. | DO | рН | ORP | Turbidity | DTW | | |
| | Pa | rameter | °C | mS/cm | mg/L | SU | mV | NTU | ft BTOC | | |
| | | y" | | 1 | | | 6 | | | | |
| | C | riteria | ±0.1 | | ±0.05 (if <1) | ±0.1 | ±10 | ±10 % | ±0.3 (low flow) | | |
| | | 187 | 20.1 | ±0.02 (if >1) | ±0.2 (if >1) | 10.1 | 110 | ≤ 10 NTU | ±0.0 (10W 110W) | | 100 |
| | | 18 | | | | 4 | | The same of the sa | | 1 | |
| | | I ve | | | | FIELD PARA | | Andrew Kale | | arability and the second | |
| | Time | Purge Vol. (gals) | Temp. | Cond. mS/cm | DO mg/L | pH SU | ORP mV | Turbidity NTU | ft BTOC | Color / Odor / Comments | |
| 100 | 0930 | inHal | 10.13 | 0453 | () (0] | 7.87 | 12 | 199 | 2.62 | stity. Wardy. N | o oder |
| | 0940 | 2,250 | 10.12 | 0.452 | 0/03 | 7 78 | 9 | 196 | 2.62 | 11/ 11 9 | - Desir |
| 7 | 1000 | 4,500 | 10.04 | 0.453 | n 105 | 777 | -40 | 704 | 2,102 | te vi | |
| Jean | doto | 6,750 | 10.31 | 0449 | 0.62 | 7.82 | -43 | 0.00 | 2.63 | 12 1/2 | |
| Honba. | 1020 | 9.000 | 10 05 | 0443 | 0.59 | 7.98 | -52 | 526 | 2.62 | 10 11 | |
| egan | 1025 | 11/250 | 10.70 | 0.444 | 0.57 | 7.97 | -51 | 314 | 2-62 | 11 15 | |
| esking- | 1030 | 13,500 | 1071 | 0.442 | 0.56 | ず.して | -52 | 190 | 2.07 | u n | |
| L- area] | 1040 | 15,750 | 18.31 | 江北京江 | 0.65 | 7.07 | -50 | MO | 2-102 | u y | |
| CALLAR | 10:50 | 18,000 | 10.3% | Ta 432 | 0.59 | 7.77 | F 25 22 | 19) | 2.62 | N M | |
| | 10:55 | 20,250 | 10.77 | 0.432 | 0.58 | 7.77 | -82 | 141 | 2.62 | ii li | |
| | | 22,500 | | 0.432 | | 7.78 | -83 | 190 | 2.62 | +) +9 | |
| | Sample info | ormation: meth | | number, size, | | | | | | | |
| | - | | lysis | | Preser | | | Container requiren | nents | No. of containers | |
| | + | FAS | 537 | | Unpre | s. 4°C | 125 M | nh Foly | | 2 | |
| | | | 1 | | | | | 4 | | | |
| | | | | | - | | | | ¥, | | |
| | Oh | | 2 / | 1 10 | 100 | - 11 | | S. S. S. S. | 111111111111111111111111111111111111111 | 1 | |
| | Observation | ns/Notes: O | 12/16 | /18 AA | rged 1 | 2.50 | anuller | The state of the s | Air Monitoring: | | g tone. |
| | D Ota- | t Time: 2/16 | 10:101 | 2/12 | 9.10 |) | , | Water. | VOC (ppm)= | | 1 |
| | Pump Star | t time: | 5:251 | -/17 | 1 | | - 11 | 6 | H2S (ppm) | DY | |
| | | Initial Fill Time | | | | Final Fill Tin | | | LEL (%)= O | 12 isom | |
| | | Initial Dischar | ge Time(DT; | sec): | - | rinal Discha | rge Time: \ | T | CO (ppm)= 0 | 9 20.9% | |
| | | | | | | Purge Rate | 450 m | 11 | 02 (%)= 20 me FI | OVV | |
| | | | | | | . a.go nate. | TOUM | -/min. 11 | ine | = 0 001 /101 | |
| | Pump Dep | th: 90- | ft R | TOC | | | -6/2 | 9 | 13 4 | SOML/min. | |
| 1 | | | | | | | | - | A di | en million | |
| | Sample /Ti | me: 1108 | | | | | 100 | 9 | : 20' T | DO INCIMIN. | |
| | MS/MSD | NIA | | | | 1. 30 | | Duplicate ID: N | IA | | - |
| | Signature(s |): | | | 100 | | A 31 3 | | A COL | | 7 |

| Client: NAVFAC | | # 100 DF 100 C | | | PLING DATA | 7,34 | <i>'</i> | (SF) | |
|--------------------------------|---|----------------|-------------------------------|----------------|-------------------|-------------------------------|--|-----------------------|--------------|
| | | | Pro | | 695610.04.F | - / dd 4 / 2 | Page: 1 | of Z | |
| Location: Ault Field | 2017 O | as Camallan | | | WI-AF-MW | | 2.164 | | |
| Date: February 2 | 2017 Groundwat | er Sampling | San | | | V-608-0 zsimmon | | | |
| Weather: | Cloudy, | dialet late | | npling Team | | | SEA | | |
| | | 1 | ed mph | | | ordner / | | | |
| Total Depth: | 54.60 | | | | M | easuring Device | | 11-5000 | |
| Depth to water: | | FT.(BTOC) | | | | | Solinst | Model 102 | Lot# |
| Vater Column: | 23.60 | _ | | | | | | | |
| secured to | (x)0.163 | | | | Well Dia. | Volume | 5.1. | - 40- mp- 45 th | 50 |
| Well Volume: | | GAL. | | | (inches) | (gallons/foot) | Pur | np-45 | St |
| otal Purge Vol.: | ~5 | GAL. | | | 1 | 0.041 | Dep | th | |
| Name Davis | 01-11 | . n | | | 1.25 | 0.064 | Em - | time: 5 | |
| Ourge Device: | 6 DISACU | er Pum | 0 | 3 12 | 2 | 0.163 | 1-111 | 1 | . 10 |
| | Geoca | NTROL | PRU | •>: | 4 | 0.653 | 1 D15 | time: 5 charge | 10 |
| | | | PARAMET | ER STABILI | ZATION CRI | TERIA | and the second | | |
| | Temp. | Cond. | DO | pН | ORP | Turbidity | DTW | | |
| Parameter | °C | mS/cm | mg/L | SU | mV | NTU | ft BTOC | | |
| Criteria | ±0.1 | | ±0.05 (if <1) ±0.2 (if >1) | ±0.1 | ±10 | ±10 % ≤ 10 NTU | ±0.3 (low flow) | | |
| | | | | IELD PARA | METERS | | | | |
| Time Purge Vo | ol. Temp. | Cond. mS/cm | DO mg/L | pH SU | ORP mV | Turbidity NTU | DTW ft BTOC | Color / Odor / C | Comments |
| 9 15:06 mital | 12.89 | 0.650 | 3.34 | 790 | -155 | 219 | 31.60 | Cloudy, N | o oder |
| 5-11 2800 | 12.89 | 0.650 | 3,34 | 7.90 | -155 | 21.9 | 31.62 | Cloudy, N | 0 000 |
| 5:16 4400 | | 0.650 | 3.34 | 7.90 | -155 | 21.9 | 31:60 | tl | 13 |
| 5:21 6600 | | 0.650 | 334 | 7.90 | ~155 | 21.9 | 31.60 | ti. | 15 |
| 5:26 880 | | 0.650 | 3.34 | 7.90 | -155 | 21.9 | 31,60 | (1 |)) |
| 5:31 1100 | 78. | 0.651 | 3.62 | 7.69 | -186 | 1.8 | 31.6 | Clear, | 110 Eda |
| 5:36 1320 | | 0.650 | 3.57 | 7.55 | -180 | 1.4 | 31.6 | 11 | "/ |
| Parged en | ive well | volume: | AHJUN | STIRE CIS | Stable. | Proceed | to samph | us despit | C 710 |
| 5:41 15400 | | 0.648 | 3.75 | 7.73 | -190 | 1.2 | 31.6 | & Clear, | no odor |
| 546 17600 | The Sandriff Control of the Control | 0.647 | 3.78 | 7.74 | -190 | 1.4 | 31.6 | " | " |
| 551 19800 | 12.88 | 0.647 | 3.69 | 7.74 | -191 | 1.5 | 31.6 | | 4 |
| ample information: m | | number, size, | | | | Dontal and the second | | W 38 | ainers |
| PFAS 53 | Analysis | | Presei | s. 4°C | | Container requirer S. 125 m L | | No. of conta | ainers |
| 1+A5 55 | T | | unpre. | 3,70 | unpre | 3. 120 mL | puy | | |
| | | | | | | | | | |
| hoon/otions/Motos | Purned | Fan | Iros All | water | north | 100 CF | Air Monitoring: | I Bro | Atlant |
| Incomintions/Mater | Purged > | 5 gol | Proceed | water d w/s | re-cha samplin | of of | VOC (ppm)= () H2S (ppm) | Bre | Oppr Oppr |
| ump start time. | 1.50 | 741 | 1 | | -7 | | | | 2 4 1 |
| Initial Fill 7 | F 55 Time(FT; sec): harge Time(DT | 5 | 203 1 | | arge Time: 1 | | LEL (%)= O CO (ppm)= O | | 20.8 |
| | Time(FT; sec): harge Time(DT | 5 | 203 1 | Final Discha | | L/min Flox | LEL (%)= 0 CO (ppm)= 0 02 (%)= 20: | 9 | 20. |
| Initial Fill 1 Initial Disc | Time(FT; sec): harge Time(DT | 5 | 203 1 | Final Discha | arge Time: 1 | L/min Flox | LEL (%)= O CO (ppm)= O O2 (%)= 20 | 9 | 20. |

| ent: | NAVFAC | | | GROUNDWA Proje | ct Number: | 695610.04.FI | .FS | Page: \ | of |
|-------------|------------------|---------------|---------------|-------------------|----------------|--------------|-----------------------|---------------------------|--------------------------------|
| cation: | Ault Field | | | | | WI-AF-MW - | | | |
| ent: | February 2017 | Groundwate | r Sampling | | | | N-609- | | |
| te: | 02-17- | -18 | | Sam | pling Team: | | simmons/ | - 17 | 1 1 10 |
| eather: | 47°F, | Windu | ~ 20 rm | nph | | G.Gor | dner/SE | | cholau/cvo |
| tal Dept | h. E | 9.66 | FT.(BTOC) | | | Me | asuring Device: | Honba 24 | -53 Lot# 14 |
| pth to w | _ | 34.13 | FT.(BTOC) | | | | | Solinst M | 10del 102 Lot |
| ater Col | | 9 | FT. | | | | | SOMOUT | 100101 102 251 |
| iter Coll | 10000 | 7.53 | GAL/FT. | | | Well Dia. | Volume | 1 | |
| . II Valor | <u>(x</u> | 4.16 | GAL. | | | (inches) | (gallons/foot) | < 1 | - 45-55 |
| ell Volur | - | 7.10 | GAL. | | | 1 | 0.041 | 3.1 | (5-35) |
| tal Purg | e voi.: | 105 | - GAL. | non | | 1.25 | 0.064 | Pum | R-5074 |
| rge Dev | ion. | zeo COM | UTPAL | Rinddo | SF | 2 | 0.163 | pept | n |
| ige Dev | | | er Pun | Diamo | | 4 | 0.653 | | |
| | *** | Diadeu | er run | P | | | | | |
| | | | | PARAMET | ER STABILIZ | ATION CRIT | ERIA | | |
| | | Temp. | Cond. | DO | рН | ORP | Turbidity | DTW | |
| Par | rameter | °C | mS/cm | mg/L | SU | mV | NTU | ft BTOC | |
| | | | | | | | V. 15.20 | | |
| 0 | riteria | ±0.1 | | ±0.05 (if <1) | ±0.1 | ±10 | ±10 % | ±0.3 (low flow) | |
| | | 2011 | ±0.02 (if >1) | ±0.2 (if >1) | | | ≤ 10 NTU | | |
| | | | | and depart | IELD PARA | METERS | | | Jana Mater 3 |
| | Purge Vol. | Temp. | Cond. | DO | рН | ORP | Turbidity | DTW | Calas / Odas / Common |
| Time | m (gals) | °C | mS/cm | mg/L | SU | mV | NTU | ft BTOC | Color / Odor / Comment |
| 305 | inital | 12.00 | 0-299 | 0.61 | 7.52 | -78 | 1.58 | 34.24 | No odor Cles |
| 5:10 | 1750 | 12.09 | 0.301 | 057 | 759 | -103 | 1:50 | 34.24 | IL. W |
| 5-22 | 2500 | 11.32 | 0-297 | 10.11 | 7.60 | -26 | 0.74 | 34,20 | it n |
| 527 | 9,450 | 12 11 | 0.202 | 0.55 | 755 | -27 | 0.26 | 34.20 | le II |
| 5:32 | 11.200 | 12.11 | 0.302 | 0.55 | 7.55 | -101 | 0.210 | 34.20 | 11 |
| 5:37 | 12950 | 12.11 | 0.302 | 0.55 | 1.55 | -101 | 0.20 | 34.20 | H |
| 5.42 | 13'200 | 12.15 | 0.314 | 0.51 | 7.75 | -130 | 0.08 | 34.20 | 11 |
| 5.47 | 15.450 | 12.18 | 0.315 | 0.50 | 7.77 | -135 | 0.08 | 34.20 | 11 |
| 5:52 | 17 200 | 12.17 | 0.310 | 0.50 | 7.77 | -135 | 0.08 | 34.20 | 1/ |
| | .,, | | | | | | | | |
| emple in | formation; meth | nod container | number, size | , and type, pre | eservative use | ed. | | | The Sale of the Sale |
| arripio irr | | alysis | | | rvative | T | Container require | ments | No. of containers |
| PF | | 537 | | Vanre | 5.4°C | 125 | mL Poly | | 2 |
| | | | | - Inp | | | 9 | | |
| | | 14. | | | | | | | |
| | | | | | | | | | |
| bservatio | ons/Notes: y | later si | invaindin | g well , | head Re | moved v | vater to | Air Monitoring: | 100 |
| | D- | Class to | - Plug Lo | HS of 1 | R Sus | wings i | M 101.2.11. | VOC (ppm)= D |) 0 |
| ump Sta | rt Time: 14 X | B ITE | 72150 A | ac (). | | ~ 9 | vater to on W.L.M. | H2S (ppm) (| 000 |
| | Initial Fill Tin | ne(FI; sec): | 5 | | rinai riii iii | ne. | torax | LEL (%)= 0 | 10 |
| | Initial Discha | arge Time(DT | ; sec): 5 | - / /- | Final Disch | arge Time: | sure-31051 | CO (ppm)= 0 O2 (%)= 20 | 9 200 |
| | 45/- | = 22 5 | s psi - La | W/No | Purne Rate | rial lies | 7 7153 | 02 (%)= 20 | -1 1 205 |
| | 1.4 | | ft. | ovy at | r urge nate | 350m | 1L/mil | e IFLOW | (mL/min) |
| ump De | pth: 45 | f to | thi | s pressur | e. | | 11111 | 350 | 9 / 20.6 (mL/min) nL/min |
| ample / | rime: WI | | | | | | | | |
| S/MSD | N/A | / | W W | 1 | 100 | | Duplicate ID: | NIA | |
| | 20 1 / R | / | | -/- | | | E PERSONAL PROPERTY. | // | |

Ch2m.

| Client: Locatio Event: Date: | n: NASWI Aut Ault Field O | H-haco Come | oling | GROUND Pr | WATER SAME oject Number: Well ID: | 695610.04.F | I.FS -MW-LON | Page: | of Z_ | in the sail |
|---------------------------------------|--|---|--------------------------------|-------------------------------|--|-----------------------|------------------------------|--|------------------------|--------------|
| Weathe | 47.7 | Sunny, | | _ Sa | mpling Team: | WI-AF-MW- | simmons/R | 200 | | |
| Total De Depth to Water C | water: | 170.20 | FT.(BTOC) FT.(BTOC) FT. | | | | een / SAC easuring Device | Honba U-S WLM Schins | 500 Lot# t Model 10 | 14:2 |
| Well Vol Total Pu | ume: | 129.93 | GAL. | | | Well Dia. (inches) | Volume (gallons/foot) | Well Dia. (inches) | Volume (gal | lons/foot |
| Purge De | evice: | Rladder | _GAL. Pump L | ot#:61 | 21 | 1 1.25 2 | 0.041 0.064 0.163 | S.1 1 | 1.46 | |
| 0.000 | | geocontr | OL Pro L | ct # 4 | 376 | 4 | 0.653 | Pump B | 15-165 : Septh-15 | STEK |
| 26000 | STATE OF STA | 1.3 | 1 | PARAME | TER STABILIZ | ATION CDI | EDIA | 151 - 1 | 71 - allo 212 - 200 | 00 Au 17 (RE |
| D. | | Temp. | Cond. | DO | pH | ORP | Turbidity | l DTW | tolise i "Z/ | LT. 2013 |
| | rameter | °C | mS/cm | mg/L | SU | mV | NTU | ft BTOC | | |
| C ZAMBA | riteria | ±0.1 | ±0.01 (if <1) ±0.02 (if >1) | ±0.05 (if <1) ±0.2 (if >1) | ±0.1 | ±10 | ±10 % ≤ 10 NTU | ±0.3 (low flow) | | |
| D. P. Tarvilla | 在1. 随即是人。 "我这个知识, | 4. C. C. | | | FIELD PARAM | ETERS | = 101110 | 64 (100 40.8) | Maria Santa | Warner Co |
| Time | Purge Vol. | Temp. | Cond. mS/cm | DO mg/L | pH SU | ORP | Turbidity | DTW | Color / Odor / | |
| 13:40 | Ictial | 15.21 | 0.474 | 490 | 7.74 | mV 20 | NTU 14.4 | ff BTOC | | |
| 13:45 | 750 | 14.41 | 0.479 | 2.42 | 7.37 | -102 | 14.3 | 81.79 | Clear, No | odbr |
| 13:50 | 1500 | 14.01 | 0.476 | 2.20 | 7.360 | -115 | 11.60 | 81.80 | 111 | 31 |
| 14:00 | 2250 | 13.75 | C.473 | 1.76 | | -132 | 7.87 | 81.79 | a | 1 |
| 14 05 | 3 800 3 750 | 1380 | 0.473 | 1.52 | 7.33 | -139 | 8.90 | 81,79 | | 11 |
| 14 10 | 4500 | 13.83 | 0.470 | 1,34 | 7.33 | - 146 | 6.60 | 31, 19 | ** | "/ |
| 415 | 5250 | 13.88 | 0.468 | 1.50 | 7,23 | -144 | 8,07 | 81.79 | |). |
| 1426 | 4000 | 13.37 | 0 468 | 132 | 7.31 | -152 | 6.52 | 81.79 | 34 | , |
| 1425 | 6750 | 14.06 | D1464 | 1.00 | 7.32 | -157 | 5.51 | 31.79 | 18 | ti |
| 430 | 7500 | 13.45 | 00,461 | 6.95 | 7:29 | -157 | 6.37 | 81.79 | iv. | 11 |
| ample info | rmation: metho | d, container | number, size | and type pre | servative used | 150 | £ 5.50 | 81,79 | 4 | |
| | Analy | ysis | , 5.20 | Preser | | | ontainer require | manta. | Qual- | 300 |
| PFAS | | | | Unyros | | 125 m | ontainer requirer | nents | No. of co | ntainers |
| | | | | | | | V | | - | |
| bservations | /Notes: | | | | | | | Air Monitoring: | 1) 1 2- | |
| In In Ta | itial Fill Time(litial Discharge | FT; sec): ^ e Time(DT; s ive-88 f | ec): 37 | 1 | Final Fill Time Final Discharg Purge Rate: | ge Time: 3 | | VOC (ppm)= 0 H2S (ppm) C LEL (%)= C CO (ppm)= C O2 (%)= 20 | 0000 | |
| mp Depth: mple /Time /MSD | 155 f | | APL | | | | 13:30 15 | 50 mL/min | | TW |
| LIVIOU | NAM | - | 11 | | | | Duplicate ID: N | - | | |

Ch2m.

012

| | WELL DEVELOPMENT DATA SHEET |
|---|---------------------------------------|
| La ocat n. Ault Field Oct III | Project Number: 695610.04.FLW , FS MD |
| Fyent: Aut Field, Oak Harbor, WA | Well ID: WI-AF-MW - 611 |
| Loocat n: Ault Field, Oak Harbor, WA Event: Well development Cw Sampling Date: 3/1/18 | Sample ID:-NA-WI- AF- MW-611 |
| 3/1/18 | Sampling Team: S, Fitzsimmons/RDD |
| Weather: 47°F, Sunn, Wind | M. Green/SAC |

| 4.5.5 | Before. | After | |
|--|-------------|--------|-----------|
| Total Depth: | 170.20 | | FT.(BTOC) |
| Depth to water: | (1)81.75 | | FT.(BTOC) |
| Water Column: | 88.45 | | FT. |
| La de la companya de la companya de la companya de la companya de la companya de la companya de la companya de | (x) 1.469 | | GAL/FT. |
| Well Volume: | 129.93 | - 40 4 | GAL. |
| Total Purge Vol.: | ~ 4 gollars | | GAL. |
| | | 1 | _ |

| | 0.041 |
|------|-------|
| 1.25 | 0.064 |
| 2 | 0.163 |
| 4 | 0.653 |
| | 2 4 |

| М | | Horiba U-5000 H025039 Solinst Model 101 A29644 |
|-----------------------|--------------------------|---|
| Well Dia. (inches) | Volume (gallons/foot) | Screened Interval 145-165 ft 895 |
| 1 | 0.041 | Pung depth - 155 ft Bgr |
| 1.25 | 0.064 | 1.11 101 |

| EPA_ | B 11.1 | | Sec | | FIELD PARA | METERS | | 10000000000000000000000000000000000000 | 5 P - 4 V | 10 200 |
|-------------|---------------|----------|----------------|------------|------------|-----------|------------------|--|----------------|----------|
| Time | Purge Vol. | Temp. | Cond. mS/cm | DO mg/L | pH SU | ORP mV | Turbidity NTU | Other: DTW FF BTOC | Color / Odor / | Comments |
| Stabiliza | aton Criteria | constant | ± 3% | ± 10% | ± 0.1 | ± 10 mV | <10 | - | Clear. | No ada |
| 1435 | 8250 | 13.69 | 03.461 | 0.93 | 7.32 | -161 | 4,16 | 81.79 | 1 | 11 |
| 15.5C | 809000 | 13.55 | 0-462 | 0,91 | 7.31 | -101 | 3,73 | 81.79 | 14 | . 12 |
| 4:45 | 9750 | 13.34 | 0.464 | 0.84 | 7.29 | -162 | 4.97 | 81,79 | a. | 11 |
| 4:50 | 10,500 | 13.32 | 0.465 | 0.85 | 7.31 | -163 | 2.03 | 81.79 | er . | 71 |
| 4:55 | 11,250 | 13.19 | 0.465 | 0,85 | 7.29 | -163 | 2.65 | 81.79 | a | 21 |
| 5.00 | 12,000 | 13.21 | 0.466 | 0.80 | 7.28 | -103 | 2.10 | 81.79 | ч | 31 |
| 15:05 | 12,750 | 13.04 | 0.468 | 0,77 | 7.26 | -162 | 1.85 | 81.79 | 16 | 1) |
| 15:10 | 13,500 | 13.11 | 0.469 | 0.84 | 7.25 | -162 | 1.33 | 81.79 | le |)) |
| 15:15 | 14,250 | 13.10 | 0.470 | 0.79 | 7.30 | -165 | 1.58 | 81.79 | ((| , |
| AI | marage | ster5 | Stable | Pro | reed 1 | with | Sampla | noj. | | |
| | | | | | | | 1 | 3 | | |
| | | | | | | | | | | |
| | | | - | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | 1, - | | | | |
| | | | | | | | | | | |
| Observation | is/Notes. | | Start Time: | | - (| MG) | Purge Rate | | | |
| w. | | - 1175 | | | (| 1 | | | | |
| 300 | page 1 10 | ~ animon | al deter | 5 | | | | | | |
| - | | | - | | 717 | | | | | |
| MSD | Plage 1 fo | nlo. | Time | 12 | -20 | | | | | |
| 74116 | DULLA | IN TO | | _ | | | | | | |

Signature(s).

ch2m.

| 1211 | en en | GRO | UNDWATER | SAMPLING D | ATA SHEET | Page | e: \ of | \ | |
|--|---------------|--------------------------------|---------------|----------------|-------------|-------------------|-------------------|------------------------|---------|
| | | 4,15 | A Alia | mher hybol | 0.04.1 1 | | | | |
| NAVFAC | | | | | | 2-0218 | | | - |
| - It Flold | | ling | Sam | ple ID: WI-AF | - MM-F1 | 2005/PC | 0 | | _ |
| February 2017 Gr | oundwater Sa | mpling | Sampling | Team: S | FITZSIMI | 111-1-1100 | A | | - |
| 02/14/2018 | 102/15 | 118 | 06-9mpt | C | | 110 | | -000 | |
| 02/14/2018 PARTLY CLOUDY 43° | 1, Low 40'50 | F NW WINDS | | | | ing Device: H | oriba U-5 | 1011710 | +#:489 |
| CLOUDY, 43° | F. AO FT | r.(BTOC) 5 | 2.33' bgs | 04 7/19 | Micaou | < | oliost M | 100102 La | 10. |
| epth: <u>\$4</u> | 10 08 F | T.(BTOC) | ITIAL @ 14 | 1571 | | _ | | | |
| to water: (-) | 19.90 F | T | | | | Volume | Fill Time | 74=7.4 | 1 |
| Column: 32 | | AL/FT. | | | ell Dia. | allons/foot) | | 10 | |
| (x) (| 10/0 | AL. | - 4 | (| 1 | 0.041 | | 74 - | -197 |
| /olume: 5. | 0 2 | GAL. | | - | 1 | 0.064 | Dischar | ge = 3.75 ire = 2+1 | - 1 1- |
| Purge Vol.: ~ | 7 | ur- | 1 | _ | 1.25 | 0.163 | | 74. | 2- 2- |
| | - CONIT | ROL PRI | 9- | _ | 2 | 0.653 | Prossu | ire = 7 +1 | 0-3 |
| e Device: | 200019 | Puma | | | 4 | - 0.030 | 1165 | | |
| | Bladder | 1 0111 | | | ADITE | DIA | The second second | agent a | - |
| | | | PARAMETE | R STABILIZA | TION CRITE | Turbidity | DTW | 7 8 | |
| | | Cond. | DO | pH | OHP | Turbidity NTU | ft BTOC | | |
| The state of the s | Temp. | mS/cm | mg/L | SU | mV | NIO | | | |
| Parameter | 30 | morom | | | | 40.0/ | | | |
| | | ±0.01 (if <1) | +0.05 (if <1) | ±0.1 | ±10 | ±10 % ≤ 10 NTU | ±0.3 (low flow) | | |
| Criteria | ±0.1 | ±0.01 (if <1) ±0.02 (if >1) | ±0.2 (if >1) | ±0.1 | | 2 10 14 10 | | | |
| Ciliena | | 10.02 (11 2 17) | | | | | | | |
| | | | F | IELD PARAM | METERS | - Lidiba | DTW | Color / Odor / Con | nments |
| | T - | Cond. | DO | рН | ORP | Turbidity NTU | ft BTOC | Color / Oddi / Col | |
| Time Purge Vol. | Temp. | mS/cm | mg/L | SU | mV | NIO | | 1 | 1 |
| (gaio) | 145) | | TW= 4 | 1 4 1 - | TOCO | 017 | 50.50 | Cloudy - N | o odor |
| 535 AFTER | DEPLOY O | E PONE | 0.00 | 7.57 | -38 | 84.7 | 50.41 | 11. | 11 |
| 036 1500 | 11.51 | 1.10 | 0.00 | 7.91 | -133 | 54.1 | 50.40 | le | 1) |
| 041 3000 | 11.32 | 1.08 | 0.00 | 7.93 | -144 | | 50.40 | 41 | 11 |
| 046 4500 | | 21.07 | 0.00 | 8-05 | -145 | 51-1 | 50.40 | (4 | 73 |
| 051 6000 | 11 01 | | 0.00 | 8.08 | -153 | 42.2 | 50.40 | ((| 13 |
| 056 7500 | - | V | 000 | 8.04 | -151 | 43.7 | 50.42 | II | +/ |
| 1101 9000 | | | 0.00 | 8.08 | -154 | 43.7 | 50,45 | ((| 1) |
| 106 10500 | | 1.07 | 0.00 | 8.08 | -154 | - | 50.43 | 11 | N. |
| 1111 1150 | | - | - 0.00 | 8,08 | 154 | 43.7 | 50.13 | ((| 1) 2 |
| 111111111111111111111111111111111111111 | 0 1120 | 107 | 0.00 | 80,8 | -154 | 43-+ | 10-115 | | 9 |
| Sample information: n | nethod contai | iner number, si | ze, and type, | preservative u | sed. | Container requ | irements | No. of conta | ainers |
| Sample information. | Analysis | | 110 | 301101110 | | | an on one | 2 | |
| PEAS | 537 | | Unp | es, 4°C | 125m | LPOly ' | | (2x35 | |
| 1-11-0 | | | | | | | | = (0 to | |
| | | | | | | | | 100 | tal |
| | | | | 1 | 1400 | A aut custi | NGS Air Monitori | ng: HS | BZ |
| Observations/Notes: | UPON OPE | ENING J-P | LUG, INFIL | TRATION C | ed Him | turbility | VOC (ppm)= | | 3.0 |
| Observations/Notes: 11 21 Purged Pump Start Time: | (1) Well V | rolume, all | Stagnet W | of form | ation was | Her. Proceed | H2S (ppm) | | 9-0 |
| Pump Start Time: | 10:20 | rep | with so | smoring. | 7 | 4 | LEL (%)= | | 0 |
| Initial Fi | I Time(FT; se | ec): 7.4 | 3 | Final Fill | Illine. | 100 | CO (ppm)= | | 0.0 |
| Initial Di | scharge Time | e(DT; sec): | 9.7 | Final Dis | charge Time | | O2 (%)= | | 20.9 |
| minut Di | | A 3 105 (1) | | | | ml /min | 02 (/0)- | (mL/min) | |
| 3 | | | | Purge Ra | ate: SUUT | nymintin | ne It low | - (Miny) | (not a |
| - | 11 22 | 1 | | 100. | | (0) | 25 300 | min/min | (not o |
| | 14' 5TOC | (TOP OF PO | imp = 72. | 4 DTOC) | | 10.1 | - | al lain | 2/1/2 |
| Pump Depth: | | | | | | | | | |
| | | | | | - | 10 | :39300 | MILMIN | F |
| Pump Depth: Sample /Time: MS/MSD W) - A | :20 | | 200/200 | | | Duplicate II | 25 300 :30 300 |) YN L/IIIII | Ť |

| 7 | 1174 | MM | Jeu | | GRO | | mhar hync | DATA SHEE | | | SE | 130 -021 |
|------|-------------|-------------|---------|-------------|----------------|---------------|--------------|--|---|------------------------|--------------|----------------|
| ient | : NAVF | | | | | | | | -613-0218 | AVI AF | WING-C | VISIT |
| | 4 A. J. C | ield | | - Law Con | onling | Sar | nple ID: WI- | AF- MIW | -613-0218 | 0 | | _ |
| vent | - CI- | uary 2017 (| Groundy | water San | hining | Samplin | g Team: S | . Fitzsin | mons/RDI | | | _ |
| ate: | . OZ | /14/1 | 8 | 1. 6 | wany io | afternu | J 7 | .Schrl | | | L Mode | 1 102 Lot |
| Veat | ther: 4 | 30F, | Clou | 1014- | Same | | | Measi | uring Device: | VLM: Solin | soo let | #20003 |
| Tota | al Depth: | 7 | 8-3 | 8 FT. | (BTOC) | | | | H | URILL | , | |
| | th to wate | | 55 | 29 FT | (B10C) | | | | | FIII | | |
| | ter Column | | 23 | 09 FT | | | Г | Well Dia. | Volume | 70/10= | =7 | Plessy |
| wat | ei oolaiiii | (x | 10.1 | 4 | AL/FT. | | × . | (inches) | (gallons/foot) | | | 70/2 |
| We | II Volume: | | 3.7 | - | AL. | | | 1 | 0.041 | Discharge | _ | = 4 |
| | tal Purge V | | | 4.5 G | AL. | | | 1.25 | 0.064 | Discharge 70 /3.75 | ,=18.+ | |
| | | | 8F | | | | | 2 | 0.163 | 10/3 | | |
| Pu | irge Device | e: <u>}</u> | Blade | der F | PRA | | | 4 | 0.653 | | | |
| | | 9 | Jeo (| ONTR | OL PRO | | | | | | | |
| _ | | | * | | | PARAMETE | R STABILIZ | ATION CRIT | EHIA | DTW | | |
| | | | Т | emp. | Cond. | DO | pН | ORP . | Turbidity NTU | ft BTOC | | |
| | Davis | meter | 1 | °C | mS/cm | mg/L | SU | mV | 11.10 | | | |
| - | Para | meter | + | | 100 | | | | ±10 % | o o //e flour) | | |
| | | A. 121 | | .01 | | ±0.05 (if <1) | ±0.1 | ±10 | ≤ 10 NTU | ±0.3 (low flow) | | |
| | Cri | iteria | | ±0.1 | ±0.02 (if >1) | ±0.2 (if >1) | 7 | - 6 | | | | |
| | | | | | | | FIELD PARA | METERS | 100000000000000000000000000000000000000 | 5.000 | | |
| D | 1.0 | | | | 0.774 | DO | pH | ORP | Turbidity | DTW | Color / Odor | Comments |
| 2 | Time | Purge Vo | ol. | Temp. | Cond. mS/cm | mg/L | SU | mV | NTU | ft BTOC | Murky | Slightly 9 |
| | 1455 | mLXgals) | | °C | 0.817 | 0.52 | 896 | 65 | 43.0 | 55.28 | I lui ky | Old W |
| | | | 0) 11 | .00 | 0.824 | 0.00 | 892 | -15 | 42,6 | 55.28 | 16 - | n n |
| | 1500 | 2500 | EE I | 1.27 | 0.829 | 0.00 | 8.67 | -91 | 39,2 | 55.28 | V | 15 |
| - | 15:05 | 5000 | OF I | 1.46 | 0.823 | 0.00 | 8.59 | F112 | 28.6 | 55.28 | ti | A ^k |
| | 15:10 | 750E | KE I | 1.101 | 0.831 | 0.00 | 8.50 | 1-127 | 23.3 | 55.28 | ls. | N |
| | 15:15 | | HER | 1.102 | 0.832 | 0.00 | 8.43 | -129 | 17.3 | 55-28 | u | - 0 |
| 50 | | | 1606 | 11.104 | 0.820 | 10.00 | 8,33 | -130 | 10.2 | 55, 28 | U | - 11 |
| 50 | 15-20 | 1750 | OC I | 11.70 | 0.829 | 0.00 | 8.31 | -131 | 18.3 | 55.28 | tt | Ч |
| 0 | 10.00 | 2000 | 60 | 11.108 | 10.84 | 10.00 | 8.32 | -134 | 10.1 | 55.28 | u . | " |
| 50 | 160 | 52250 | USE 1 | 11.7U | | 8 0.00 | 8.31 | - | 15.9 | 55.28 | · · | r, |
| 00 | | | | 11,51 | 0.930 | 0000 | 8-24 | THE RESERVE THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO IS NAMED IN COLUMN TWO I | 110 | | | |
| (| Sample in | nformation: | method | d, containe | er number, siz | ze, and type, | servative | useu. | Container requi | rements | - No. of | containers |
| 51 | | | Analy | rsis | | FIG | Scivativo | 125 | 10 | (2) | 2 | |
| 2 | | FAS | 001 | 11 40 | 0.835 | | reserved | 1 - 5 | 10.00 | £455.38 | | y, slight |
| 180 | | 275 | 00 | 11-73 | _ | | - 4 | 9 // | 13.8 | 55-38 | | 11 |
| 000 | 10.31 | 130C | 500 | 11.4 | 3 0.83 | | 0 21 | | 112-1 | 155-30 | | Breath |
| 0 | 16.4 | 2132 | DVU | 11,-1 | | 1 | numn p | ressure. | was & | Air Monitorin | | () PP |
| d | Observa | tions/Notes | 15 | 3:30 | Recog | | | | | VOC (ppm)= | 0 | OPP |
| 3, | d) | tort Times | 14 | | troub | leshoote | Secon | ol batter | y died | H2S (ppm) | 1 | 01 |
| 4 | Pump S | tart Time: | | e(FT; sec | : 7 | 6.10 | Final Fil | Time: 1 | 187 | LEL (%)= | 0 | 0 99 |
|) | | Initial F | ischar | ge Time(| DT; sec): \ | 8.7 | Final Dis | scharge Time | | CO (ppm)= O2 (%)= 2 | 09 | 20.9 |
| le | 4 | illiaidi b | | | | | | | L/min | CT C TO STORY | | 1 20.1 |
| | | | | | | | Purge H | ale. | | | Flow | 1 / |
| | | | 7 10 | CI | | | 4 | 4 PM | 40 | 14:47 | 8:50 m | |
| | Dumn F | Depth: | | | | | 7 | Sept 18 | | 14:50 | 8.50 m | L/min |
| | rump . | | | 4- | | | | The second second | -025 N V | | * | |
| | | /Time: | 1 (0: | 55 | | | | Townson. | 2.02 | A 1 /A | | |
| | | | 16: | 55 | - | | | 1500 | Duplicate ID | N/A | | |

| | | (e) | | | ATER SAMP | | | | -SF | |
|---------------------------------|------------------|--------------------------|---------------|-------------------------------|----------------|------------|--------------------|---------------------------|----------------|------------|
| 110000000 | NAVFAC | 11 THELE AND 11 | | Proje | ect Number: | | | Page: | of ASF | |
| Location: | | | | | | WI-AF-MW | | | | - A |
| | February 2017 | 7 Groundwate | r Sampling | | 5 | WI-AF- | | 100- | | |
| Date: | 02/14 | 118 | | 0.2 | pling Team: | S. Fitz | simmons / | /RPD | | |
| Weather: | 39°F, C | loudy/s | light Ri | All | | J Ho | rton/SE | A | | |
| Total Dept | h: / | 09 710 | FT.(BTOC) | | | M | easuring Device: | Water le | vel meter | : Solins |
| Depth to w | _ | E1 17 | FT.(BTOC) | | | | | HORIBA 21- | 5000 1 | ot# 120 |
| Water Col | | 7.03 | FT. | | | | | - TO RIDITION | SVVV L | |
| Water Con | Contract | 10.163 | GAL/FT. | | | Well Dia. | Volume | 1 | | |
| Well Volum | | 2 77 | GAL. | | | (inches) | (gallons/foot) | 1 | F111_ | |
| Total Purg | _ | 84 | GAL. | | | 1 | 0.041 | - 1 | e linei | 5 Pre |
| rotal rulig | 14 (1) | (SE) | | | | 1.25 | 0.064 | ٥ | 5/10-1 | 65 |
| Purge Dev | ice: B | ladoler 1 | ame | | 4. | 2 | 0.163 | _ D | discharge | |
| . u. ge Do. | 9 | PD CONT | ROL PR | .0 | . 9 | 4 | 0.653 | - | 375=1 | 5.5 Pre 65 |
| | - | 000-1 | 13-6 111 | | | | | | ~ 12 | |
| | | | | PARAMET | ER STABILIZ | 4.00 | | | | |
| | | Temp. | Cond. | DO | pH | ORP | Turbidity | DTW | | |
| Par | ameter | °C | mS/cm | mg/L | SU | mV | NTU | ft BTOC | | |
| | | | .0.04 (% 4) | .005 (% 4) | | | 10.00 | | | |
| C | riteria | ±0.1 | | ±0.05 (if <1) ±0.2 (if >1) | ±0.1 | ±10 | ±10 % ≤ 10 NTU | ±0.3 (low flow) | | |
| | | | TO:05 (11 >1) | TO'S (11 >1) | | | -101410 | | | |
| | | Winds of the second | | | FIELD PARA | METERS | | | | |
| Tierra | Purge Vol. | Temp. | Cond. | DO | рН | ORP | Turbidity | DTW | Color / Odor / | Commente |
| Time | Purge Vol. | °C | mS/cm | mg/L | SU | mV | NTU | ft BTOC | | |
| 10:54 | O Oktor | 10.52 | 1.04 | 000 | 7.04 | | 111 | 51.71 | Clear, No | |
| 10:59 | 3000 | 10.77 | 1.05 | 0.00 | 7.33 | -80 | 77.2 | 51.65 | Ц | h |
| 11:04 | 6000 | 11.47 | 1.05 | 0-15 | 7.52 | -27 | 54.0 | 51.65 | li | ll . |
| 11:09 | 9000 | 11.51 | 1.05 | 0.62 | 7,71 | -113 | 51.7 | 51.65 | 11 | U |
| 11:14 | 12000 | 11,57 | 1.05 | 0.94 | 7.67 | -110 | 58.7 | 51.65 | Slight n | nurkiness. |
| 11:19 | 15000 | 11.62 | 1.04 | 1.32 | 7.81 | -117 | 52,3 | 51.65 | ii V | " b |
| 11:24 | 18000 | 11.61 | 1.04 | 1:19 | 7.69 | -118 | 45.5 | 61.65 | 11 | V 5 |
| 11:29 | 21000 | 11.66 | 1.04 | 1-1-1 | 7.77 | -113 | 38.9 | 33 656 | | 11 |
| 11:34 | 24000 | 11.63 | 1.04 | 1/15 | 7.14 | -115 8 | 21.4 | 51.67 | 11 | |
| | 27000 | 11.63 | 4-14 | 1-16 | 7,77 | | 25.325 | 051 67 | 11 | " T |
| 11:44 | 30,000 | 11.55 | 1.03 | 1.07 | 7.31 | -120 | 22.7 | 51,65 | | |
| sample into | ormation: meth | iod, container alysis | number, size, | | rvative use | | Container requirer | ments | No. of cor | ntoinere S |
| PFA | | aiyolo | | Unpre | | | 125 mL P | | 7 | - tr |
| 110 | | | | Unpre | ,,, | (-) | 12311101 | 4 | 1 | 5 |
| N. P. | - 3 | | | | | | | | | P |
| | | | | | | | | | | |
| Observatio | ns/Notes: | Pumm | Start t | ime 10 | .40 | | | Air Monitoring: | 1 | Breathing |
| | | 1 | 0.000 | 110 | | | | VOC (ppm)= (| 0.0 | 0.000 |
| Pump Star | rt Time: 10: | | | | | , . | | H2S (ppm) 6 | .0 | 0.000 |
| | Initial Fill Tim | ne(FT; sec): | | | Final Fill Tin | | | LEL (%)= 2 | 1. | 0'/[|
| | Initial Discha | | | | Final Discha | arge Time: | 17 | CO (ppm)= 20 | oppm | O pom |
| | | | | | | (CE) | | 02 (%)= 20 | 9 | 204 |
| | | Omi | 6 600 | mymin | Purge Rate: | - COUC M | L/min. | | e Mad | Lincol |
| 1 | | 10:4 | 6 600 | 2 | | 300 | | - LEL | Spired | Capari |
| Dure D | th. 1 - 01 | 120 | | | | | | DIMONING | WEI | م ا |
| Pump Dep | oth: 65ft | 10 | 51 600 |) | | | | of contract | 1 12. | The bear |
| | | 45 | 51 600 | 2 | | | - 1 | but A | hen top | icred off. |
| Pump Dep Sample /T MS/MSD | ime: \\ 3 | 45 | 51 600 | | | | Duplicate ID: | - LEL opening but f | hen tap | pered off. |

Ch2m:

| | NAVFAC NASWI Ault F | | P\$X 1000 1000 1000 1000 1000 1000 1000 10 | Pro | /ATER SAMP ject Number: | 695610 04 F | SHEET | Page: \ | of 2 |
|----------------------------------|------------------------|---------------|--|---------------|----------------------------|-------------|--|---|-------------------------|
| Event: | Ault Field Off | ield | | | Well ID: | WI-AF | -MW-615 | rago. | <u> </u> |
| Date: | Ault Field Off- | base Samplin | ig | | Sample ID: | WI-AF-MW- | 615 | | |
| Weather: | 03-01- | 18 | - | San | npling Team: | S. Fitz | simmons/ | RDD | |
| | 42°F, (| lear W/S | un, Wind: | 10 mph | 2 | M. Gr | een/SAC | | |
| Total Dept | h: c | 53.82 | | | | | | 11 11 0 | COOO I Whose |
| Depth to w | rater: (-) | 95.25 | FT.(BTOC) | 1 | | M | easuring Device: | Honba | 1-5000 Lot#: 0250 |
| Water Colu | ımn: | .469 | | | | | | Solinst | WLM Model 101 |
| | (x | 141.43 | GAL/FT. | | | Well Dia. | Volume | Well Dia. | #:29644 |
| Well Volur | ne: | 61 | GAL. | | | | 10,4114111241111111111111111111111111111 | A CONTRACT OF THE PARTY OF THE | Volume (gallons/foot) |
| Total Purg | e Vol.: | 7.1 | GAL. | | | (inches) | (gallons/foot) 0.041 | (inches) | 1.469 |
| | _ | | | | | 1.25 | 0.064 | 0 | 1.403 |
| Purge Dev | ice: | 31.21der P | ump Lot | # 5897 | | 2 | 0.163 | 1 | |
| | | | HOI PRO | Lot # 4 | | 4 | 0.653 | 1 | |
| | | | | LOU TI I | | | 0.000 | | |
| OSCIT- | A- 1344 | No. Astron | e 15 p - 18 | PARAMET | ER STABILI | ZATION CRI | TERIA | THE THE PARTY OF | A FAMILY |
| | | Temp. | Cond. | DO | рН | ORP | Turbidity | DTW | |
| Par | ameter | °C | mS/cm | mg/L | SU | mV | NTU | ft BTOC | |
| C | riteria | ±0.1 | ±0.01 (if <1) | ±0.05 (if <1) | T 47 T | 77 | ±10 % | | |
| | riteria | ±0.1 | ±0.02 (if >1) | ±0.2 (if >1) | ±0.1 | ±10 | ≤ 10 NTU | ±0.3 (low flow) | |
| | | | | | FIELD PARA | METERS | | The Same | Like Sugar |
| Time | Purge Vol. | Temp. | Cond. | DO | рН | ORP | Turbidity | DTW | |
| Time | mL/(gals) | °C | mS/cm | mg/L | SU | mV | NTU | ft BTOC | Color / Odor / Comments |
| 10:01 | Inital | 10.55 | 0.989 | 7.92 | 5.57 | 49 | 26.1 | 53.83 | Clear. No odor |
| 0.12 | 1500 | 11.26 | 0.984 | 4.82 | 6.25 | -57 | 29.8 | 53.83 | ti ii |
| 10:17 | 3000 | 11.910 | 0.973 | 2,47 | 7.07 | -173 | 31.1 | 53.86 | Slighty Cloudy |
| 0:22 | 4500 | 12,17 | 0.90 | 2,03 | 7.34 | -212 | 34.5 | 53.86 | a)) 11) |
| 10:27 | 6000 | 12.27 | 0.961 | 1.89 | 7.43 | -224 | 30.0 | 53.86 | tc >> |
| 10:32 | 7500 | 12.36 | 0.960 | 1.71 | 7.51 | -237 | 28.6 | 53.86 | (1 7) |
| 10:37 | 9000 | 12.56 | 0.956 | 1 47 | 7 57 | -249 | 25.5 | 53 . 87 | M |
| 10:47 | 12000 | 12.68 | 0954 | 1.30 | 7.62 | -257 | 22.5 | 53.86 | 11 71 |
| 0:52 | 13500 | 12.00 | 0.952 | 1.19 | Folile | -242 | 21.5 | 53.86 | 11 |
| 0.57 | 15000 | 12-67 | 0751 | 1-10 | 7.68 | -266 | 17.5 | 53.86 | Clear. No odor |
| | 16,500 | 12.73 | 0.952 | 1.00 | 7.69 | -268 | 15.0 | 53.86 | (()) |
| Sample info | rmation: meth | od, container | number, size, | | | | | | I will so The state of |
| | | alysis | | | rvative | | Container requirer | ments | No. of containers |
| PFA | 5 537 | | | Unpres | 4°C | 125 | nh Poly | | 2 |
| | | | | | | | 0 | | |
| | | | | | | | | | |
| | | | | | | | | | |
| bservation | s/Notes: | | | | | | | Air Monitoring: | |
| | 0 | | | | | | | VOC (ppm)= | |
| ump Start | Time: 9 | 55 | 0 | | | 11 | | H2S (ppm) | |
| | Initial Fill Tim | e(FT; sec): | 8 | | Final Fill Tir | | - | LEL (%)= | |
| | nitial Dischar | ge Time(DT; | sec): ~ 2 | | Final Discha | arge Time: | 1+ | CO (ppm)= C | |
| 7 | Target = | ED OC | | | | 000 | | 02 (%)= 20 | 209 |
| + | ressure | 30 60, | | | Purge Rate: | SUM | L/min. | 0 1 1 11 | |
| | | | | | | | How | Ratel tim | |
| | h: 80 - | It bto | C - |) N | 717-00 |) CL | 40 | Om4my 9:5 | F |
| ump Depti | | _ | C | 5.1 | 70-90 | コナモ | 4. / | 2010.1 | 72 adjust |
| ump Dept | 11.1 | () | | | | | par I | I lead / at the / at | |
| ump Depti | 11.4 | 0 | / | | | | | 00m4mil10:1 | of discharge time |
| ump Depti ample /Tin S/MSD | 11.4 | 0 | | | | | Duplicate ID: | Um Ymi h | 03 adjust discharge the |
| ample /Tin | ne: 114 | 0 - J | This | | | | | Um Umiki Umik | 3 discharge tip |

Ch2m:

| Client: Location Event: | NAVFAC NASWI Ault F Ault Field Off- | ield | | _ Pro | oject Numbe Well II Sample II | 0: 695610.04.F 0: WI-AF-MW- | 615-0318 | Page: ~ | of 2 | = 1,2 Bg. |
|----------------------------------|--|-------------------|------------------------|-------------------------------|-------------------------------------|-------------------------------------|----------------------------------|---------------------------------------|-----------------------|--|
| Date: Weather | 3/1/18 | | 1.1: 1:10 - | Sa No | mpling Tean | | mon/RDD | | | |
| Total De Depth to Water Co | pth: (-) | 95.25 | FT.(BTOC) | PH | | M. Green | easuring Device: | Solnst Model | 600 # 02 101 #2961 | 5039 14 |
| Well Vol | ume: | +1.43)1.469 | FT. GAL/FT. GAL. | | | Well Dia. (inches) | Volume (gallons/foot) | Well Dia. (inches) | Dec. 2000 | gallons/foot) |
| Total Pur Purge De | evice: B | 7.1 ladder Pun | | | - 1 | 1 1.25 2 4 | 0.041 0.064 0.163 0.653 | 6 | | 403 |
| 5 | | | f-0 | DADAME | TED STADII | IZATION CRIT | EDIA | | 9 11 21 | |
| 300 | 1 2 E. | Temp. | Cond. | DO | pH | ORP | Turbidity | DTW | 9 11 1-100.00 | and the second s |
| P | arameter | °C | mS/cm | mg/L | SU | mV | NTU | ft BTOC | | |
| | Criteria | ±0.1 | ±0.01 (if <1) | ±0.05 (if <1) ±0.2 (if >1) | | ±10 | ±10 % ≤ 10 NTU | ±0.3 (low flow) | | |
| 2 3 | The same of the | A. | 120.02 (11.1) | | FIELD PARA | METERS | | 1.20 | 以 。 | |
| Time | Purge Vol. | Temp. | Cond. mS/cm | DO mg/L | pH SU | ORP mV | Turbidity NTU | DTW ft BTOC | 3.2727.1.525 | r / Comments |
| 1107 | 18,000 | 12.86 | 0.952 | 1.00 | 7.70 | -271 | 13.1 | 53.86 | 11 | |
| 1112 | 19,500 | 12.43 | 0.451 | 0,44 | 7.67 | -271 | 11.7 | 53. 86 | AL | 11 |
| 1117 | 21.000 | 12,95 | W.950 | 0,91 | 7.71 | -276 | 8.56 | 53.86 | 11 | - 11 |
| 1122 | 22,500 | 12,95 | 0 948 | 8.85 | 7.71 | -278 | 6.82 | 53.26 | 1/ | 1/ |
| 1127 | 25.500 | 12,91 | 0.948 | 0.31 | 7.72 | -281 | 6.74 | 53 86 | M | 19 |
| 1137 | 27.000 | 12 89 | 0.946 | C1 71 | 7.76 | - 284 | t.23 | 53 86 | Mi | 1/ |
| AII | parameters | dete | | ceed | with 5 | om pling. | | | | |
| | | | | | | | | | | |
| Sample in | formation: metho | d, container | number, size, | and type, pre | rvative | J C | Container requirem | nents | No. of c | ontainers |
| 0.5 | Ana | | | Unpre | | | mL Puly | | 2 | |
| F | AS 53 | | | - Umpre | | | 0 | | | |
| Observatio | ne/Notes | | | | | | | Air Monitoring: | H 7 82 | ž. |
| Pump Sta | rt Time: 0455 Initial Fill Time Initial Discharg | e Time(DT; | sec): ^-21 | | | ne: 14 arge Time: 17 300 ~L/m | | H2S (ppm) = (| | |
| | th: 80 f + 151 | _ | Screen | Interval: | to-96 ft 6 | 332 | | Dave 1 Time -/mi 0457 -/mi 1003 | | |
| Sample /Ti | NIA | 2 | | | | 4 | Duplicate ID: N | /A | | |
| Signature(s) |):// | _ | - | | | | | | | |
| | | | | | | | | | | |

| | LIV | | | | TER SAMPL | | | | |
|-------------|-----------------|--------------|---------------|----------------------|----------------|-----------|-------------------|--------------|---------------------------------|
| lient: | 1 | NAVFAC | | Proje | ct Number: | 109561 | 0.04.Fl. | FS | |
| ocation: | AULT E | IEL D | | | Well ID: | N2-6 | C | | |
| vent: | GIAL SAN | v00:00 - | Existing | 2 llow | Sample ID: | WI-AF | -N2-60- | 0218 | |
| ate: | 2/18/18 | rp.corting - | CA SING | Sami | pling Team: | d. Wir | | itasimmo | 0.0 |
| Veather: | | 11 | | | - | 2 000 | 1 0.1 | 9.0 | |
| veather. | | 75 00 | M. amt. | $\sim 20 \mathrm{m}$ | pn - | WILLIAM . | | | 53 |
| otal Depth | : 59 | 103 JUP | FT.(BTOC) | | | Me | easuring Device: | Horibau W | -5000 # 26410 |
| epth to wa | ter: (-) t | 58.03 | FT.(BTOC) | | | (JUP) | Date and Time: | Solinist 1 | water level # 309 |
| Vater Colu | | | FT. 1697 | | | • | | multiraes | plus (11.7 e lamp |
| | | | GAL/FT. | | ſ | Well Dia. | Volume | | Lida Cir. Le xedille |
| Vell Volum | | | GAL. | | | (inches) | (gallons/foot) | # | |
| otal Purge | | | GAL. | | - 1 | 1 | 0.041 | 1 | |
| otal Fulge | | | OAL. | | | 1.25 | 0.064 | 1 | |
| Davi | 0. | Tal A | and alak | Bladdon | # | 2 | 0.163 | | |
| Purge Devi | ce: Ge | when m | ortable | BIMMAG | T | 4 | 0.653 | | |
| | | 1424 | | | , l | 4 | 0.000 | J | |
| | | | | | SAMPLE D | ΔΤΔ | | | |
| Nada: | | Tomp | Cond. | DO | pH | ORP | Turbidity | 1000 | |
| Date: | | Temp. | | | 2.2 | | NTU | Other: | Color / Odor / Comments |
| Fime: | | °C | mS/cm | mg/L | SU | mV | NIU | | |
| Method: | | | | | | | | | |
| | | | | | IELD PARAM | | | | |
| - | Purge Vol. | Temp. | Cond. | DO | pН | ORP | Turbidity | Other: DTW | Color / Odor / Comments |
| Time | (gals) | °C | mS/cm | mg/L | SU | mV | NTU | Other. 131VO | Color / Cool / Comments |
| 1105 | initial | Same. | _ | 1- | _ | | - | 58.43 | Pumpon |
| 1115 | 0.75 | 10.04 | 0.345 | 1,26 | 10.74 | 258 | 9.3 | 58.38 | dear, no odor |
| 1120 | 1,30 | 10.79 | 0.327 | 1.26 | 7.50 | 257 | 8.2 | 58.32 | |
| ()25 | 1.70 | 10.74 | 0.320 | 1.18 | 7.79 | 244 | 3.3 | 59.32 | |
| 1130 | 2.00 | 10.79 | 0.318 | 1.09 | 7,79 | 246 | 4.0 | 58.32 | |
| | | 10.75 | 0.317 | 1.09 | 7.80 | 240 | 4.0 | 58.33 | |
| 1132 | 2.50 | 10, 13 | -, 511 | 1.01 | 1.00 | | 11.0 | 3 | |
| | | | | | | | † | | |
| | | | | | | | | 1 | 1 |
| | | | | | | | | | |
| | | | | | | | _ | | |
| | | 1 | - washen also | and hose no | nominative use | nd . | | | |
| Sample info | ormation: metho | | number, size, | | rvative | a. | Container require | ments | No. of containers |
| | Anal | ysis | | riese | Ivalive | | 102 HDPE | | 2 |
| | PFAS | | | | | | 103 HUPE | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | - | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| Observation | ns/Notes: | | | | | | | | |
| | | | | | | | | | |
| | | 5 | | VOC Readir | ng: 0-0 | ppm | | | |
| Observation | ns/Notes: | 5 | | VOC Readir | ng: 6-0 | | | | |
| | t Time: \\o | | | VOC Readir | ng: 6-6 | | QUIPINENT | BLANK!WI | -AF-EB01-021818 |
| Pump Star | t Time: No | 3704 | | VOC Readir | ng: 6-6 | E | | | |
| Pump Star | t Time: \\o | 3704 | 1140 | VOC Readir | ng: 0-0 | E | | | -AF-EBO1-021818 BO1-021818 @ |

| Project Number: 695610.04.FLFS | | | SM | | GROUNDWA | TER SAMPL | ING DATA S | HEET | | | |
|--|--|--|-----------------|--|----------------|--|---------------|--|--|-------------|------------------|
| Well D: WiAF - N 2 - 5 O.2 Sample D: WiAF | Client: N | NAVEAC. | | 100000000000000000000000000000000000000 | | ct Number: | 695610.04.FI. | .FS | Page: \ | of \ | |
| Sample D. Wild.** N. 2.5 - 0.2 8 | A THE STATE OF THE | | | | | Well ID: | WI-AF- N2 | -5 | | | |
| Date | | | Proundwater (| Campling | | Sample ID: | WI-AF- N2 | -5 -0218 | | | |
| Neather: 27F Cold Cloudy moderate sun Till rich PDX 18 85 FT (BTOC) 13 85 FT (BTOC) 13 74 75 FT (BTOC) 13 74 75 75 75 75 75 75 75 | - | | 310undwater 4 | bamping | Samn | ling Team: | S Eitzsi | mmons /RX | D | | |
| Total Depth to water: 18.85 FI (8TOC) Conditions FI (8TOC) Conditions | | | | 1 1 | | ming ream. | 7 71 100 | h / POX | 100 | | |
| Depth to water: Depth to w | Weather: | 27°F, colo | /cloudy/ | moderate | Sun | | | | | == | IL DIGELA |
| Depth to water: Depth to w | Total Donth | . 1 | 8 85 | FT (BTOC) | | | Me | asuring Device: | Horiba 4- | -52 Lot: | #:017567 |
| Well Volume | | The state of the s | | | | | | | Solinst M | lodel 10 | 2 |
| Well Volume: X 0.16/3 GALIFT. | | | | The same of the sa | | | | | Lot #: | 48925 | |
| Well Volume: 2.25 GAL Purged (1) | Water Colu | | ~ | | | 1 | Well Dia | Volume | | | |
| Total Purge Vol. Purge Device: Pine. Envir. Services 2 0.163 2 0.1 | | (x) | 0.100 | | | ` | | ALTOSANSIYA | | | |
| Purge Device: Pinc Envir. Services 2 0.163 4 0.653 | Well Volum | ne: <u>2</u> | | GAL. PU | irged (1 |) | | | | | |
| Purge Device: Pinc Envir. Services 2 0.163 4 0.653 | Total Purge | e Vol.: ~ | 2.3 | GAL. | Well vo | lume | | AND AND ADDRESS OF THE PARTY OF | | | |
| Parameter Temp | | | | | | | | | | | |
| Parameter | Purge Devi | ice. P | ine Env | ir Service | es | | 2 | | | | |
| Parameter Temp. Cond. DO pH ORP Turbidity BTOC MS/cm mg/L st.0.02 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.05 (ff <1) +0.0 | i dige been | - | enes 7 | bave La | + #: 151 | 45 | 4 | 0.653 | | | |
| Parameter | | | Cities 2 | Direct L | | | | | | | |
| Parameter Commission mg/L SU mV NTU ft BTOC | | | Commence to the | | PARAMET | ER STABILIZ | | TERIA | THE PARTY OF THE P | | town Orange Park |
| Parameter | | | Temp. | Cond. | DO | pН | ORP | Turbidity | 36.00 | | |
| Criteria ±0.1 ±0.05 (if <1) ±0.1 ±10 ±10 ±10 ±10 ±0.3 (low flow) | Dar | ameter | IA TO A DOM UN | mS/cm | mg/L | SU | mV | NTU | ft BTOC | | |
| Criteria | rai | anietei | | | | | | ±10 % | | | |
| Time | Cı | riteria | ±0.1 | | | ±0.1 | ±10 | < 10 NTU | ±0.3 (low flow) | | |
| Time | | | | ±0.02 (IT > 1) | ±0.2 (11 > 1) | IEI D DADA | METEDS | Markey result into | ASSISTED AND RESIDENCE | TEA TEANT | |
| Time | Strange Lead | | 在在 局於20 | | | | | Turbidity | DTW | | |
| Parameter Para | Timo | | | | 9-45 | 100 | | | The second second | Color / Odd | or / Comments |
| 1 | Time | (gals) | °C | | mg/L | | mV | | | | |
| 1,250 1,73 0.20 2.28 6,70 110 22.47 5.21 5.21 6.82 90 18.8 5.21 6.92 90 18.8 5.21 6.92 90 18.8 5.21 6.92 90 18.8 5.21 6.92 90 18.8 5.21 6.92 90 18.8 5.21 6.92 90 18.8 5.21 6.92 90 18.8 5.21 6.92 90 18.8 5.21 6.92 90 18.8 5.21 6.92 90 18.8 5.21 6.92 90 18.8 90 90 90 90 90 90 90 9 | 09:14 | inital | 7.49 | 0.210 | | | | | | Clear | 100 000t 0 |
| Oq:24 2,500 | | | | 0.201 | 2,28 | 6.70 | | | | Slightly | tinted. I vo do |
| D9:29 3,750 8.32 | | | | | 2.13 | 10.82 | 90 | 18.8 | 5.21 | | |
| 07:34 5,000 8.50 0.190 1.61 0.88 51 9.9 5.21 Clear. No odor 09:39 6.260 8.59 0.190 1.55 6.89 46 9.4 5.21 " 09:44 7,500 8.63 0.188 1.48 6.93 38 9.0 5.21 " 09:49 8 750 8.66 0.185 1.39 (.916 36 9.0 5.21 " 09:49 8 750 8.66 0.185 1.39 (.916 36 9.0 5.21 " All parameters stable. Proceed with Sampling. Analysis Preservative Container requirements No. of containers PFAS 537 Unpres. 4°C 1.25 mL Poly Observations/Notes: Used peristaltic pump at this well location. Air Monitoring: HS No. of containers PFAS 537 Unpres. 4°C 1.25 mL Poly Observations/Notes: Used peristaltic pump at this well location. Air Monitoring: HS No. of containers PFAS 537 Unpres. 4°C 1.25 mL Poly Observations/Notes: Used peristaltic pump at this well location. Air Monitoring: HS No. of containers PFAS 537 Poly Observations/Notes: Used peristaltic pump at this well location. Air Monitoring: HS No. of containers PFAS 537 Poly Observations/Notes: Used peristaltic pump at this well location. Air Monitoring: HS No. of containers PFAS 537 Poly Observations/Notes: Used peristaltic pump at this well location. Air Monitoring: HS No. of containers PFAS 537 Poly Observations/Notes: Used peristaltic pump at this well location. Air Monitoring: HS No. of containers PFAS 537 Poly Observations/Notes: Used peristaltic pump at this well location. Air Monitoring: HS No. of containers PFAS 537 Poly Observations/Notes: Used peristaltic pump at this well location. Air Monitoring: HS No. of containers PFAS 537 Poly Observations/Notes: Used peristaltic pump at this well location. Air Monitoring: HS No. of containers PFAS 537 Poly Observations/Notes: Used peristaltic pump at this well location. Air Monitoring: HS No. of containers PFAS 537 Poly Observations/Notes: Used peristaltic pump at this well location. Air Monitoring: HS No. of containers PFAS 537 Poly Observations/Notes: Used peristaltic pump at this well location. Air Monitoring: HS No. of containers PFAS 537 Poly Observations/Notes: Dollar Poly Observations/Notes: Dollar Poly Observati | | | | | | | 102 | 13.1 | 5.21 | | |
| 19:37 5,000 8.59 0.190 1.55 6.39 46 9.4 5.21 4 1 1 1 1 1 1 1 1 | | | | U | | | | | | Clear. | No odor |
| Og. 44 7,500 8.63 0.188 1.48 6.93 38 9.0 5.21 " Og. 47 8,750 8.60 0.185 1.39 6.96 3.6 9.0 5.21 " All parameters stable. Proceed with Sampling. Sample information: method, container number, size, and type, preservative used. Analysis Preservative Container requirements No. of containers PFAS 537 Unpres. 4°C 125 mL Poly 2 Observations/Notes: Used peristable pump at this well location. Air Monitoring: HS (ppm) O | | | 8.50 | | | | | | | | |
| Sample information: method, container number, size, and type, preservative used. Analysis Preservative Container requirements PFAS 537 Unpres. 4°C 125 mL Poly Observations/Notes: Used peristaltic pump at this well location. Air Monitoring: HS VOC (ppm)= All purge parameters were placed for a low-VOC (ppm)= How. (low speed parameter) Pump Start Time: 9:10 Initial Fill Time(FT; sec): — Final Fill Time: — SN/A 02 (%)= 20.9 Pump End Time: 10:00 Pump Depth: 12 St btoc. Sample /Time: 9:55 MS/MS/D N/A Duplicate ID: N/A | | | | | | The second secon | | | | " | 7.) |
| All parameters Stable. Proceed with Sampling. Sample information: method, container number, size, and type, preservative used. Analysis Preservative Container requirements PFAS 537 Unpres. 4°C 125 mL Poly Observations/Notes: Used peristaltic pump at this well location. All purge parameters were placed for a low-VOC (ppm)= Has (ppm) O LEL (%)= O CO (ppm)= O Initial Fill Time(FT; sec): Initial Discharge Time(DT; sec): Pump End Time: 10:00 Purge Rate: 250 mL/min. Purge Rate: 250 mL/min. Duplicate ID: N/A Duplicate ID: N/A | | | | | | | 21 | | | LL | N |
| Sample information: method, container number, size, and type, preservative used. Analysis Preservative Container requirements No. of containers Preservative Preservative Preservative Container requirements No. of containers No. of containers No. of containers Preservative Preservative Container requirements No. of containers No. of containers No. of containers Air Monitoring: HS VOC (ppm)= V | 09149 | 8,750 | | | 1111 | | 30 | 1.0 | 3.21 | | |
| Sample information: method, container number, size, and type, preservative used. Analysis Preservative Container requirements No. of containers Preservative Preservative Preservative Container requirements No. of containers No. of containers No. of containers Preservative Preservative Container requirements No. of containers No. of containers No. of containers Air Monitoring: HS VOC (ppm)= V | AII | 10 arame | ers S | table. | Proceed | WITH | 23 mpur | Vez. | _ | - | |
| Analysis Preservative Container requirements No. or sometimes PFAS 537 Unpres. 4°C 125 mL Poly Observations/Notes: Used peristatic pump at this well location. All purge parameters were placed for a low-VOC (ppm)= HS (ppm) O H2S (ppm) O LEL (%)= CO (ppm)= O CO (ppm)= O O Initial Fill Time (FT; sec): Initial Discharge Time(DT; sec): Pump End Time: 10:00 Purge Rate: 250 mL/min. Pump Depth: 12 ft btoc. Sample /Time: 9:55 MS/MSD N/A Duplicate ID: N/A | | | | | | | - | 0 | | + | |
| Analysis Preservative Container requirements No. or sometimes PFAS 537 Unpres. 4°C 125 mL Poly Observations/Notes: Used peristatic pump at this well location. All purge parameters were placed for a low-VOC (ppm)= HS (ppm) O H2S (ppm) O LEL (%)= CO (ppm)= O CO (ppm)= O O Initial Fill Time (FT; sec): Initial Discharge Time(DT; sec): Pump End Time: 10:00 Purge Rate: 250 mL/min. Pump Depth: 12 ft btoc. Sample /Time: 9:55 MS/MSD N/A Duplicate ID: N/A | | | | | | | | | | + | |
| Analysis Preservative Container requirements No. or sometimes PFAS 537 Unpres. 4°C 125 mL Poly Observations/Notes: Used peristatic pump at this well location. All purge parameters were placed for a low-VOC (ppm)= HS (ppm) O H2S (ppm) O LEL (%)= CO (ppm)= O CO (ppm)= O O Initial Fill Time (FT; sec): Initial Discharge Time(DT; sec): Pump End Time: 10:00 Purge Rate: 250 mL/min. Pump Depth: 12 ft btoc. Sample /Time: 9:55 MS/MSD N/A Duplicate ID: N/A | | | | | | | | | | | |
| Analysis Preservative Container requirements No. or container. PFAS 537 Unpres. 4°C 125 mL Poly Container requirements No. or container. PFAS 537 Unpres. 4°C 125 mL Poly Air Monitoring: HS VOC (ppm)= VOC (ppm)= H2S (ppm) O LEL (%)= CO (ppm)= O LEL (%)= CO (ppm)= O CO (ppm)= O CO (ppm)= O Initial Fill Time: Final Fill Time: Ship A (20) Pump End Time: 10:00 Purge Rate: 250 mL/min. Pump Depth: 12 ft btoc. Sample /Time: 9:55 MS/MSD N/A Duplicate ID: N/A | Sample in | formation: meth | nod, container | number, size | , and type, pr | eservative us | ed. | | 是由自動物學的因 | | |
| Observations/Notes: Used peristaltic pump at this well location. All purge parameters were placed for a low-flow. (low speed parameter) Pump Start Time: 9:10 Initial Fill Time(FT; sec): Initial Discharge Time(DT; sec): Pump End Time: 10:00 Purge Rate: 250 mL/min. Pupplicate ID: N/A Duplicate ID: N/A | | | | | Prese | ervative | | | ements | | containers |
| Observations/Notes: Used peristatic pump at this well location. All purge parameters were placed for a low-VOC (ppm)= 0 H2S (ppm) 0 LEL (%)= 0 CO (ppm)= 0 O LEL (%)= 0 CO (ppm)= 0 Initial Fill Time: Time | PT | | | | Unpres | 4°C | 125 | m L Poly | | 2 | |
| Observations/Notes: Used peristaltic pump at this well succerning. All purge parameters were placed for a low-VOC (ppm)= 0 H2S (ppm) O LEL (%)= 0 CO (ppm)= 0 O LEL (%)= 0 CO (ppm)= 0 O LEL (%)= 0 CO (ppm)= 0 O O CO (ppm)= 0 O O O O O O O O O O O O O O O O O O | 14 | NS 33 | | | | | | σ | | | |
| Pump Start Time: 9:10 Initial Fill Time(FT; sec): — Initial Discharge Time(DT; sec): — Final Fill Time: — 3 N/A 02 (%)= 20.9 Final Fi | Observation | ana/Natas: a | 1 1 - | S = 1 di- | D. 1900 | at Hair | \verti | One otion | Air Monitoring | : <u>HS</u> | \ BZ |
| Pump Start Time: 9:10 Initial Fill Time(FT; sec): — Initial Discharge Time(DT; sec): — Final Fill Time: — 3 N/A 02 (%)= 20.9 Final Fi | Observation | ons/Notes. | ised pe | er i Stath C | pamp | 01 L 11110 | abasel 5 | 200 a low | - VOC (ppm)= | 0 | 10 |
| Pump Start Time: 9:10 Initial Fill Time(FT; sec): — Initial Discharge Time(DT; sec): — Final Fill Time: — 3 N/A 02 (%)= 20.9 Final Fi | | F | tll pura | e para | meters | WELE | Placed 3 | , or | H2S (ppm) | 0 | 0 |
| Pump Start Time: 9:10 Initial Fill Time(FT; sec): — Initial Discharge Time(DT; sec): — Final Fill Time: — 3 N/A 02 (%)= 20.9 Final Fi | | | flow. | (low s | peed p | arameter | | | I FI (%)= | | 10 |
| Initial Fill Time(FT; sec): Initial Fill Time(FT; sec): Initial Discharge Time(DT; sec): Pump End Time: 10:00 Pump Depth: 12 ft btoc. Sample /Time: 9:55 MS/MSD N/A Duplicate ID: N/A | | 0. | In | | , | | | | | | 1 0 |
| Initial Fill Time(FT; sec): Initial Discharge Time(DT; sec): Pump End Time: 10:00 Pump Depth: 12 State btoc. Sample /Time: 9:55 MS/MSD N/A Duplicate ID: N/A | Pump Sta | art Time: | 10 | | | | | 7N/2 | | | 1-09 |
| Pump End Time: 10:00 Pump Depth: 12 ft btoc. Sample /Time: 9:55 MS/MSD N/A Duplicate ID: N/A | | Initial Fill Tir | me(FT; sec): | - | | Final Fill 1 | ime: | ALLIS | 02 (70)- | 20.9 | 120.1 |
| Pump Depth: 12 ft btoc. Sample /Time: 9:55 MS/MSD N/A Duplicate ID: N/A | | | | | | Final Disc | harge Time: | -5 | | | |
| Pump Depth: 12 ft btoc. Sample /Time: 9:55 MS/MSD N/A Duplicate ID: N/A | Pump Er | nd Time: \O | :00 | | | Purge Rat | e: 250 r | nL/min. | | | |
| Sample /Time: 9:55 MS/MSD N/A Duplicate ID: N/A | | | | oc. | | | | | | | |
| MS/MSD N/A | | | | | | | | | | | |
| | MOMO | 11/h | | | | | | Duplicate ID: | N/A | | |
| | | | | 11/ | | | | | | | |

| 13 () (x) (x) (x) | Froundwater: 18 18 13 143 199 1.47 2.52 0.1103 .06 2.2 Temp. °C ±0.1 Temp. °C 13.47 14.11 | | Proje Samp Samp Suds PARAMET DO mg/L ±0.05 (if <1) ±0.2 (if >1) | Sample ID: Voling Team: SIAS ER STABILIZ PH SU ±0.1 FIELD PARAM PH SU 7.04 | 95610.04.FI. VI-AF- MV S. Fit2 J. Ulr Me Well Dia. (inches) 1 1.25 2 4 ATION CRIT ORP mV ±10 | Volume (gallons/foot) 0.064 0.653 | DTW ft BTOC DTW ft BTOC | Color / Odd | ; #01951 02 |
|--|---|---|--|--|--|--|--|--|---|
| d y 2018 (0 20 / Pa (x) 18 143 Sur 199 1.47 2.52 0.103 .06 2.2 ne En enes 2 Temp. °C ±0.1 Temp. °C 13.44 14.11 | Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm | Samp Downs PARAMET DO mg/L ±0.05 (if <1) ±0.2 (if >1) DO mg/L 5.74 | Well ID: Value of the substitute of the substitu | Well Dia. (inches) 1 1.25 2 4 ATION CRITORP mV ±10 METERS ORP mV | V-\\4 - O2 Simmons / V-\\4 - O3 Simmons / V-\\4 - O3 Simmons / V-\\4 - O3 Simmons / V-\\4 - O3 Simmons / V-\\4 - O3 Simmons / V-\\4 - O3 Simmons / V-\\4 - O3 Simmons / V-\\4 - O3 Simmons / V-\\4 - O3 Simmons / V-\\4 - O3 Simmons / V-\\4 - O3 Simmons / V-\\4 - O3 Simmons / V-\\4 - O3 Simmons / V-\\4 - | DTW ft BTOC DTW ft BTOC | 52 Lots 10del 10:4 892 | 5 # 01951 02 -5 |
| y 2018 (0 / 2.0 / | 18 143 Sur 199 1.47 2.52 0.103 .06 2.2 ne En enes 2 Temp. °C ±0.1 Temp. °C 13.44 14.11 | Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm | PARAMET DO mg/L ±0.05 (if <1) ±0.2 (if >1) DO mg/L | Sample ID: Voling Team: SIAS ER STABILIZ PH SU ±0.1 FIELD PARAM PH SU 7.04 | Well Dia. (inches) 1 1.25 2 4 ATION CRITORP mV ±10 METERS ORP mV | V-\\4-O2 Simmons/Fich/POX asuring Device: Volume (gallons/foot) 0.041 0.064 0.163 4 0.653 TERIA Turbidity NTU ±10 % ≤ 10 NTU Turbidity NTU | DTW ft BTOC Tot # DTW ft BTOC | 52 Lots 10del 10 : 4 892 | # 0195 02 -5 |
| 13 13 13 14 15 15 15 15 15 15 15 | 18 143 Sur 199 1.47 2.52 0.103 .06 2.2 ne En enes 2 Temp. °C ±0.1 Temp. °C 13.44 14.11 | Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm | PARAMET DO mg/L ±0.05 (if <1) ±0.2 (if >1) DO mg/L | ER STABILIZ PH SU ±0.1 FIELD PARAM PH SU 7.04 | Well Dia. (inches) 1 1.25 2 4 ATION CRITORY ORP mV ±10 METERS ORP mV | Volume (gallons/foot) 0.041 0.064 0.163 ← 0.653 TERIA Turbidity NTU ±10 % ≤ 10 NTU Turbidity NTU | DTW ft BTOC DTW ft BTOC | Color / Odd | 5 |
| Pa (x) (x) (x) (x) (x) (x) (x) (x) | 143 sur 99 1.47 2.52 0.163 .06 2.2 ne En eries 2 Temp. °C ±0.1 | FT.(BTOC) FT.(BTOC) FT. GAL/FT. GAL. GAL. Cond. mS/cm ±0.01 (if <1) ±0.02 (if >1) Cond. mS/cm 0.222 | PARAMET DO mg/L ±0.05 (if <1) ±0.2 (if >1) DO mg/L 5.74 | ER STABILIZ PH SU ±0.1 FIELD PARAM PH SU 7.04 | Well Dia. (inches) 1 1.25 2 4 ATION CRITORY ORP mV ±10 METERS ORP mV | Volume (gallons/foot) 0.041 0.064 0.163 ← 0.653 TERIA Turbidity NTU ±10 % ≤ 10 NTU Turbidity NTU | DTW ft BTOC DTW ft BTOC | Color / Odd | 5 |
| Pinge Vol. | 99 1.4.7 2.52 0.163 .06 2.2 ne En enes 2 Temp. °C ±0.1 Temp. °C 13.47 14.11 | FT.(BTOC) FT.(BTOC) FT. GAL/FT. GAL. GAL. Cond. mS/cm ±0.01 (if <1) ±0.02 (if >1) Cond. mS/cm 0.222 | PARAMET DO mg/L ±0.05 (if <1) ±0.2 (if >1) DO mg/L 5.74 | pH SU ±0.1 FIELD PARAM PH SU 7.04 | Well Dia. (inches) 1 1.25 2 4 ATION CRITORP mV ±10 METERS ORP mV | Volume (gallons/foot) 0.041 0.064 0.163 0.653 TERIA Turbidity NTU ±10 % ≤ 10 NTU Turbidity NTU | DTW ft BTOC DTW ft BTOC | Color / Odd | 5 |
| P: Solution of the last of the | 7.4.7 2.52 0.163 .06 2.2 ne En enies 2 Temp. °C ±0.1 | Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm | PARAMET DO mg/L ±0.05 (if <1) ±0.2 (if >1) DO mg/L | pH SU ±0.1 FIELD PARAM PH SU 7.04 | Well Dia. (inches) 1 1.25 2 4 ATION CRITORY ORP mV ±10 METERS ORP mV | Volume (gallons/foot) 0.041 0.064 0.163 | DTW ft BTOC DTW ft BTOC | Color / Odd | 5 |
| (Y) (X) (X) (X) (Y) (Y) (X) (Y) (Y) (Y) (Y) (Y) (Y) (Y) (Y) (Y) (Y | 7.4.7 2.52 0.163 .06 2.2 ne En enies 2 Temp. °C ±0.1 | Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm | PARAMET DO mg/L ±0.05 (if <1) ±0.2 (if >1) DO mg/L | pH SU ±0.1 FIELD PARAM PH SU 7.04 | Well Dia. (inches) 1 1.25 2 4 ATION CRITORY ORP mV ±10 METERS ORP mV | Volume (gallons/foot) 0.041 0.064 0.163 | DTW ft BTOC DTW ft BTOC | Color / Odd | 5 |
| (x) (x) P S S S A A A A A A A A A A | 7.52 7.163 . 06 2.2 ne En enes 2 Temp. °C ±0.1 Temp. °C 13.44 14.11 | Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm Cond. mS/cm | PARAMET DO mg/L ±0.05 (if <1) ±0.2 (if >1) DO mg/L | pH SU ±0.1 FIELD PARAM PH SU 7.04 | (inches) 1 1.25 2 4 ATION CRITORY ORP mV ±10 METERS ORP mV | (gallons/foot) 0.041 0.064 0.163 0.653 TERIA Turbidity NTU ±10 % ≤ 10 NTU Turbidity NTU | DTW ft BTOC ±0.3 (low flow) DTW ft BTOC | Color / Odd | |
| e Vol. | 7.103 . D 6 2.2 ne En enes 2 Temp. °C ±0.1 Temp. °C 13.44 14.11 | Cond. mS/cm ±0.01 (if <1) cond. mS/cm 0.02 (if >1) | PARAMET DO mg/L ±0.05 (if <1) ±0.2 (if >1) DO mg/L | pH SU ±0.1 FIELD PARAM PH SU 7.04 | (inches) 1 1.25 2 4 ATION CRITORY ORP mV ±10 METERS ORP mV | (gallons/foot) 0.041 0.064 0.163 0.653 TERIA Turbidity NTU ±10 % ≤ 10 NTU Turbidity NTU | tt BTOC ±0.3 (low flow) | I COMPANIES COMPA | or / Comme |
| pe Vol. | Temp. °C ±0.1 Temp. °C 13.44 14.11 | Cond. mS/cm ±0.01 (if <1) ±0.02 (if >1) Cond. mS/cm | PARAMET DO mg/L ±0.05 (if <1) ±0.2 (if >1) DO mg/L | pH SU ±0.1 FIELD PARAM PH SU 7.04 | 1 1.25 2 4 ATION CRIT ORP mV ±10 METERS ORP mV | 0.041 0.064 0.163 | tt BTOC ±0.3 (low flow) | I COMPANIES COMPA | or / Comme |
| ge Vol. | 2.2 ne En enics 2 Temp. °C ±0.1 Temp. °C 13.44 14.11 | Cond. mS/cm ±0.01 (if <1) ±0.02 (if >1) Cond. mS/cm 0.222 | PARAMET DO mg/L ±0.05 (if <1) ±0.2 (if >1) DO mg/L | pH SU ±0.1 FIELD PARAM PH SU 7.04 | 2 4 ATION CRIT ORP mV ±10 METERS ORP mV | 0.064 0.163 | tt BTOC ±0.3 (low flow) | I COMPANIES COMPA | or / Comme |
| ge Vol. | Temp. °C ±0.1 Temp. °C 13.44 14.11 | Cond. mS/cm ±0.01 (if <1) ±0.02 (if >1) Cond. mS/cm | PARAMET DO mg/L ±0.05 (if <1) ±0.2 (if >1) DO mg/L | pH SU ±0.1 FIELD PARAM PH SU 7.04 | 2 4 ATION CRIT ORP mV ±10 METERS ORP mV | 0.163 0.653 TERIA Turbidity NTU ±10 % ≤ 10 NTU Turbidity NTU | tt BTOC ±0.3 (low flow) | I COMPANIES COMPA | or / Comme |
| ge Vol. | Temp. °C ±0.1 Temp. °C 13.41 | Cond. mS/cm ±0.01 (if <1) ±0.02 (if >1) Cond. mS/cm 0.222 | PARAMET DO mg/L ±0.05 (if <1) ±0.2 (if >1) DO mg/L | pH SU ±0.1 FIELD PARAM PH SU 7.04 | ATION CRITORY ORP MV ±10 METERS ORP MV | 0.653 TERIA Turbidity NTU ±10 % ≤ 10 NTU Turbidity NTU | tt BTOC ±0.3 (low flow) | I COMPANIES COMPA | or / Comme |
| ge Vol. | Temp. °C ±0.1 Temp. °C 13.41 | Cond. mS/cm ±0.01 (if <1) ±0.02 (if >1) Cond. mS/cm 0.222 | PARAMET DO mg/L ±0.05 (if <1) ±0.2 (if >1) DO mg/L | pH SU ±0.1 FIELD PARAM PH SU 7.04 | ATION CRITORY ORP MV ±10 METERS ORP MV | TERIA Turbidity NTU ±10 % ≤ 10 NTU Turbidity NTU | tt BTOC ±0.3 (low flow) | I COMPANIES COMPA | or / Comme |
| ge Vol. | Temp. °C ±0.1 Temp. °C 13.41 | Cond. mS/cm ±0.01 (if <1) ±0.02 (if >1) Cond. mS/cm | PARAMET DO mg/L ±0.05 (if <1) ±0.2 (if >1) DO mg/L | pH SU ±0.1 FIELD PARAM PH SU 7.04 | ORP mV ±10 METERS ORP mV | Turbidity NTU ±10 % ≤ 10 NTU Turbidity NTU | tt BTOC ±0.3 (low flow) | I COMPANIES COMPA | or / Comme |
| ge Vol. als (mL: 1-3 | °C ±0.1 Temp. °C 13.44 | mS/cm ±0.01 (if <1) ±0.02 (if >1) Cond. mS/cm | DO mg/L ±0.05 (if <1) ±0.2 (if >1) DO mg/L | pH SU ±0.1 FIELD PARAM PH SU 7.04 | ORP mV ±10 METERS ORP mV | Turbidity NTU ±10 % ≤ 10 NTU Turbidity NTU | tt BTOC ±0.3 (low flow) | I COMPANIES COMPA | or / Comme |
| ge Vol. als (mL: 1-3 | °C ±0.1 Temp. °C 13.44 | mS/cm ±0.01 (if <1) ±0.02 (if >1) Cond. mS/cm | DO mg/L ±0.05 (if <1) ±0.2 (if >1) DO mg/L | pH SU ±0.1 FIELD PARAM PH SU 7.04 | ORP mV ±10 METERS ORP mV | Turbidity NTU ±10 % ≤ 10 NTU Turbidity NTU | tt BTOC ±0.3 (low flow) | I COMPANIES COMPA | or / Comme |
| ge Vol. als (mL: 1-3 | °C ±0.1 Temp. °C 13.44 | mS/cm ±0.01 (if <1) ±0.02 (if >1) Cond. mS/cm | mg/L ±0.05 (if <1) ±0.2 (if >1) DO mg/L | ±0.1 FIELD PARAM PH SU 7.04 | mV ±10 METERS ORP mV | NTU ±10 % ≤ 10 NTU Turbidity NTU | ±0.3 (low flow) DTW ft BTOC | I COMPANIES COMPA | or / Comme |
| ge Vol. als (mL: 1-3 | ±0.1 Temp. °C 13.44 | ±0.01 (if <1) ±0.02 (if >1) Cond. mS/cm 0.222 | ±0.05 (if <1) ±0.2 (if >1) DO mg/L | ±0.1 FIELD PARAM PH SU 7.04 | ±10 METERS ORP mV | ±10 % ≤ 10 NTU Turbidity NTU | ±0.3 (low flow) DTW ft BTOC | I COMPANIES COMPA | or / Comme |
| ats (mL: tal 75 | Temp.) °C 13.44 | ±0.02 (if >1) Cond. mS/cm 0.222 | ±0.2 (if >1) DO mg/L 5.74 | pH SU 7.04 | ORP mV | ≤ 10 NTU Turbidity NTU | DTW ft BTOC | I COMPANIES COMPA | or / Comme |
| ats (mL: tal 75 | Temp.) °C 13.44 | Cond. mS/cm | DO mg/L 5.74 | pH SU 7.04 | ORP mV | Turbidity NTU | ft BTOC | I COMPANIES COMPA | or / Comme |
| ats (mL: tal 75 | 13.44 14.11 | mS/cm 0.222 | DO mg/L 5.74 | pH SU 7.04 | ORP mV | NTU | ft BTOC | I COMPANIES COMPA | or / Comme |
| ats (mL: tal 75 | 13.44 14.11 | mS/cm 0.222 | mg/L 5.74 | SU 7.04 | mV | NTU | ft BTOC | I COMPANIES COMPA | or / Comme |
| tal 75 | 14.11 | 0.222 | 5.74 | 7.04 | | | | | |
| 15 | 14.11 | | | | 181 | | 7.51 | Clear | No odk |
| | | 111110 | 12) (1 | | 179 | 28.0 | 7.51 | Somes | ediment. |
| 150 | | | | 4.00 | | 28.7 | 7.51 | Clean | Nood |
| | 14.36 | 0.219 | 2.88 | 0.0 | 179 | 26.6 | 7.51 | 11 | |
| 025 | 14.48 | 0.218 | 2.76 | 6.99 | 180 | 23.7 | 7.51 | be. | |
| 300 | 14,76 | 0.216 | 2.59 | 6.97 | 182 | 19.7 | 7.51 | u | , |
| 375 | 14.88 | 0,215 | 2.50 | | 185 | 14.4 | 7.51 | u | r |
| 250 | 14.98 | 0.214 | 2.43 | 6.91 | 184 | 110.9 | 7.51 | u. | 1 |
| 125 | 15.04 | | 2.43 | | | | 7.51 | и | |
| ,000 | 15,03 | 0.212 | 2.40 | 6.96 | 185 | 17.0 | 7.51 | u | |
| 875 | 15.09 | 0.213 | 2.37 | 6.96 | 186 | 52mio) | 100 | | |
| 169A | ameter | rs sta | ble. F | roued | WITH | Sampl | 110 | | |
| 1 | | | | | | | | | |
| | | | | | · · · · · · · · · · · · · · · · · · · | | · · · · · · · · · · · · · · · · · · · | A POLICIA NO. | 可能效益为 类 |
| on: meth | od, container | r number, size | e, and type, pr | reservative us | ed. | O delegan se suite | amonto | No of | containers |
| Ana | alysis | | Pres | ervative | | | | | |
| 537 | | | Unpn | es.,4°C | 12 | -5 ml Po | oly | | _ |
| | | | 1 | | | | 4: 11 11 11 | LIC | D7 |
| tes: ~ | Used | perist | altic p | ump, A | 11 pur | de barames | KOAIr Monitoring | : 10 | 1 8 |
| | Mero | oraced | for a | 1-wal | DW PI | irge. (Spen | VOC (ppm)= | 0 | D |
| | 110.0 | 7. | | | . 0 | 0 | / H25 (ppm) | 5 | 0 |
| | | | | | | | LEL (70)- | 0 | 1 ~ |
| ne: 14 | :55 | | | | | > N/ | CO (ppm)= | 0 | 0 |
| al Fill Tir | ne(FT: sec): | | | Final Fill T | ime: | E WIA | 02 (%)= | 20.4 | BZ O O 20 |
| al Disch | arge Time(D) | T: sec): | | Final Disch | narge Time: | - 5 | | | |
| ai Diooii. | | , , , | | | | | | | |
| e. 110 | :00: | | | Purge Rate | : 175 | mL/min. | | | 15 |
| e. 10 | .00 | | | | | | | | |
| 11 11 | - hta | C | | | | | | | |
| | | | | | | | | | |
| IT | 50 | | | | | | N I PM | | |
| 15. | | 12 | 1 | | | Duplicate ID: | IV/A | | |
| | tes: - tes: - al Fill Tir al Discha e: 10 11 ft | Analysis 537 tes: - Used were a: 14:55 al Fill Time(FT; sec): al Discharge Time(D | Analysis 537 tes: - Used perist were placed ae: 14:55 al Fill Time(FT; sec): — al Discharge Time(DT; sec): — ae: 10:00 11 ft. btoc 15:50 | Analysis 537 Unprintes: - Used peristaltic proced for a were placed for a fill Time(FT; sec): al Fill Time(FT; sec): e: 10:00 11 ft. btoc 15:50 | Analysis Freservative Unpres., 4°C tes: - Used peristaltic pump. A were placed for a low-fl al Fill Time(FT; sec): al Discharge Time(DT; sec): e: 10:00 Purge Rate 15:50 | Analysis 537 Unpres., 4°C 12 tes: -Used peristaltic pump. All pur were placed for a low-flow po ie: 14:55 al Fill Time(FT; sec): al Discharge Time(DT; sec): e: 10:00 Purge Rate: 175 11 ft. btoc 15:50 | Analysis 537 Unpres., 4°C 125 mL Po tes: -Used peristaltic pump. All purge parame were placed for a low-flow purge. (100 al Fill Time(FT; sec): al Discharge Time(DT; sec): e: 10:00 Purge Rate: 175 mL/min. 11 ft. btoc 15:50 Duplicate ID: | Analysis 537 Unpres., 4°C 125 mL Poly tes: -Used peristaltic pump. All purge parameteralir Monitoring were placed for a low-flow purge. (10w) VOC (ppm)= H2S (ppm) LEL (%)= CO (ppm)= CO (ppm)= H2S (ppm) LEL (%)= CO (ppm)= CO (ppm)= H2S (ppm) LEL (%)= CO (ppm)= CO (ppm)= CO (ppm)= H2S (ppm) LEL (%)= CO (ppm)= CO (ppm)= CO (ppm)= H2S (ppm) LEL (%)= CO (ppm)= CO (ppm)= H2S (ppm) LEL (%)= CO (ppm)= CO (ppm)= CO (ppm)= H2S (ppm) LEL (%)= CO (ppm)= CO (ppm)= H2S (ppm) LEL (%)= CO (ppm)= Analysis Preservative Unpres., 4°C 125 mL Poly tes: - Used peristaltic pump. All purge parametrair Monitoring: were placed for a low-flow purge. (10w VOC (ppm)= Were placed for a low-flow purge. (10w VOC (ppm)= Were placed for a low-flow purge. (10w VOC (ppm)= Were placed for a low-flow purge. (10w VOC (ppm)= Were placed for a low-flow purge. (10w VOC (ppm)= Be: 14:55 Al Final Fill Time: - Supplied to the purge of the purge |

Purge Device:

OF GEO TECH Portable

Bladder Pump

GROUNDWATER SAMPLING DATA SHEET Project Number: 695610.04.FI,FS Page: **NAVFAC** Client: Well ID: WI-AF-MW 29 - MW. CB 4 Location: Ault Field Sample ID: WI-AF-29 - MW - 4 -February 2017 Groundwater Sampling Event: Sampling Team: Le nniGer Date: 2113118 Mark Endo Weather: 34°F FT.(BTOC) 66.03 bTOC [SOFT BOTTOM] Measuring Device: HORI BA U - 5000 **Total Depth:** FT.(BTOC) multirae Mars Depth to water: FT. Water Column: 7.32 Geotech water level meter # 6167 (200) GALIFT. 4" DIA WELL Volume Well Dia. (x) 0.653 (gallons/foot) (inches) GAL. Well Volume: 4.78 0.041 1 2.3 GAL. Total Purge Vol.: 1.25 0.064

2

4

0.163

0.653

| | | SERIALH | | PARAMET | ER STABILIZ | ATION CRIT | TERIA | | |
|--|----------------------|-------------|----------------|---|--------------|------------|---------------------------|---|---|
| Para | ameter | Temp. °C | Cond. mS/cm | DO mg/L | pH SU | ORP mV | Turbidity NTU | DTW ft BTOC | |
| Cr | iteria | ±0.1 | | ±0.05 (if <1) ±0.2 (if >1) | ±0.1 | ±10 | ±10 % ≤ 10 NTU | ±0.3 (low flow) | |
| | | | | | IELD PARA | WETERS | | - 0. C | |
| Time | Purge Vol. (gals) | Temp. | Cond. mS/cm | DO mg/L | pH SU | ORP mV | Turbidity NTU | DTW ft BTOC | Color / Odor / Comments |
| 257 | 0.85 | | - | - | - | | | 58.70. | clear odor le |
| 30.5 | 0.40 | 13.87 | 0.925 | 4.98 | 7.59 | 173 | 0.0 | 58.69 | CLEAR, NO ODOR |
| 310 | 0.45 | 13.61 | 0.929 | 4.40 | 8.15 | 159 | 0.0 | 58.68 | 11 00 |
| 315 | 0.48 | 13.38 | 0.934 | 3.83 | 8,37 | 153 | 0.0 | 58.68 | 1) |
| 320 | 0.55 | 13.20 | 0.939 | 3.38 | 8.48 | 147 | 0.0 | 58.67 | 11 |
| 325 | 0.65 | 13.15 | 0.939 | 3.19 | 8.54 | 142 | 0.0 | 58.66 | ħ |
| 330 | 0.75 | 13.03 | 0.939 | 3.05 | 8.57 | 138 | 0.0 | 58.66 | /1 |
| 335 | 0.80 | 12.90 | 6.942 | 2.90 | 8,60 | 133 | 0.0 | 58.65 | 7.1 |
| 340 | 0.90 | 12.82 | 0.945 | 2.85 | 8.61 | 129 | 0.0 | 58.65 | 11 |
| 345 | 1.6 | 12.74 | 0.749 | 2.74 | 8,61 | 125 | 0.0 | 28.65 | N |
| amala infe | ormation: meth | od containe | r number size | and type nre | servative us | ed | | | |
| ample im | | alysis | Tiuliber, size | | rvative | 1 | Container require | ements | No. of containers |
| ^ | | 537 | | | Ne, 4°C | | 25 ML POL | | 2 |
| | | | | | | | | A in Manufacular win | |
| | ns/Notes: P | | IS STABL | E @ 1349 1-021318 E | 1415 | D TO SAMO | ,T E * | VOC (ppm)= | 0.0 0.0 |
| Pump Start Time: 12 4 2 Initial Fill Time(FT; sec): 10 Initial Discharge Time(DT; sec): 15 | | | | Final Fill Time: 26 15 Final Discharge Time: 15 | | | | H2S (ppm) LEL (%)= CO (ppm)= O2 (%)= | 0.0 00 |
| | oth: SOCTI | ON DEPTH | + = 57'4 | 53 (58.8" | Purge Rate | (G) 13: | 10 = 70 ml 20 = 60 ml/ | | 301 |
| Pump Dep | | | | | | | | | |
| Pump Dep Sample /T | 1000 | 0 | | | | | 1 | | W W Z S S S S S S S S S S S S S S S S S |
| | ime: 13:5 | | | | | | 7 | WI - AF-20 SAMPLE TIME | 1-MW-4P-0218 |

WI-AF-FBOI-021318 @ 14:00 FIELD REAGENT BLANK WI-AF-EBOY-021318 @ 14:20 [EBON NEW TUBING, BONDED] WI-AF-EBOY-021318 @ 14:25 [EB ON NEW PUMP BLADDECS]



Signature(s):

| Client: | VAVFAC | | | GROUNDWATER SAME Project Number: | | | Page: | of 1 | | | |
|----------------------------|------------|----------------|-------------|-------------------------------------|------------------|----------------|--------|-----------------|----------------|--|--|
| Location: A | Ault Field | | | | | N29-22D | i ago. | 1 01 | | | |
| Event: F | ebruary 2 | 2017 Groundwat | er Sampling | | | 9-220-02 | 18 | | | | |
| Date: | | 14/18 | | Sampling Team: J. ULRICH | | | | | | | |
| Weather: | CLOUDY, | LIGHT MAIN | Low 40's"F, | | M. EN | 00 | | | | | |
| Total Depth: 165 FT.(BTOC) | | | | Me | easuring Device: | SOLUTER | | # 5996 1910a | | | |
| Depth to water: | | (-) 15.01 | FT.(BTOC) | INITIAL 8 89557 | | | | | ev) 1137775 | | |
| Water Column: | | 89,99 | FT. | | | | | | #21346 \$ 0195 | | |
| | | (x) 0.163 | GAL/FT. | | Well Dia. | Volume | | | / - | | |
| Well Volume | e: | 14.67 | GAL. | | (inches) | (gallons/foot) | | | | | |
| Total Purge Vol.: | | | GAL. (ON | 02/14/16 = 14.5GAL) | 1 | 0.041 | | | | | |
| | | | | | 1.25 | 0.064 | | | | | |
| Purge Devic | e: | GEO CONTRO | - Pao # C | 103202 | (2) | 0.163 | | | | | |
| | | | 11 | | | 12.222 | | | | | |

| | | O MIZZER | CHOUSER. | | | 4 | 0.003 | | |
|-------------|-------------------------|--------------|--------------------------------|--------------------------------------|------------------|-------------------------|-------------------|----------------------|---------------------------|
| | Maybe and a | | (1) EV-1 | PARAMET | TER STABIL | IZATION CRI | TERIA | | - 0 3.0 m - 2 m - 2 |
| Pa | rameter | Temp. °C | Cond. mS/cm | DO mg/L | pH SU | ORP mV | Turbidity NTU | DTW ft BTOC | |
| Criteria | | ±0.1 | ±0.01 (if <1) ±0.02 (if >1) | if <1) ±0.05 (if <1) ±0.2 (if >1) | ±0.1 | ±10 | ±10 % ≤ 10 NTU | ±0.3 (low flow) | - |
| | ASSE | | | | FIELD PARA | METERS | | | |
| Time | Purge Vol. (gals) | Temp. | Cond. mS/cm | DO mg/L | pH SU | ORP mV | Turbidity NTU | DTW ft BTOC | Color / Odor / Comments |
| 1034 | -1 | - | | - | * | | _ | 9/11/19 | initial, adi |
| HOOD | | - | - | * | | - | - | 12.01 | flow to attend |
| 1000 | A 64 | 1001 | - 000 | | 7 | - | | 13.40 | |
| 1105 | 0.04 | 10,24 | 0.833 | 2.11 | 8.16 | 191 | 14.8 | 15.09 | PHAGEWELL |
| 1549 | | 1 | | | | | | 94.97 | DRY due to |
| | | | | | | | | 11.1+ | drawdown |
| | | | | | | | | | Nicommont In |
| @134 | 3 DTW= | 73.63 bro | c, ~11 | SALLONS F | ourbied. | CONTINUE | PURGE. | | Allow to pu |
| | | | | | | | | | , |
| Sample infe | ormation; matha | nd anntaines | avenhar sina | | | 4 | | | |
| ample init | ormation: metho Anal | | number, size, | and type, pre Preser | | | Container require | omanta | No of contribution |
| | 7 11 141 | yolo | | 1 16361 | valive | | ontainer require | aments | No. of containers |
| | 19 | | | | | | | | |
| bservatio | ns/Notes: Co | ntinua | l dirai | u down | (Q | U Now | | Air Monitoring: | |
| Ouma Ctar | ~ L | 54 ml 1 | cycle. | losev | X. X7 | fourte- | | VOC (ppm)= | 6.6 0.0 |
| unip Star | Initial Fill Time | (ET: coc): | 10 | | Final Fill Tim | walter | | H2S (ppm) | 0.0 0.0 |
| | Initial Dischar | (11, 300). | , 0 | | rillai rili I II | ne: 17- arge Time: 2 | 2 | LEL (%)= | 0 0 |
| | ui Discridi | go inne(D1, | 550j. ZJ | | i iliai Discili | arge rille: 2 | - 3/ | CO (ppm)= O2 (%)= | 0.0 0.0 |
| | | | | | Purge Rate: | | 1 | 02 (%)= | |
| ump Den | th: 96.9 | 1500 | | | | | 4) well | purged t | pump intak arge. Total |
| | 1000 | | | | | | Allou | s to recha | urge TOLO |
| Sample /Ti | me: | | | | | | ~ 1 | 4.5 gals | 0 ,0,00 |
| //S/MSD | | | | | | | Duplicate ID: | - | |
| | * | | | | | | | | |

ON 02/15/18 @ 8920 DTU = 94.73' bTOC (PORP IN WELL). A RISE OF 8.24' FROM 02/14/18 @ 1549. PULL PUMP @ 8945 & SECURE WELL, AWAITING FURTHER INSTRUCTIONS FROM P.LAWSON/ J. HOSTON. ON 02/17/18 @ 1718 DTW = 94.48' bTOC (PUMP OUT OF WELL). A RISE OF 8.49' FROM 02/14/18 @ 15:49.

| Client: | NAVFAC | | | | | PLING DATA 695610.04.F | | Page: \ | of \ |
|-----------|---|---------------------------|----------------|---------------|----------------|---------------------------|--------------------------|-----------------|--|
| ocation: | CONTRACTOR OF REAL PROPERTY. | | | | | | 4-MW-3 | | |
| vent: | February 2017 | Groundwate | er Sampling | * | | | WM-3-0 | 218 | |
| ate: | 21171 | 18 | | San | pling Team: | | Which i | M. End | 2 |
| eather: | Highwin | | sunto | | 15. | 3.0 | VIV CVI | TO CATON | |
| otal Dep | 0 60 | 1383. | FT.(BTOC) | rain | | | and Della | 11 1 | 11 2134 |
| epth to v | | | FT.(BTOC) | , 00170 | | Mi | easuring Device: | | U-5000# 019 |
| ater Col | - | 14.69 | FT. | | | The second | | | eae Plus # 11: |
| utor our | (x) | | GAL/FT. | | 4.16 | Well Dia. | Values | Geoted | n water level- |
| ell Volui | | 9.08 | GAL. | 7 | | (inches) | Volume (gallons/foot) | | |
| otal Purg | | 9,50 | GAL. | | | 1 | 0.041 | 1 | |
| | _ | 1100 | | | - Alkahari | 1.25 | 0.064 | 1 | |
| urge Dev | vice: (| SenTel | H Port | able ? | 213 | 2 | 0.163 | 1 | |
| | | Bladder | | # 142 | ч | (4) | 0.653 | 1 | |
| | | JI Tay CV | Entuit | 4 1 1 | ,55 | | 0.000 | 1 | |
| | | 1111 | THE T | PARAMET | ER STABILI | ZATION CRIT | TERIA | | |
| | 7.5 | Temp. | Cond. | DO | pН | ORP | Turbidity | DTW | |
| Par | rameter | °C | mS/cm | mg/L | SU | mV | NTU Î | ft BTOC | |
| | | - 4 | + 17 | | | 1 | | | |
| C | riteria | ±0.1 | | ±0.05 (if <1) | ±0.1 | ±10 | ±10 % | ±0.3 (low flow) | |
| | | | ±0.02 (if >1) | ±0.2 (if >1) | ±0.1 | 7.10 | ≤ 10 NTU | To:0 (10M 110M) | |
| | | | | | | | | | |
| | Duren Val | Taran | 01 | | IELD PARA | | | T | Property and the control of the cont |
| Time | Purge Vol. (gals) | Temp. °C | Cond. mS/cm | DO mg/L | pH SU | ORP mV | Turbidity NTU | ft BTOC | Color / Odor / Comments |
| 33 | initial | _ | | mg/L | _ | 1117 | MIO | 108.82 | No water. Ad |
| 045 | Mind | ~ | | | | | | 68.99 | No water. Ad |
| 0 0 | 1.5 | | | _ | | | >1000* | 60.19 | Water hid hy |
| 110 | 2.25 | | | _ | _ | _ | >1000 | 69.03 | Brown unit 4 |
| 308 | 8.00 | - | | | _ | | 71000 | 69-03 | water clears. |
| 310 | 8,30 | 13.03 | 1.04 | 2.17 | 7.85 | 49 | 399 | 69.03 | Begin waterque |
| 315 | 8.60 | 13.09 | 1.04 | 2.10 | 7.89 | 30 | 392 | 69.01 | redding |
| 320 | 8.90 | 13.11 | 1.03 | 1.05 | 7.99 | -21 | 315 | 109.03 | |
| 325 | 9.20 | 13.16 | 1-03 | 1.03 | 7.81 | - 28 | 309 | 109.01 | |
| 330 | 9.50 | 13.18 | 1.03 | 1.03 | 7.83 | - 67 CU | 303 | 69-02 | ORP=-37 |
| | | | | | ь | | | | |
| nple info | ormation: metho | | number, size, | | | | | | |
| | Anal | | | Preser | vative | | Container requiren | nents | No. of containers |
| | PFAS | | | | | *EW | 4 on pol | y (125mz) | 2 |
| | | | | | | | HOPE ' | U | |
| | | | | | | | | | |
| | no/Notes: | | | 1.12.11 | V | | | | |
| servation | HOMINULES. IN | itial_ | - gals | My Mid | Turbid | Wisnal | objervation | Air Monitoring: | HS BZ |
| servatio | | 3 | JUE | 1100 | DVIO | to con | to clear | AOC (bbm)= | .0 0-6 |
| | | - 1 | . 15 | 15 al | Final Fill Tim | a la | flow | 129 (bbm) () | 0 0.6 |
| mp Star | t Time: 103 | | 10-13 | | III III III | | | LEL (%)= O | 0 0 |
| mp Star | t Time: 1 0 ろ Initial Fill Time | (FT; sec): | 10 x | | Final Dicoho | rae Time | | | |
| ımp Star | t Time: 103 | (FT; sec): | 10 x | | Final Discha | rge Time: | | | |
| | t Time: 103 Initial Fill Time Initial Dischard | (FT; sec): ge Time(DT; | 10 x | 1215 | | | | 02 (%)= 20 | |
| ump Star | t Time: 1 03 Initial Fill Time Initial Dischard | (FT; sec): ge Time(DT; | 10 x | 1215 | | rge Time: 13 | | | |
| ımp Star | t Time: 103 Initial Fill Time Initial Dischard | (FT; sec): ge Time(DT; | 10 x | 1215 | | | | | |
| mp Star | t Time: 103 Initial Fill Time Initial Dischard | (FT; sec): ge Time(DT; | sec): 201 | 1215 | | | JPM. | 02 (%)= 20 | .9 20.9 |
| mp Star | t Time: 103 Initial Fill Time Initial Dischard | (FT; sec): ge Time(DT; | sec): 201 | 1215 | | | jpm | 02 (%)= 20 | |

GRADO SAMPLE TAKEN AFTER 342 PURGE, ALL PARAMETERS STABLE EXCEPT PH (2.3%) AND ORP (35%)
HIGH TURBIOLTY, SAMPLE TAKEN AFTER DISCUSSION W/ P. LAWSON.

| | | | | GROUNDWATER SAM | | | | | | | |
|--------------------|------------|----------------|-------------|------------------------|---------------|-----------------|--------|------|------|------------|-------|
| Client: | NAVFAC | | | Project Number | : 695610.04.F | I.FS | Page: | 1 | of | 2 | |
| ocation: | Ault Field | | | Well ID | : WI-AF-MW | 201 | | | | | |
| Event: | February | 2017 Groundwat | er Sampling | Sample ID | : WI-AF- MV | 1-201-021 | 8 | | | | |
| Date: | 02/1 | 7/18 | | Sampling Team | : M.E | NO 0 | | | | | _ |
| Neather: | PARTLY | CLOUDY, LOW | 40's SW W | imes @ 15-20 mph. | | | | | | | = |
| Total Dept | th: | 98. 28 | FT.(BTOC) | | Me | easuring Device | HOWE | -ل 4 | 52 | 2134 2135 | HE 63 |
| Depth to w | water: | (-) 86.71 | FT.(BTOC) | INITAL, NO PUMP O | | | CAECTE | CHI | ALLT | 5 60 | |
| Vater Col | umn: | 11.56 | | S THE POINT O | | | MULT | TRAS | PLUS | PM-50 # | 11.2 |
| | | (x) 0.163 | GAL/FT. | | Well Dia. | Volume | SOLIN | ST I | 02 W | LT # 17838 | 1137 |
| Vell Volur | me: | 1.88 | GAL. X3 = | 5-656AL | (inches) | (gallons/foot) | | | | | |
| otal Purg | ge Vol.: | 5.75 | GAL. | 00 (4) 2 | 1 | 0.041 | | | | | |
| | | | | | 1.25 | 0.064 | 1 | | | | |
| urge Dev | vice: | GEOTECH B. | MODER PUM | p # 1424 | (2) | 0.163 | | | | | |
| rocky and and con- | | 7 | A | CALL COLUMN | 4 | 0.000 | 1 | | | | |
| | | GEOCOSTAGL | Y20 # C10 | 3202 | 4 | 0.653 | 1 | | | | |
| | | CHECCO NTAOL | YRO # CIC | | | | | | | | |
| | | Temp. | Cond. | PARAMETER STABIL DO pH | | | J DTW | | | | |

| | 7-37 | 10 25 | | PARAMET | ER STABILI | ZATION CRI | TERIA | | |
|------------|----------------------|---------------------|---|---|-------------|---------------|---|--|---|
| Pai | rameter | Temp. °C | Cond. mS/cm | DO mg/L | pH SU | ORP mV | Turbidity NTU | DTW ft BTOC | |
| С | riteria | ±0.1 | | ±0.05 (if <1) ±0.2 (if >1) | ±0.1 | ±10 | ±10 % ≤ 10 NTU | ±0.3 (low flow) | |
| | and the second | | | F | IELD PARA | METERS | | | |
| Time | Purge Vol. (gals) | Temp. °C | Cond. mS/cm | DO mg/L | pH SU | ORP mV | Turbidity NTU | DTW ft BTOC | Color / Odor / Comments |
| 304 | NA - | | | | | | - × | 86.77 | NA |
| 309 | NA - | | | | | | \rightarrow | 86 - 75 | NO ODOIL, NO SHEET |
| 3:42 | NA - | | | | | | | 86.85' | MOSTLY CLEAR |
| 3:48 | 2.5 | 16.21 | 0.944 | 9.57 | 6.60 | 120 | 14.5 | 86.85 | MOSTLY CLEAR NO COOK, NO SHEEN CLEAR, NO FOOL NO SHEEN |
| 3:53 | 2.75 | 14.65 | 0.934 | 8.66 | 7.04 | 103 | 11.3 | 86.85 | 11 |
| 3:58 | 3.0 | 14.27 | 00925 | 7.81 | 7.11 | 100 | 8.88 | 86.85 | // |
| 4:03 | 3.25 | 13.74 | 0.929 | 7.58 | 7-24 | 98 | 6.38 | 86.85 | 11 |
| 4:68 | 3.50 | 13.52 | 0.928 | 7.16 | 7.28 | 98 | 4.79 | 86.85 | ri . |
| 4:13 | 3.75 | 13.54 | 0.928 | 7.302 | 7-30 | 99 | 4.56 | 86.85 | a. |
| 4:18 | 4.0 | 12.40 | 0.929 | 6.25 | 7.25 | 103 | 3,56 | 86,85 | H |
| 4:23 | 4.25 | 13.49 | 0.928 | 5.76 | 7.32 | 101 | 2,95 | 86.85 | ч |
| ample info | ormation: metho | | number, size, | | | ed. | 100000 | Total Co | |
| | Ana | lysis | | Presen | /ative | (| Container requirem | nents | No. of containers |
| | METHOD 5 | S37 (PFI | 45) | NonE, | 6.5 | 1 | 25 ML HOPE | POLT | 2 |
| bservation | ns/Notes: No | AVAILABLE BLE GIVEN | E HORISA W 33, EXCEP AGE TIME: (10.5% OFFI | QM @ STA T DO (G 10 = 1-75 4 ns =). > 3 wi | T. ©13 | POCKE FORESS: | UP HORIBA. OTCHSTOS TABLE EXCEPT O. PROCEED TO SAMUE. | Air Monitoring: VOC (ppm)= H2S (ppm) | BZ HS 0.0 0.0 0.6 0.0 |
| | Initial Dischar | | | F | inal Discha | rge Time: | 22 | CO (ppm)= | 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 |
| | | | | F | | 0 1309 | = 180 ML | | 16.9 20.9 |
| _ | | (Tr | 0000 | | 7 | | | | |
| | | | oump = c | | -de | | | 1.6 | a |
| ump Dept | | | | | -de | nk (w1-1 | AF-FB01-0 | 021718) (0- | 1448. 1455 |

| Client: | NAVFAC | | | Proj | | : 695610.04.F | | Page: 2 | of Z |
|--------------------------|--|-------------|----------------|-------------------------------|----------------|---------------|--------------------|-------------------------------|-------------------------|
| Location: | THE REAL PROPERTY AND ADDRESS OF THE PARTY ADDRESS OF THE PARTY AND ADDRESS OF THE PARTY AND ADDRESS OF THE PARTY AND ADDRESS OF THE PARTY AND ADDRESS OF THE PARTY AND ADDRESS OF THE PARTY AND ADDRESS OF THE PARTY AND ADDRESS OF THE PARTY AND ADDRESS OF THE PARTY AND ADDRESS OF THE PARTY AND ADD | 70 1 1 | 0 " | | | : WI-AF-MW | | | |
| Event: | February 201 | | er Sampling | | | | 1-101-0218 | | |
| Date: Weather: | 02/17/18 | | | San | ipling leam | J. ULR | | | |
| Total Dani | | | CT (DTOO) | | | | | | |
| Total Dept Depth to v | | V | FT.(BTOC) | | | Me | easuring Device: | | |
| Water Col | | | FT. | | 1 |) | | | |
| | (x |) | GAL/FT. | SEE P | 2.1 | Well Dia. | Volume | 1 | |
| Well Volum | me: | | GAL. | Sec | | (inches) | (gallons/foot) | | |
| Total Purg | ge Vol.: | | GAL. | | | 1 | 0.041 | | |
| D D | | | | | | 1.25 | 0.064 | | |
| Purge Dev | /ice: | | | | | 4 | 0.163 0.653 | | |
| | - | | | | | 4 | 0.003 | | |
| | E-149- | | | PARAMET | ER STABIL | ZATION CRIT | TERIA | | |
| | | Temp. | Cond. | DO | рН | ORP | Turbidity | DTW | |
| Par | rameter | °C | mS/cm | mg/L | SU | mV | NTU | ft BTOC | |
| С | riteria | ±0.1 | | ±0.05 (if <1) ±0.2 (if >1) | ±0.1 | ±10 | ±10 % ≤ 10 NTU | ±0.3 (low flow) | |
| 49 11-33 | | | 1 | | IELD PARA | METERS | | | |
| Time | Purge Vol. (gals) | Temp. °C | Cond. mS/cm | DO - mg/L | pH SU | ORP mV | Turbidity NTU | DTW ft BTOC | Color / Odor / Comments |
| DE CO | 4.50 | 13.37 | 0.930 | 5.47 | 7.28 | 103 | 3.06 | 86,85 | H |
| 14:33 | 4.75 | 13.35 | 0.933 | 5.23 | 7.30 | 103 | 3.15 | 86.85 | 10. |
| 14:38 | 5.0 | 13.22 | 0.934 | 5.00 | 7.38 | 100 | 5.70 | 86.85 | ř) |
| 14:43 | 5.25 | 13.16 | 0.933 | 4.76 | 7.38 | 101 | 7.76 | 86,85 | 11 |
| 14:48 | 5.50 | 13.17 | 0,930 | 4.50 | 7.31 | 166 | 3.78 | 86.85 | " |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| Sample info | ormation: meth | | number, size, | and type, pre | servative us | ed. | | | |
| | Ana | llysis | | Preser | vative | C | Container requirer | nents | No. of containers |
| | | / | | 0/ | | | | | |
| | | (| SEE | 06. 1 | | | | | |
| | | | | | | | | | |
| Observation | ns/Notes: | | | | | | | Air Monitoring: VOC (ppm)= | |
| Pump Star | t Time: | | | | | | | H2S (ppm) | |
| | Initial Fill Tim | VE. C. 1081 | | | Final Fill Tir | | | LEL (%)= | |
| | Initial Dischar | rge Time(DT | sec): | , | Final Discha | arge Time: | | CO (ppm)= | |
| | | | (35.8 | PG. 1 | Purge Rate: | | | O2 (%)= | |
| Pump Dep | th: | | (30) | | | | | | |
| Sample /Ti | me: | | | | | | | | |
| MS/MSD | 31277 | | | | | | Duplicate ID: | | |
| Signature(s |): | | | | | | | | |

GROUNDWATER SAMPLING DATA SHEET

| | | - | - | | CONTRACTOR STATE | LING DATA | Physical physics are a second | | , 0 | 1 1 -11 - | 8 |
|-----------------------------|--|----------------------------|--------------------------------|-------------------------------|--|--------------------------|--------------------------------------|--|---------------|--|---------|
| | AVFAC | | | Proje | | 695610.04.F | | Page: | of 2 | - | - |
| | ult Field | | | | | WI-AF-MW | | 210 | | | - |
| _ | ebruary 2017 (| | Sampling | | A COLUMN TO THE REAL PROPERTY. | | V-200 -0 | | | | _ |
| | 12/18/19 | | - /- | | pling Team: | | Smmons | | | | _ |
| Veather: 2 | 34°F,5 | / work | Rain/C | buond | | 7.11 | rich/pp | χ | 1 | g 7 (C) | 1-25 |
| otal Depth: lepth to wat | ter: (-) < | 33.69 | FT.(BTOC) | | | Me | easuring Devices | Horiba Solinst | VI-53 Made | 110213 | 0+#4 |
| /ater Colun /ell Volume | (x) (| 2.163 | FT. GAL/FT. GAL. | | | Well Dia. (inches) | Volume (gallons/foot) | 1 | | | |
| otal Purge | | | GAL. | | | 1 | 0.041 | | | | |
| | 7.7 | 1757 | | | | 1.25 | 0.064 | 130 | | | |
| urge Devic | e: C | 100 CON | TROL PK | 20 | | 2 | 0.163 | -> | | | |
| | P | dadde | r tump | | | 4 | 0.653 | | | | |
| | | | | | | | | | | 1 9 | n C |
| | - | Tama | 0-4 | | Digital Control of the Control of th | ZATION CRIT | | DTW | T | 1 1/200 | - |
| Para | meter | Temp. °C | Cond. mS/cm | DO mg/L | pH SU | ORP mV | Turbidity NTU | ft BTOC | | | 4 |
| Crit | teria | ±0.1 | ±0.01 (if <1) ±0.02 (if >1) | ±0.05 (if <1) ±0.2 (if >1) | , ±0.1 | ±10 | ±10 % ≤ 10 NTU | ±0.3 (low flow) | | | |
| | | | 37.0 | | FIELD PARA | METERS | | | | | |
| Time | Purge Vol. (gals) | Temp. °C | Cond. mS/cm | DO mg/L | pH SU | ORP mV | Turbidity NTU | DTW ft BTOC | Color / Oc | dor / Comments | |
| 0:25 | Inital | 11.12 | 0.497 | 0.94 | 7.86 | 136 | 40.1 | 84.02 | Sightly | murky. No c | dor |
| 0:30 | 750 | 11.07 | 0.496 | 0.92 | 7.86 | 134 | 32.0 | 84.02 | 8 3 | 0 " | |
| 0.35 | 1500 | 11.07 | 0.498 | | 7.86 | 130 | 29.2 | 84.02 | U | u | 4 |
| 0.40 | 2 250 | 1093 | | 0.88 | 7.87 | 127 | 23.2 | 84,02 | a | וו | 4 |
| 0.45 | 3000 | 10.84 | | 0.90 | 7.94 | 120 | 20.9 | 84,02 | li | | 4 |
| 0:50 | 3750 | 10.56 | 0.501 | 0.82 | 7.92 | 115 | 17.9 | 84.02 | | ·- Al- | 100 |
| 0/55 | 4500 | 10.34 | 0.505 | | 7.90 | 110 | 15.1 | 84.02 | CIE. | ar, Noa | Police |
| | 5,250 | 10.20 | 4 6 4 | | 7.92 | | AL . | 84.02 | u | 21 | 4 |
| 1:05 | 6750 | | | 0.86 | 7.97 | 100 | 10.7 | 84.02 | a | 11 | - |
| 1:10 | 7500 | | | A- | - | 1 | 10.7 | 84.02 | 0 | - 15 | 1 |
| | mation: metho | | | | | | 10.7 | 187.02 | 01100 | 90000 | i i |
| inple into | Ana | | | | rvative | | Container requirer | ments | No. o | f containers | 1 |
| PER | | 37 | | Unpres | 5.4°C | 125 | mL POI | y | 1 |) | 1 |
| | k) | | | 1 | | - ' | | J | | | |
| | | | | | | - | | | | | 1 |
| ump Start | S/Notes: Pur | (FT; sec): | 33 | nove f | Final Fill Tir | me: 17 | aonej | Air Monitoring VOC (ppm)= (CO) H2S (ppm) (CO) LEL (%)= (CO) CO (npm)= (CO) |) | Brestu O O O | ilveg = |
| P | he source | -58f | si ps | 2) | Purge Rate | ien. | 1 /2: | 02 (%)= 2 | 0.9 | | ŕ |
| | V. F | | | make | just to burge un | ifer 10: | 10 375 | mL/min | (AD:RI | narge) | |
| | 1 | ,C | | . 11.14 | • 3 | 10: | 1000 | | | | 4 |
| | | - | 10 | , | | | Duplicate ID: | N/A | | | |
| ir tr P | nitial Fill Time nitial Discharg ne Source n: 102 8 ne: 11:5 | (FT; sec): ge Time(DT; -58 | 33 sec): 2= 31 PS | 7 | Final Fill Tir Final Disch | me: 1+ arge Time: : ISOv | 26 nL/min. me Flox 10 375 | LEL (%)= C CO (ppm)= C O2 (%)= 2 V (ML/min ML/min | 9.9 | 10000000000000000000000000000000000000 | 1 |

| Client: NAVFAC | | | Proj | | 695610.04. | | Page: 2 | of Z | | - |
|--------------------------|------------------|----------------|---------------|----------------|------------|-------------------|---------------------|----------------|---|--------|
| Location: Ault Field | 0 | OII | | | WI-AF-MW | | 0210 | | | - |
| Event: February 2017 | | Sampling | | | | IN-200- | 1.0.0 | <u> </u> | | - |
| | 18 | | | pling Team: | 3 7 | tzsimmo | | 0 | _ | - |
| Weather: 34 of | Snow/ | Rain/ | Cloudy | | J 1 | Inch/ | PDX | | 11- | 1,250 |
| Total Depth: 1 0 | 7.71 | T.(BTOC) | 0 | | M | leasuring Device | : Horiba Solinst | V-53 | Lot#: | 14259 |
| Depth to water: (-) | | FT.(BTOC) | | | | | Schinst | Model | 102 Lot | #4842 |
| Water Columns | | FT. | | | | | | | | |
| (x) | 0.1103 | GAL/FT. | | | Well Dia. | Volume | 1 | | | |
| Well Volume: | | GAL. | | | (inches) | (gallons/foot) | | | | |
| Total Purge Vol.: | v3.5 | GAL. | | | 1 | 0.041 | | | | |
| | | | | | 1.25 | 0.064 | 1 | | | |
| Purge Device: (| Jeo CON | TRO. P. | RO | | 2 | 0.163 | 1 | | | |
| | Bladder | | | 1 | 4 | 0.653 | | | | |
| - | Modern | Turipe | | | | | - | | | |
| | 3 115 | | PARAMET | ER STABILI | ZATION CRI | TERIA | | | | |
| | Temp. | Cond. | DO | pH | ORP | Turbidity | DTW | | | |
| Parameter | °C | mS/cm | mg/L | SU | mV | NTU | ft BTOC | | | |
| | 15 1 2 1 | | | | | | | | | |
| Criteria | | | ±0.05 (if <1) | ±0.1 | ±10 | ±10 % | ±0.3 (low flow) | | | |
| Sinona | 20.1 | ±0.02 (if >1) | ±0.2 (if >1) | 20.1 | 110 | ≤ 10 NTU | ±0.5 (1011 11011) | | | |
| | | | | | | | | | | |
| | | | | IELD PARA | | | | | | |
| Time Purge Vol. (gals) | Temp. °C | Cond. mS/cm | DO mg/L | pH SU | ORP mV | Turbidity NTU | DTW ft BTOC | Color / Odor / | Comments | |
| 11.20 8,250 | 9.72 | COSOT | 0.86 | 8.01 | 98 | 10.0 | 84.02 | Clear. 1 | NO 00 | cr. |
| 11:25 9,000 | | 0.508 | 0.86 | 8,02 | 95 | 8.86 | 84.02 | 3 | 1, | |
| 11:30 9,750 | | 0.508 | | 8.01 | 95 | 775 | 84.02 | u | 11 | |
| 11:35 10,500 | | 0.509 | 0.85 | 8.04 | 90 | 8.05 | 84.02 | " | 71 | |
| 11:40 11.250 | | 0.511 | 0.84 | 8.07 | 83 | 38.05 | 884.02 | ((| 11 | |
| 11:45 12,000 | 17.19 | 0511 | 0.85 | 8.06 | 85 | 8.01 | 84.02 | ((| 11 | |
| All para | meters | 212 | ble. P | roceec | wir | th Sur | nother. | | | |
| in a coll picking of | | | | 1111 | | | 1 | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | 4 | | | | | n | 4 | | |
| Sample information: meth | nod, container r | number, size, | | | | | | SALL SE | | |
| An | alysis | | | rvative | | Container require | | No. of co | ntainers |) |
| PFAS 5 | 37 | | Vapre | s. 4°C | 128 | ml Pol | Ч | 2 | | |
| 9 | | | | | | | 0 | | 7 6 11 | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| Observations/Notes: | | | | | | | Air Monitoring | IR | reathin | 4 Zono |
| 1.0 | | | | | | | VOC (ppm)=C | | 0 | 5-1.0 |
| Pump Start Time: 10 | :00 | | | | 1- | | H2S (ppm) O | 16 |) | |
| | e(FT; sec): | 33 | | Final Fill Tir | ne: \ + | | LEL (%)= O | 10 | 5 | |
| | rge Time(DT; | | | Final Discha | arge Time: | 26 | CO (ppm)= (|) } | ۲ I | |
| | 58 p | | | | 100 | | 02 (%)= 20 | 9 12 | 000000000000000000000000000000000000000 | |
| | - Jop | | | Purge Rate: | 150 n | nL/min | 20 | 12 | 0.01 | |
| | | | | | | | | , | | |
| Pump Depth: 02 | 76 | | | | | | | | | |
| | 50 | | | | | | | | | |
| Sample /Time: 11 | <u>U</u> | / | | | | | | | | |
| MS/MSD N/A | 0 | MA | V. | | | Duplicate ID: 1 | VA | | | |
| Signature(s): Man | 11.0 | 11 | - | | | | | | | |

| CM | LIV | M. | | | | | | | | |
|--|--|-----------------|-----------------|---------------|------------------|----------------|--|--|--|-------------------|
| | | SM | | GROUNDW | ATER SAMP | LING DATA | SHEET | | | |
| Client: | NAVFAC | | | Proj | ect Number: | 695610.04.F | I.FS | Page: \ | of \ | |
| The state of the s | Ault Field | | | | | WI-AF- MY | | | | |
| | | 18 Groundwate | r Sampling | | | | N-202-021 | | | |
| Date: | 02-20 | | | Sam | pling Team: | | simmons/F | COD | | |
| Weather: | 29°F, | cold/clo | udy/parti | alsun | | J. Uln | ch/PDX | | | |
| Total Depti | h: | 15.34 | FT.(BTOC) | | | Me | easuring Device: | Horiba 2 | 1-52 Lot | #:01956 |
| Depth to w | | 1.67 | FT.(BTOC) | | | | | Solinst Mod | del 102 | |
| Water Colu | ALEXANDER OF THE PARTY OF THE P | 13.67 | FT. | | | | | Lot t | +4892 | 5 |
| | | x) 0.163 | GAL/FT. | | | Well Dia. | Volume | | | |
| Well Volum | ne: | 2.23 | GAL. | | | (inches) | (gallons/foot) | | | |
| Total Purge | e Vol.: | ~ 2,2 | GAL. Pur | rged (1) |) well | 1 | 0.041 | | | |
| | | D - | | 0 V | olume. | 1.25 | 0.064 | | | |
| Purge Devi | ice: | Pine En | vir. der | vices | | 2 | 0.163 | | | |
| | 3 | Series 2 | Drive L | t#:19 | 45 | 4 | 0.653 | | | |
| | | | | DADAMET | CD CTABILIT | ZATION COIT | TERIA | | | 《李建 》、"老"。 |
| | | L Tomp | Cond. | DO | ER STABILIZ | ORP | Turbidity | DTW | | |
| Dar | ameter | Temp. | mS/cm | mg/L | SU | mV | NTU | ft BTOC | | |
| | | | | ±0.05 (if <1) | | | ±10 % | | | |
| Cr | riteria | ±0.1 | | ±0.03 (if >1) | ±0.1 | ±10 | ≤ 10 NTU | ±0.3 (low flow) | | |
| 5-20-5 | | | 1±0.02 (11 > 1) | | FIELD PARA | METERS | | | | or a grant of |
| THE SECTION OF THE SE | Purge Vol. | Temp. | Cond. | DO | рН | ORP | Turbidity | DTW | | |
| Time | Purge Vol. | °C | mS/cm | mg/L | SU | mV | NTU | ft BTOC | Color / Odor | r / Comments |
| 10:55 | inital | 8.74 | 0.209 | 2.21 | 6.88 | 106 | 12.5 | 1.77 | Clear. | No odor |
| 11:00 | 1,125 | 8.90 | 0.208 | 1.09 | 6.89 | 111 | 10.5 | 1.77 | 11 | " |
| 11:05 | 2,250 | | 0.208 | 0.74 | 6.88 | 112 | 7.9 | 1.77 | u | 15 |
| 11:10 | 3,375 | 9.25 | 0.207 | 0.65 | 6.89 | 111 | 5-3 | 1.77 | CI | 1) |
| 11:15 | 4,500 | | 0.207 | 0.62 | 6.89 | 110 | 4.6 | 1-77 | u | 3.7 |
| 11:20 | 5,625 | 9.23 | 0.207 | 0.61 | (0.89 | 107 | 4.1 | 1.77 | t, | 3.1 |
| 11:25 | 6,750 | | 0.207 | 0.57 | 68.0 | 104 | 3.9 | 1.77 | и |)) |
| 11:30 | 7,875 | | 0.207 | 0.57 | 6.89 | 103 | 3.8 | 1.77 | u | 1) |
| AII | parar | neters | Stable. | Procee | d wit | K SOY | ubling. | | | |
| | | | | | | | , , | | | |
| | | | | | | | | | | |
| | | + | | | | | - | | | |
| Carrala laf | | the description | | and tunn no | saas intiivo uos | A PROPERTY AND | AND AND AND AND AND AND AND AND AND AND | TO THE RESERVE TO THE | Total Visibility | OWNERS WITH MAN |
| Sample into | | thod, contained | number, size, | | ervative | | Container requirer | mente | No of c | containers |
| DTA | \$ 53 | nalysis 1 | _ | | - 4°C | | | Herits | 7 | ontainers |
| L+V | 0 00 | 4 | | dripres | | 120 | ml poly | | | |
| Observation | ns/Notes: | 110010 | nerista | 14 | ena All | 1 | 200 100-0 | Air Monitoring: | HS | 1 B7 |
| Obdervatio | 110/110/00 | nsea 9 | periore | ime po | 1116 - 411 | purge | parameters 2. Clow speed clow Well | =(mag) OOV | HS 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 | N 0 0 0 9 |
| | | were p | scea Jo | D 101 | W-710M | purge | 2. Clow Speed | H2S (ppm) | 0 | 0 |
| | | - Water | in well | , Kcmov | ed wat | er to be | clow well | LEL (%)= | 0 | 0 |
| Pump Star | rt Time: 10 | 0:45 | cab | | | | | CO (ppm)= | O | 0 |
| | | ime(FT; sec): | _ | | Final Fill Ti | me: — | 2 N/A | O2 (%)= | 20.9 | 20,9 |
| | Initial Discl | narge Time(DT | T; sec): — | | Final Disch | arge Time: | -3NA | | | A.A. |
| | | | | | | | | | | |
| Pump End | Time: | :40 | | | Purge Rate | : 225 0 | n L/min | | | |
| | | | | | | | | | | |
| Pump Dep | oth: 9 | St bt | COC | | | | | | | |
| | | | | | | | | | | |
| Sample /T | | 35 | 1 | | | | B P 1 16 - | 1/6 | | |
| MS/MSD | NA | A | 11 | | | | Duplicate ID: | O/A | | |
| Signature(| s): | Com | 111 | n | ~ | | | | | |
| | // | | // | | | | | | | |
| | U | 0 | | | | | | | | |
| | | | | | | | | | | |

| THE STATE | | | | GROUNDWA | TER SAMP | LING DATA | SHEET | | |
|--------------------------|--|--------------|------------------------|--------------|--------------|-----------|--|---------------------|-------------------------|
| Client: | | NAVFAC | | Proje | ect Number: | 6950 | 10.04.FL. | FS | |
| Location: | MASWI | AULT P | IELD | | Well ID: | MW-3 | 204 | | |
| Event: | GW Sampl | | | | Sample ID: | WI-A | F-MW-204. | -0218 | |
| Date: | 2120118 | | | Sam | pling Team: | J. W. | rich S. F | itasimmon | 2 |
| Weather: | Partlya | ondy, 32 | OF | | | | | ~ | |
| Total Dept Depth to w | h: 14 | | FT.(BTOC) FT.(BTOC) | | | Me | easuring Device: Date and Time: | Hor. bau- | 53426410 |
| Water Colu | | | FT. | | | | | Solinist w | |
| | (x) | | GAL/FT. | | | Well Dia. | Volume | | tel 102 # 3087741 |
| Well Volum | The state of the s | 2.81 | GAL. | | | (inches) | (gallons/foot) | (200) | |
| Total Purg | e Vol.: | .00 | GAL. | | | 1 | 0.041 | | |
| | | | | | | 1.25 | 0.064 | | |
| Purge Dev | ice: P | arestal tre. | Pumpta | 14951 | | 2 | 0.163 | | |
| i digo bot | | | | uinch HD | pe 4 | 4 | 0.653 | | |
| | 1 | Master P | lex | uinun HI | 7-10-1 | | | ı | |
| | | | | | SAMPLE | DATA | | | |
| Date: | | Temp. | Cond. | DO | рН | ORP | Turbidity | Other: | Color / Odor / Comments |
| Time: | | °C | mS/cm | mg/L | SU | mV | NTU | Other. | Color / Cdor / Comments |
| Method: | | | | | | | | | |
| | Value of the last | | | | IELD PARA | WETERS | | | |
| | Purge Vol. | Temp. | Cond. | DO | pH | ORP | Turbidity | trans de la company | |
| Time | | °C | mS/cm | mg/L | SU | mV | NTU | Other: DTU | Color / Odor / Comments |
| 1514 | (gals) | C | IIIO/CIII | mg/L | - 50 | IIIV | INTO | 8.99 | clear, Sonepart |
| | intial | 11.29 | 0,394 | 6.09 | 6 57 | 131 | 23.7 | 9.02 | Orcho para opar |
| 15 20 | 0.25 | 11.29 | 0.407 | 5.20 | 6.59 | 136 | 4.51 | 9.02 | * water clears |
| 1525 | 0.50 | | 0.407 | 5.12 | 6.59 | 137 | 3.0 | 9.02 | |
| 1535 | 1.00 | 11.29 | 0.408 | 5.03 | 6.50 | 143 | 3.0 | 9.02 | |
| 1540 | 1.00 | 11,23 | 0.100 | 5.05 | 9.90 | . 12 | 1 0.1 | 1.02 | |
| 1070 | | | | | | | | | |
| | | | | | | | + | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| Cample inf | ormation; maths | d container | number size | and type pro | corvative us | ad a | | | |
| Sample ini | ormation: metho | | number, size | | rvative | | Container requirer | mente | No. of containers |
| | Anal | | | riese | valive | L | | nents | 2 |
| | PFA | 0 | | | | | lon pely | | × |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| Observatio | ns/Notes: | | | | | | | | |
| | | | (| (bbw) | | | | | |
| Pump Star | rt Time: 151 | 6 | | VOC Readin | | | co (ppm): 2 |). 0 | |
| | | | | H_S (Ppm) | 0.0 | | -11 | 0 10 00 | |
| Pump Dep | oth: 12 ft 8 | BTDC | | LEL(%) | | | Co (ppm): 2 | 70.1 | |
| | | | | L-1/10) | 0.0 | | - | | |
| | ime: 1540 | | | | | | | | |
| MS/MSD | ~ | | | Duplicate ID | No.: - | | | | |
| Signature(| s): | | | | | | | | |

Ch2m: **GROUNDWATER SAMPLING DATA SHEET** of 1 Project Number: 695610.04.FI.FS Page: Client: Well ID: WI-AF- N2 5 MOUR mw-3-0 tion: Ault Field Sample ID: WI-AF- AD-5-0218 WI-AF-MW-3-0218 February 2018 Groundwater Sampling Event: Sampling Team: J. Which S. Fitzsimmons 2120118 Date: Weather: Measuring Device: HORBA U-53 # 26410 FT.(BTOC) Total Depth: Multi Rae # 0103:115 FT.(BTOC) Depth to water: FT. Solinist water level Water Column: 2,31 Well Dia. Volume (200') model 10+ #3087741 GAL/FT. (x) 0.163 (gallons/foot) (inches) GAL. Well Volume: 200 0.041 GAL. 1 Total Purge Vol.: #24851 1.25 0.064 x use 14 inch HDPE tubing ? (2) 0.163 Purge Device: 0.653 4 master flex PARAMETER STABILIZATION CRITERIA DTW ORP **Turbidity** Cond. DO рН Temp. ft BTOC NTU SU mV **Parameter** °C mS/cm mq/L ±10 % ±0.01 (if <1) ±0.05 (if <1) ±0.3 (low flow) ±0.1 ±10 Criteria ±0.1 ≤ 10 NTU ± 0.02 (if >1) ± 0.2 (if >1) FIELD PARAMETERS DTW Turbidity ORP DO Ha Purge Vol. Cond. Temp. Color / Odor / Comments Time NTU ft BTOC SU mV °C mS/cm mg/L (gals) clear, polorle ritial 9.3 0 mi 1.29 reduce low ra 1.53 5.42 77 6.90 0.129 1118 0.5 32 76.0 hr 1.31 1.48 5.68 4.84 0.8 0.120 1123 1.31 3.8 0 0 OUE 20 5.69 6.55 0-118 43 1128 127 3.1 1.31 5.69 .49 0.118 44 1133 1.31 127 0.122 44 5.6 1138 1,9 6.49 Sample information: method, container number, size, and type, preservative used. No. of containers Container requirements Preservative Analysis Air Monitoring: HS BZ Observations/Notes: USING Peristaltic Pump w/ 1x use dedicated VOC (ppm)= 0.0 00 H2S (ppm) 00 0.0 LEL (%)= TUBING 00 CO (ppm)= 0-0 Pump Start Time: 11 13 0.0 02 (%)= Final Fill Time: 20.91 Initial Fill Time(FT; sec): 20.9 Final Discharge Time: _ Initial Discharge Time(DT; sec): Purge Rate: 0.079pm Pump End Time: Primp Depth: 9 \$1 BTOC

Duplicate ID:

Sample /Time: 1140

MS/MSD - Signature(s):

| ala | 2000 | | |
|-----|------|-----------------|--------------------|
| | | P _{Su} | |
| | | | GROUNDWATER SAMPLI |

NG DATA SHEET Project Number: 695610.04.Fl.FS NAVFAC Client:

Well ID: WI-AF-MW

Sampling Team:

Sample ID: WI-AF- MW-N2-78-0218

J. Wrich

2/15/17 Date:

February 2018 Groundwater Sampling

Weather: CLOUDY, UPPER 305 TO LOW 40'5°F

Total Depth: Depth to water:

Location: Ault Field

Event:

FT.(BTOC) 20.22 7.25 FT.(BTOC)

FT. Water Column: GAL/FT.

Well Volume: GAL. GAL. Total Purge Vol.:

Purge Device:

GEO CONTROL PRO # C103 202 GEOTECH BLADDER DUMP # 1478

| Measuring Device: | Horisa | 0-52 | Wan | # 21346 |
|-------------------|--------|------|-----|---------|
| 70 | | | | Each |

Page:

MULTIME (11.7eV) # 1137775

| Well Dia. (inches) | Volume (gallons/foot) |
|-----------------------|--------------------------|
| 1 | 0.041 |
| 1.25 | 0.064 |
| (2) | 0.163 |
| 4 | 0.653 |

| | - | | | PARAMETI | ER STABILIZ | ATION CRIT | ERIA | | | |
|------------|----------------------|--------------|------------------|-------------------------------|----------------|------------|-------------------|-------------------------------|-------------|--------------|
| Para | ameter | Temp. °C | Cond. mS/cm | DO mg/L | pH SU | ORP mV | Turbidity NTU | DTW ft BTOC | | |
| Cr | iteria | ±0.1 | | ±0.05 (if <1) ±0.2 (if >1) | ±0.1 | ±10 | ±10 % ≤ 10 NTU | ±0.3 (low flow) | | |
| | | | | F | IELD PARA | METERS | | The second | | Marine Co. |
| Time | Purge Vol. (gals) | Temp. | Cond. ÷ mS/cm | DO_ mg/L | pH SU | ORP mV | Turbidity NTU | ft BTOC | Color / Ode | or / Comment |
| 目55 | initial | NN - | | | | | -1 | 7.287 | N | A |
| 502 | NA | NA - | | | | | | 7.35 | N | |
| 510 | 0.25 | 11.94 | 0.997 | 2.12 | 7.39 | 175 | 21.1 | 7.40 | NO ODOL | , NO SHEEN |
| 513 | 0.5 | 12.04 | 1.61 | 1.66 | 7.13 | 173 | 19.7 | 7-40 | 0 | |
| 516 | 0.75 | 12.03 | 1.02 | 1.45 | 7.10 | 176 | 19.8 | 7.40 | A | |
| 1519 | 1.0 | 12.62 | 1.02 | 1.28 | 7.18 | 172 | 18.9 | 7.40 | | SHEEN |
| 1512 | 1-25 | 12.03 | 1.61 | 1-10 | 6.98 | 172 | 16.7 | 7.40 | 21 | |
| 1525 | 1.50 | 12.01 | 0.992 | 0.99 | 6.98 | 166 | 14.1 | 7.40 | | |
| 1528 | 1.75 | 12.01 | 0.971 | 0.98 | 7.15 | 158 | 13.6 | 7.40 | D D | |
| 1531 | 2.0 | 11.97 | 0,932 | 0.88 | 7.18 | 155 | 13.1 | 7,40 | | |
| 1534 | 2.50 | 11,93 | 0.897 | 0.84 | 7.16 | 152 | 11-1 | 7.40 | " | |
| ample info | ormation: meth | od, containe | r number, size | | | | | | L N 7 | . Admin |
| | | alysis | | | rvative | | Container require | Webseller . | No. of | containers |
| , | JETHOD 5 | 37 - PF | n _s | No NE | E"C | | 125ml Po | СУ | | |
| Observatio | ns/Notes: * | ADTOSTED V | LUME, NO F | WILLIAME C | HANGE, | | | Air Monitoring: VOC (ppm)= | HS 6.0 | BE 0.0 |
| Pump Star | t Time: 15 | 55 | | | | | | H2S (ppm) | 0.6 | 0.0 |
| 32 | Initial Fill Tim | ne(FT; sec): | 423 | 15 | Final Fill Tir | me: \ | 5 | LEL (%)= | θ | 0 |
| | Initial Discha | rge Time(D | T; sec): 15 | 5 | Final Disch | arge Time: | 8 | CO (ppm)= | 0.0 | 0.0 |
| | | × | | | Purge Rate | · 6 = | 225 ml | O2 (%)= | 20.9 | 20.9 |
| | oth: 1469 | 16.0'5 | 70(| | | | | | | |
| | | | | | | | | | | |
| Sample /T | ime: 600 |) | | | _ | | Duplicate ID: | | | |

ch2m

Signature(s):

| | | €M. | | GROUNDWA | TER SAMP | LING DATA | SHEET | | |
|-------------|--------------------|-------------|----------------|-------------------------------|--|-------------|--------------------------|---------------------------|-------------------------|
| Client: | NAVFAC | | | | 200000000000000000000000000000000000000 | 695610.04.F | | Page: 2 | of Z |
| Location: | The second second | | | | Well ID: | WI-AF-MW - | N2-75 | | |
| | February 2017 | Groundwate | r Sampling | | Sample ID: | WI-AF- Mu | -N2-75-0 | 218 | |
| Date: | | | | | The state of the s | H. ENDO | | | |
| Weather: | 02/15/1 OVER(A) | | F | | | J. VLA | | | |
| | | , | | | 7 | | | | |
| Total Depti | | 0.22 | FT.(BTOC) | | | IVIE | easuring Device: | | |
| Depth to w | | 7.25 | FT.(BTOC) | | | | 1 | | |
| Water Colu | | | FT. | 0(| 3. 1 | | | r | |
| | (x) | | GAL/FT. | SEE Pl | / | Well Dia. | Volume (gallons/foot) | | |
| Well Volum | 10.75 | | GAL. | 30 | | (inches) | 10 | | |
| Total Purg | e Vol.: | | GAL. | | | 11 | 0.041 | | |
| | | | | | | 1.25 | 0.064 | | |
| Purge Dev | rice: | | | | | 2 | 0.163 | | |
| | | | | | | 4 | 0.653 | | |
| | | | | DADAMET | ED STARILL | ZATION CRI | TERIA | | La santiente de Sale |
| | | Toma | Cond | DO | рН | ORP | Turbidity | DTW | |
| Den | rameter | Temp. | Cond. mS/cm | mg/L | SU | mV | NTU | ft BTOC | |
| Par | ameter | U | 4.5/. | 1119/2 | | | | Marie Marie San Committee | |
| | | | | ±0.05 (if <1) | | | ±10 % | | |
| C | riteria | ±0.1 | ±0.01 (if <1) | ±0.05 (ii <1) ±0.2 (if >1) | ±0.1 | ±10 | ≤ 10 NTU | ±0.3 (low flow) | |
| | | | 10.02 (11 > 1) | 10.2 (11 2 1) | | | | | |
| | | 241123 | | F | IELD PARA | METERS | | 100 | The Miles |
| | Purge Vol. | Temp. | Cond. | DO | рН | ORP | Turbidity | DTW | Color / Odor / Comments |
| Time | (gals) | °C | mS/cm | mg/L | SU | mV | NTU | ft BTOC | |
| 1537 | 2.75 | 11.90 | 0.859 | 0-80 | 7.04 | 155 | 9.6 | 7.40 | NO SHEEN |
| 1540 | 3.0 | 11.87 | 6.825 | 0.78 | 6.92 | 155 | 7.9 | 7.40 | fi |
| 1543 | 3.25 | 11.85 | 0.801 | 0.75 | 7.02 | 143 | 6.5 | 7.40 | " |
| 1346 | 3.50 | 11.83 | 0.783 | 0.75 | 6.96 | 140 | 5.5 | 7,40 | <i>(l</i>) |
| 1549 | 3.75 | 11.81 | 0.757 | 0-74 | 6.92 | 145 | 4.9 | 7-40 | 7 |
| 1552 | 4.0 | 11.80 | 0.746 | 0.73 | 7.03 | 136 | 4.2 | 7.40 | 21 |
| 1555 | 4.25 | 11.81 | 0.733 | 0.71 | 6.82 | 145 | 4.0 | 7.40 | a |
| 1000 | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | The second second | |
| Sample in | formation: meth | | r number, size | | | ied. | Container require | mente | No. of containers |
| | Ana | alysis | | Prese | rvative | - | Container require | ments | 140, or cornainor |
| | | | | | _ | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| 21 | M1 (A) | | . F = F - 1 | TARLE SAG | 2 20 1111 | THE ENG | EPT CONDUCTIVE | Air Monitoring | |
| Observation | ons/Notes: ① | WHICH IS | WITHIN 3 | 1. AND L | 1 MS/cm | PROCEED | TO SAMPLE | VOC (ppm)= | |
| | | | | | | | _ | H2S (ppm) | |
| Pump Sta | | | | | Final Fill T | | | LEL (%)= | |
| | Initial Fill Tin | | | | NORTH AND DESCRIPTION OF THE PARTY OF THE PA | | | CO (ppm)= | |
| | Initial Discha | arge Time(D | i; sec): | | rinal Disci | narge Time: | | | |
| | | | | | Purge Rate | | | O2 (%)= | |
| | | | | | ruige nati | J. | | | |
| Pump De | onth: | | | | | | ř | | |
| rump De | pui. | | | | | | | | |
| Sample / | Time: 160 | 0 | | | | | | | |
| MS/MSD | | | | T | | | Duplicate ID: | | |

GROUNDWATER SAMPLING DATA SHEET Page: of Project Number: 695610.04.FI.FS NAVFAC Client: Well ID: WI-AF-MW-N2 - 3 Location: Ault Field Sample ID: WI-AF- MW-N2-3-0218 February 2017 Groundwater Sampling Event: Sampling Team: M. ENDO Date: 02/16/18 TO LOW HO'S'F, K. RABE Weather: CLOUDY, LIGHT MAIN SW WINDS 3-6 mph 122.83 Measuring Device: HOABA U-SZ # FT.(BTOC) Total Depth: GEOTECH ULT # 5996 (-) 112-25 FT.(BTOC) Depth to water: MULTIPAE # Water Column: FT. 10.58 Well Dia. Volume GAL/FT. (x) 0.163 (gallons/foot) (inches) GAL. Well Volume: 1.7 0.041 1 GAL. Total Purge Vol.: 1.75 0.064 1.25 2 0.163 GEOCONTROL PRO **Purge Device:** 0.653 GEOTECH BLADDER PURP PARAMETER STABILIZATION CRITERIA

| Criteria ±0.1 ±0.01 (if <1) ±0.05 (if <1) ±0.1 ±10 ±10 % ±10 % ±0.3 (low flow) FIELD PARAMETERS | Par | rameter | Temp. | Cond. mS/cm | DO mg/L | pH SU | ORP mV | Turbidity NTU | DTW ft BTOC | | |
|--|-----------|------------|---------|---------------------|------------|-------------|-------------|------------------|--|--------------|------------|
| Time Purge Vol. Temp. Cond. DO. pH NTU mV NTU mBTOC \$53 NA | C | riteria | ±0.1 | | | ±0.1 | ±10 | | ±0.3 (low flow) | | |
| Time (gals) **C ms/cm mg/L SU mV NTU ft BTOC COOPT CONTINUES (gals) **C ms/cm mg/L SU mV NTU ft BTOC COOPT CONTINUES (gals) **C ms/cm mg/L SU mV NTU ft BTOC COOPT CONTINUES (gals) **C ms/cm mg/L SU mV NTU ft BTOC COOPT CONTINUES (gals) **C ms/cm mg/L SU mV NTU ft BTOC COOPT CONTINUES (gals) **C ms/cm mg/L SU mV NTU ft BTOC COOPT CONTINUES (gals) **C ms/cm mg/L SU mV NTU ft BTOC COOPT CONTINUES (gals) **C ms/cm mg/L SU mV NTU ft BTOC COOPT CONTINUES (gals) **C ms/cm mg/L SU mV NTU ft BTOC COOPT CONTINUES (gals) **C ms/cm mg/L SU mV NTU ft BTOC COOPT CONTINUES (gals) **C ms/cm mg/L SU mV NTU ft BTOC COOPT CONTINUES (gals) **C ms/cm mg/L SU mV NTU ft BTOC COOPT CONTINUES (gals) **C ms/cm mg/L SU mV NTU ft BTOC COOPT CONTINUES (gals) **C ms/cm mg/L SU my NTU ft SU ms/cm mg/L SU ms/cm mg/mg/L /mg/mg/mg/mg/mg/mg/mg/mg/mg/mg/m | | | | | | TELD PARA | METERS | | | | |
| 12.42 NA | Time | - | | and the new control | | | | | The state of the s | Color / Odor | / Comments |
| 12 12 13 12 13 13 14 14 15 14 15 14 15 15 | 1 6 2 | 10 | | 7.55545021 | | | | | 112.42 | NA | |
| 212 6.1 11.52 1.16 2.60 8.02 18 11.8 11.2.35 " 2157 6.2 11.48 1-17 1.92 8.13 -34 99.4 112.35 " 220 0.2 12.04 1.17 1.57 8.18 -59 69.1 112.35 " 221 0.65 12.14 1.17 1.26 8.20 -71 51.5 112.35 " 222 0.65 12.14 1.17 1.26 8.22 -81 49.6 112.35 " 223 0.95 12.20 1.17 1.08 8.08 -83 43.0 112.35 " 223 0.95 12.20 1.17 1.08 8.07 -85 44.6 112.35 " 233 0.95 12.20 1.17 1.04 8.16 -92 36.4 112.35 " 235).10 12.20 1.17 1.04 8.16 -92 36.4 112.35 " 235).10 12.20 1.17 1.04 8.16 -92 36.4 112.35 " 236 METHOD 537 (PFAs) NONE, 6"C 125 PL 1409E POLY 2 **Disservations/Notes: PARAMETELS STABLE & 12.35 PROCEED TO SAMPLE. Air Monitoring: HS & & & & & & & & & & & & & & & & & & | | | 1).27 | 1.16 | 3.40 | 7.68 | 81 | 123 | 112.35 | NO GOOD, A | JO SHEEN |
| 2187 6-12 11-48 1-17 1-92 8.13 -34 99.4 112.35 112.35 1220 0-2 12.04 1.17 1.57 8.18 -59 69.1 112.35 112.35 1223 0-5 12.12 1.17 1.40 8.20 -71 51.5 112.35 12.35 12.24 1.17 1.26 8.22 -81 49.6 112.35 12.24 1.17 1.15 8.08 -83 43.0 112.35 12.24 1.17 1.08 8.07 -85 44.6 112.35 12.25 | | | | | | | 18 | | | 11 | |
| 220 0.3 12.04 1.17 1.57 8.18 -59 69.1 112.35 No space, be sinked 223 0.5 12.12 1.17 1.40 8.20 -71 51.5 112.35 | | | | | | | -34 | | | | A. S. F. |
| 223 0.5 12.12 1.17 1.40 8.20 -71 51.5 112.35 112.35 12.14 1.17 1.26 8.22 -81 49.6 112.35 112.35 12.29 0.80 12.19 1.17 1.15 8.08 -83 43.0 112.35 1 | | | | 1.17 | 1.57 | 8.18 | -59 | 69-1 | 112-35 | NO GDOR | DC SHEEN |
| 226 0.65 12.14 1.17 1.26 8.22 -81 49.6 112.35 1.29 1.17 1.15 8.08 -83 43.0 112.35 1.232 1. | | | 12.12 | | 1.40 | 8-20 | -71 | 51.5 | 112.35 | | |
| 229 | | | | | 1.26 | 8,22 | -81 | | | | |
| 232 0.95 12.28 1.17 1.08 8.07 -85 44.6 112.35 11 235).10 12.20 91.17 1.04 8.16 -92 38.4 112.35 11 ample information: method, container number, size, and type, preservative used. Analysis Preservative Container requirements No. of containers Mod Method 537 (PFAs) NONE, 6°C 125° NL HDDE POLY 2 Disservations/Notes: PARDMETECS STABLE @ 12.35. PROCEED TO SAMPLE. Air Monitoring: HS VOC (ppm)= 4.6 6.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4 | | | | | | 8.08 | -83 | | | | |
| Analysis Preservative Container requirements No. of containers Mod Method 537 (PFAs) None, 6'C 125 Processor To Sample. Disservations/Notes: Parameters Stable © 1235, Processor To Sample. Initial Fill Time(FT; sec): 15 Initial Discharge Time(DT; sec): 25 Purp Rate: 112.5 mL/min Pump Depth: 117 btoc (Tot of Pump © 115.4' b Toc) | | | 12.20 | 1.17 | 1.08 | | -85 | 1000 | | | |
| Analysis Preservative Container requirements No. of containers Mcd Method 537 (PFAs) None, 6°C 125°mL HDFE Poly 2 Observations/Notes: PARAMETELS STABLE © 1235, PROCEED TO SAMPLE. Air Monitoring: HS VOC (ppm)= HS (ppm) H2S (p | 1235 | | 12,20 | 4.17 | 1-84 | 8.16 | -92 | 38.4 | 112.35 | 71 | |
| Analysis Preservative Schildren requirements Mod Method 537 (PFAs) None, 6°C 125°nL HDPE poly 2 Disservations/Notes: Parameters STABLE © 1235, Proceed to Sample. Air Monitoring: HS VOC (ppm)= HS (ppm) Poly Poly Poly Poly Poly Poly Poly Poly | Sample in | | | r number, size | | | ed. | Container requir | ements | No. of c | ontainers |
| Disservations/Notes: PARAMETERS STABLE © 1235, Proceed to Sample, VOC (ppm)= HS VOC (ppm)= HS (ppm) H2S (p | | | | 1.5. | 20/28-24 | | | | | | |
| Pump Start Time: 1145 Initial Fill Time(FT; sec): 15 Initial Discharge Time(DT; sec): 25 Purge Rate: 112.5 mL/min Pump Depth: 117 bToc (Tor or pump @ 115.4 b foc) | | POD MET | HOD 537 | (Prns) | 10001 | 160 | | | | | |
| Initial Fill Time(F1; sec): Initial Discharge Time(DT; sec): 25 Final Discharge Time: 27 Purge Rate: 112.5 mL/min Pump Depth: 117 broc (ros of pump @ 115.4 broc) | | art Time: | 15 | | © 1235, | | | | VOC (ppm)= H2S (ppm) | 0.0 | 0.0 |
| Pump Depth: 117 bTOC (TOS OF PUMP @ 115.4 b TOC) | | | | | | Final Disch | narge Time: | - 27 | CO (ppm)= | 1 | 0-0 |
| Sample Time: 1240 Equipment BLANK TAKEN AFTER DECON @ 1455 (WI-AF-EBE | Pump De | epth: \\ | 7 bTOC | (Tot of | pump 6 | 115.4' | b roc) | | | , | |
| | Sample / | /Time: 124 | ٥ | | | Equipme | NT BLAN | C TAKEN A | TEL DECONS C | 1455 (| NI-AF-EB |

MS/MSD

Mank Signature(s):

| lient: | NAVFAC | | | Proje | | 695610.04.F | | Page: | of 2 |
|------------|------------------|---------------|--|------------------|---------------|-------------|-------------------|-----------------|------------------------|
| ocation: | Ault Field | | | | | WI-AF-MW | | | |
| vent: | February 2017 | Groundwater | Sampling | | 4 | | J-N2-8 - 02 | .18 | |
| ate: | 02/16/18 | | | A | oling Team: | | | | |
| /eather: | CLOUDY, RAIN | v, Low to | MID 401 F | Sw winds | G. | KATIK | E RABE | | th 21346 |
| otal Depti | | | FT.(BTOC) | 7- | O who | Me | easuring Device: | HORIBA U-S | 52 # 019564 |
| epth to w | | | | @ 1419 , m | W. 61 W. 0 | (00 | | GEOTECH W | 工# 5996 |
| ater Colu | - | | FT. | ۵۱,۱۳۱ ک | TIAL, NO P | O | | MULTIRAE | M 1137775 |
| vator ook | | | GAL/FT. | | | Well Dia. | Volume | | |
| Vell Volun | | | GAL. | | | (inches) | (gallons/foot) | | |
| otal Purg | | 1.75 | GAL. | | | 1 | 0.041 | | |
| | | | | | | 1.25 | 0.064 | | |
| urge Dev | ice: G | EC TECH B | LADDER PUR | mp # 1425 | | (2) | 0.163 | | |
| | G | ECTECH GE | OCCUPTION P | 10 # 1425 | 9 | 4 | 0.653 | | |
| | | | | C103 | 202 | | | | |
| 100 | | | | PARAMET | ER STABILIZ | ZATION CRI | | | |
| | | Temp. | Cond. | DO | pН | ORP | Turbidity | ft BTOC | |
| Par | rameter | °C | mS/cm | mg/L ~ | SU | mV | NTU | ILBIOC | |
| | | | | | | | 10.01 | | |
| c | riteria | ±0.1 | | ±0.05 (if <1) | ±0.1 | ±10 | ±10 % ≤ 10 NTU | ±0.3 (low flow) | |
| | | | ±0.02 (if >1) | ±0.2 (if >1) | | | 3 10 10 10 | | |
| | | | | | IELD PARA | METERS | 19 2 | | |
| | Purge Vol. | Temp. | Cond. | DO | жрН | ORP | Turbidity | DTW | Color / Odar / Common |
| Time | (gals) | °C | mS/cm | mg/L | SU | mV | NTU | ft BTOC | Color / Odor / Comment |
| 1555 | | OMP DER | THE STATE OF THE S | | | | | 55.38 | NA |
| 1633 | 0.5 | 10.68 | 3.65 | 7.66 | 13.84 | 23 | 126 | 58,76 | NO ODOL, NO SHEE |
| 1638 | 0.55 | 10.64 | 3.71 | 6.89 | 13.85 | 8 | 117 | 58:70 | 71 |
| 1643 | 0.60 | 10.61 | 3.75 | 6.63 | 13.93 | -15 | 116 | 58.69 | 31 |
| 1648 | 0.65 | 10.74 | 3.77 | 6.41 | 13.95 | -36 | 122 | 58.81 | 11 |
| 16.53 | 0.75 | 10.86 | 3.79 | 6.32 | 13.96 | -56 | 142 | 58,88 | 71 |
| 16 58 | 0.80 | 10.86 | 3.79 | 6.34 | 13.95 | -67 | 142 | 58.95 | -0 |
| 1703 | 0.85 | 10.93 | 3.75 | 6.69 | 13.96 | -76 | 148 | \$0,59.0 | it. |
| 1768 | 0.90 | 10.94 | 3.72 | 5,79 | 13.98 | -81 | 147 | 59.6 | |
| 1713 | 0.95 | 10,97 | 3.67 | 5.60 | 13.94 | -84 | 152 | 59.05 | G G |
| 1718 | 1.0 | 10.95 | 3.56 | | 13.91 | -85 | 163 | 59.0 | |
| Sample in | formation: meth | od, container | r number, size | e, and type, pre | eservative us | ed. | n restauration | | N. A. A. A. A. |
| | An | alysis | | Prese | rvative | | Container require | | No. of containers |
| | METHOD | 537 | | NON | 2,6.6 | | 125 mc 1+ | DUE POLY | 2 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | 1. | Air Monitoring | : BZ HS |
| Observati | ions/Notes: > | PH REAL | omen an | 1 4144; 6 | SUMP TEST | HOLIBA | WI AUTO CAL | VOC (ppm)= | 0.0 0.0 |
| | | | P11 - 7.30 | Cara sa. | 9) | | | H2S (ppm) | 6.0 0.0 |
| Pump Sta | art Time: 16 | | · A | | Chal Cill T | ime: 2 | 2 | LEL (%)= | 0 6 |
| | Initial Fill Tir | | | | Final Fill T | | | CO (ppm)= | |
| | Initial Discha | arge Time(D | Γ; sec) : 36 |) | Final Disci | narge Time: | 25 | O2 (%)= | 0.6 0.0 |
| | | | | | Purne Rate | e: @ 163 | 13 = 40 mL/m. | OZ (/0)- | 20-9 20-9 |
| | T-1700 | OF PUMP | 7 | | i aigo nati | 6 164 | 3 = 50 ML/mi | 0 | |
| Pump De | anth: 105 | 15 1/20 | sucr | | m/ mm / | | , , , | | |
| rump De | chin. [16.2 | ,10 =1 | 7 300 | EDTH | 166.75 | DICC | | | |
| Cample | /Time: 17 | 10 | | | | | | | |
| MS/MSD | | 10 | | | | | Duplicate ID: | | |
| Signatur | | 1 0 | Ro | | | | | | |

| NAVFAC | | | | | 695610.04.F | I.FS | Page: 2 | of 2 |
|--------------------|--|--|--|--|--|--|------------------------------|--|
| Ault Field | | | | | | | | |
| ebruary 2017 | Groundwater | Sampling | | The state of the s | | | 8 | |
| 02/16/18 | | | Samp | oling Team: | | | | |
| | | | | | IL. RA | 8 € | | |
| 100 | | ET (BTOC) | | | Me | easuring Device: | | |
| | | | | 1 | | | | |
| | | ET.(BIOC) | , | | | | | |
| | | GAL/ET | GE PLAN | | Well Dia. | Volume | | |
| | | GAL | | / | 100000000000000000000000000000000000000 | (gallons/foot) | | |
| | | | | | (A | 0.041 | | |
| | | GAL | | | 1.25 | TI STONE STONE | | |
| | | | | | | | | |
| ce: | | | | | - Alaka | | | |
| - | | | | | | 31335 | | |
| | | The state of the | PARAMET | ER STABILI | | | e de la comp | |
| | Temp. | Cond. | DO | pН | | | | |
| ameter | °C | mS/cm | mg/L | SU | mV | NIU | ILBIOC | |
| | | | | | | LONG TO SERVICE STATE OF THE PARTY OF THE PA | | |
| Marie Control | 10.1 | ±0.01 (if <1) | ±0.05 (if <1) | +0.1 | +10 | | ±0.3 (low flow) | |
| riteria | ±0.1 | ±0.02 (if >1) | ±0.2 (if >1) | 20.1 | 210 | ≤ 10 NTU | | |
| | | | | | METERS | | | |
| | | 100 | | | | T. obtate | DTW | |
| Purge Vol. | Temp. | A STATE OF THE STA | 2 70 | | | NTU | ft BTOC | Color / Odor / Comments |
| | | *************************************** | | | 1000 | 170 | 59-4 | NO COOL, NO SHE |
| | | _ | | | | | | 4, |
| | | | | | | | | 11 |
| 1, 25 | 10.87 | 3.18 | 4.69 | 13.87 | - 87 | 177 | 27.0 | |
| | | | | | | | - | |
| | | | | | - | | | |
| | | | | | | _ | | |
| | | | | | | | | |
| | | | | | - | | | |
| | | | | | - | _ | | |
| | | | | | | + | | |
| | | | | | 1 | | | |
| formation: meth | od, containe | r number, size | e, and type, pr | eservative u | sed. | Ot-land seguite | monto | No. of containers |
| An | alysis | | Prese | ervative | | Container require | HITEHIO | 140, or contamore |
| | | | | | _ | | | |
| | ELE P | 9-1 | | | - | | | |
| | | | | | | | | |
| | | | | | | | Air Monitorina | |
| ons/Notes: | HI PANA | METRIS S | TABLE (| 9 1733, | EXCLPT | (Comp 3 | 100 miles 16 1741 | |
| | PULLE THE | 11 ARE 8 | % AND 9% | DIFFERE | HT RESPE | CT IVELY | , APARA 330 | (21, |
| art Time: | 0.00 | - 1- 2 11/ | IS, LIMITE | | | CAMPLE OF THE | S AMARIA GEORGIA | PG. , |
| Initial Fill Tir | ne(FT; sec): | | | 101000000000000000000000000000000000000 | | | | |
| Initial Disch | arge Time(D | T; sec): | | Final Disc | harge Time: | | CO (ppm)= | |
| | | | | 1227 | | | 02 (%)= | |
| | | | | Purge Rat | te: | | | |
| | | | | | | | | |
| | | | | | | | | |
| epth: | | | | | | | | |
| | | | | · | | | | |
| epth: Time: 74 | 10 | | | | | Duplicate ID: | | |
| | Ault Field February 2017 O 2 / 11 / 12 :: ater: (-) mn: (x) e: a Vol.: Ce: Purge Vol. (gals) - 0 5 - 1 0 1 2 5 - 2 5 - 1 0 1 2 5 - 2 5 - 3 1 0 - 4 5 - 4 5 - 4 5 - 5 6 - 6 5 - 7 6 - 7 7 - | Ault Field February 2017 Groundwater O 2 / 11 / 18 It ater: (-) mn: (x) e: Vol.: Ce: Temp. ° C iteria ±0.1 Purge Vol. (gals) ° C 1 - 6 5 1 - 10 - 10 - 88 1 - 2 5 1 - 10 - 87 Cons/Notes: All PARA O O HICKORY Purge Vol. Purge Vol. Formation: method, container Analysis | Ault Field February 2017 Groundwater Sampling O 2 11 18 FT.(BTOC) FT.(BTOC) FT. (x) GALFIT. GA | Ault Field -ebruary 2017 Groundwater Sampling 0 2 / 11 / 18 Sample Example Sampling | Sample D: Samp | Sample D: Well D: Wi-AF-MW Sample D: Wi-AF-MW M. F. M. M. M. M. M. M. | Well Dia Wi-AF-MW - N2 - 6 | Well Dia. Well |

| nt: | NAVFAC | | - Tale | GROUNDW/ Proje | ATER SAMPI ect Number: | | | Page: | of | | | | | |
|--------|------------------|-------------|---------------|---------------------------|--|------------|-------------------|-----------------|-------------------------|--|--|--|--|--|
| 1000 | Ault Field | | | Well ID: WI-AF-MW - N 2-9 | | | | | | | | | | |
| | February 2017 | Groundwater | Sampling | | | | W-N2-9. | -0218 | | | | | | |
| | | 8 | | Sam | pling Team: | | | M. Ends | | | | | | |
| ther: | 3 1 3 | | , 43°F | | | | | | | | | | | |
| X. | () | J | 1 | aner- | | 14. | anusina Douloo | no. 11: -0 | e Plus # 1137 | | | | | |
| Dept | | | FT.(BTOC) | SEENOT | ES | IVIE | easuring Device. | MINIT - F CA | 5000 #W7V | | | | | |
| h to w | | 50.46 | | | | | | HOKIBA U- | 1 | | | | | |
| r Colu | | | FT. | | | Well Dia. | Volume | Bestech | Water level #5 | | | | | |
| Volun | | 0.163 | GAL. | | | (inches) | (gallons/foot) | THE TEN | | | | | | |
| | | 1.53.0 | | | | 1 | 0.041 | | | | | | | |
| ruiy | | JUP | · | | | 1.25 | 0.064 | 1 | | | | | | |
| Dev | | | Portabl- | e | | (2) | 0.163 | 1 | | | | | | |
| | | ladder | | | | 4 | 0.653 | 1 | | | | | | |
| | | | Pro # CI | 03202 | | | | | | | | | | |
| | Cit | o acomoc | | PARAMET | ER STABILIZ | ZATION CRI | TERIA | A CONTRACT OF | | | | | | |
| | | Temp. | Cond. | DO | рН | ORP | Turbidity | DTW | | | | | | |
| Par | ameter | °C | mS/cm | mg/L | SU | mV | NTU | ft BTOC | | | | | | |
| | | | | | | | and the | | | | | | | |
| C | riteria | ±0.1 | | ±0.05 (if <1) | ±0.1 | ±10 | ±10 % ≤ 10 NTU | ±0.3 (low flow) | | | | | | |
| | energanizati | | ±0.02 (if >1) | ±0.2 (IT >1) | | | 3 10 10 10 | | | | | | | |
| | | | | | IELD PARA | METERS | | | The contract of the | | | | | |
| | Purge Vol. | Temp. | Cond. | DO | pН | ORP | Turbidity | DTW | Color / Odor / Comments | | | | | |
| ne | (gals) | °C | mS/cm | mg/L | SU | mV | NTU | ft BTOC | Color / Odor / Comments | | | | | |
| M | 10 7 | | | | | | | 50.45 | | | | | | |
| 2 | incitial | _ | - | - | - | - | _ | 50.53 | Pumpon; wa | | | | | |
| 15 | 0.25 | - | - | 8 | - | - | | 50.53 | Air bubbles clean | | | | | |
| 20 | 0.40 | - | - | ~ | - | - | | 50.53 | connect to Havi | | | | | |
| 10 | 0.70 | 12.03 | 0.701 | 6.40 | 11.06 | 167 | 6.42 | 50.60 | - | | | | | |
| 3) | 1.00 | 11.98 | 0.755 | 5,50 | 10.61 | 162 | 139 | 50.59 | - | | | | | |
| 3 W | 130 | 11.92 | 0.852 | 4.48 | 10.39 | 155 | 87.0 | 50.58 | | | | | | |
| 11 | 1.60 | 11.87 | 0.949 | 3.40 | 10.13 | 151 | 64.3 | | - | | | | | |
| 46 | 1.90 | 11.98 | 1.02 | 2.71 | 10.00 | 148 | 65.6 | 50.63 | | | | | | |
| 51 | 2.50 | 11.98 | 1.04 | 2.75 | 9.97 | 140 | 60.5 | 50.62 | - | | | | | |
| 5 V | ormation: meth | | 00 | 1 3 | | | 0. | | | | | | | |
| e ini | | lysis | number, size | | rvative | | Container require | ments | No. of containers | | | | | |
| | Alla | ayolo | | 1 | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
|) | 2.80 | 11,21 | 1.09 | 2.73 | 9.82 | 139 | 58.1 | 50.62 | - | | | | | |
| rvatio | ons/Notes: | TOBSTE | uction (| 291.90 | . Set : | f GANG | purge | Air Monitoring | | | | | | |
| | | from | hovo. | 90 45 | later 1 | DULLED P | ump up 1.45') | VOC (ppm)= | 0-0 | | | | | |
| Sta | rt Time: | | | .0.13 | | | | LIEG (bb) | .0 | | | | | |
| 1 | Initial Fill Tim | | | | Final Fill Ti | | | LEL (%)= | | | | | | |
| 1 | Initial Discha | rge Time(DT | ; sec): 23 | | Final Disch | arge Time: | 18 | CO (ppm)= 0 | | | | | | |
| | 2 + PUMP | 1325 | Secs Dom | than | Puras Rate | 0010 | 98/5/min | 02 (%)= | 0.9 | | | | | |
| | | | is compri | | ruige nate | . 0.04 | Jan s I mil | | | | | | | |
| n De | | | | CH C-1 | 030320 | 2 | | | | | | | | |
| שט ק | pth: 90.4 | 5 ft BT | Dr. | MP) | | | | | | | | | | |
| | | DOLLA | nd 112 | 500 130E | | | | | AF. FB01-02 | | | | | |
| le / | ime: Lime | | | | The state of the s | | | | | | | | | |
| le / | by 1- ac- | MAT VIS | -9-0219-1 | 4 WI-AF | - MW-N2- | 9-021245 | Duplicate ID: V | UI-AF-MW | - N2-9P-0218 | | | | | |



| ///5/ | ZM |) _{su} | GF | ROUNDWATE | R SAMPLIN | NG DATA SHI 95610.04.FI.F | S P | age: \ of | | |
|------------|---|-----------------|------------------------|-------------------------------|---------------|------------------------------|--------------------------|----------------------------------|------------------|-------------------|
| nt: NA | VFAC | | | | Well ID: W | 11-AF-MW - 1 | 13 -12 | | | |
| otion: A | It Field | | | e. | ample ID: V | VI-AF- MW- | N3-12-021 | 3 | | |
| nt: Fe | bruary 2017 Gr | oundwater S | ampling | Sampli | ng Team: | MARK | ENDO | | | |
| | 00 110 10 | | | | ing rounin_ | r (| 1 A 4 | | | 216 |
| ather: C | 10004 1164 | F SNOW UP | per 20's Low | 301 - | - | | ina Dovice: | HOMBA U-S | 3 WONT | 210 |
| al Depth: | _ 5 | | T (RTOC) |) INITIAL, | ic pump. | Mea 6949J | suring Device. | GEOTECH WE MULTIME P | | |
| ater Colu | nn: | 6.81 | FT. GAL/FT. | | | Well Dia. (inches) | Volume (gallons/foot) | | | |
| ell Volum | e: \ | vII | GAL. 43 = 3 | .33 | | 1 | 0.041 | | | |
| tal Purge | Vol.: | .5 | GAL. | | | 1.25 | 0.064 | | | |
| | | | | # # 14 | 24 | (2) | 0.163 | | | |
| urge Devi | ce: GE | TECH BL | add er pu | mp 1417 | 12-1 | 4 | 0.653 | 1 | | |
| | GE | STECH CO | NITHOL Pro | # # 14 # 4376 | | 1110 | | | | |
| | | | | | | ZATION CRIT | ERIA | | | |
| | | Towns | Cond. | DO | рН | ORP | Turbidity | DTW | | |
| 797 | | Temp. | mS/cm | mg/L | SU | mV | NTU | ft BTOC | | |
| | riteria | ±0.1 | ±0.01 (if <1) | ±0.05 (if <1) ±0.2 (if >1) | ±0.1 | ±10 | ±10 % ≤ 10 NTU | ±0.3 (low flow) | | |
| | | | | | IELD PAR | AMETERS | 1 42 1 5 1 | | | |
| Time | Purge Vol. | Temp. | Cond. mS/cm | DO mg/L | pH SU | ORP mV | Turbidity NTU | ft BTOC | Color / Odor | Comments |
| | (gals) | -0 | 1110/0111 | IIIg/L | | | 1 | 5 2.11 | NA | 7.5 |
| 1024 | NA - | | | | | | | 1 52.14' | MOSTLY CLA | 44 |
| 1033 | NA - | 10 111 | Q OCU | 2.78 | 6.84 | -77 | 3.99 | 52-14 | CLEAT, NO | coorina |
| 1041 | 0-30 | 10.24 | 0.853 | 2.14 | 6.91 | -86 | 3.78 | 52.14 | /1 | |
| 1044 | 0.50 | 1.00 | | 1.97 | 6.94 | -91 | 3.02 | 52.14 | 11 | |
| 1047 | 0.70 | 10.55 | 0.853 | 1.82 | 6.96 | -94 | 2.31 | 52.14 | 11 | |
| 1056 | 0.90 | 10.64 | 0~11 | 1.79 | 6,90 | -92 | 3.11 | 52,14 | 11 | |
| 1053 | 1.10 | 10.61 | 0.851 | 1.67 | 6.96 | -97 | 2.69 | 52.14 | 11 | |
| 1056 | 1.30 | 10.60 | 0,05 | 157 | 6.99 | -100 | 2.87 | 52.14 | 11 | |
| 1059 | 1.50 | | 0.852 | 1.47 | 6,04 | -97 | 2.63 | 52.14 | 4 | |
| 1102 | | 10.70 | 0.350 | 1,43 | 7.00 | -102 | 2.48 | 57.14 | 11 | |
| Sample in | nformation: met | nod, containe | r number, siz | | reservative i | used. | | | Na af | ntologra |
| Janipie II | An | alysis | | Pres | ervative | | Container requ | | _ | ontainers |
| | | METHOD | 537 | No- | 15, b'C | | 725ml | HOPE POLY | 2 | |
| | | | | | | | | | | |
| Observa | tions/Notes: H | oniba wi | em Batter Table out | 1105, pr | oceed | NEW BATT | FRIES IN UNI | VOC (ppm)= H2S (ppm) | 0.0 0.0 | <u>B</u> 2 0.6 |
| Pump S | tart Time: 16 Initial Fill Ti Initial Disch | me(FT; sec) | : 10)T; sec): 14 | 4 | | Time: 18 charge Time: | 10 | LEL (%)= CO (ppm)= O2 (%)= | 6 8.6 26.9 | 0-0 20-9 |
| Pump D | epth: 56 | ft bto | C. | | Purge Ra | ate: 🕲 183 | = 220 | | | |
| Sample | /Time: 10 | | | | | | Duplicate ID | | | |
| MS/MSI | | | | | | | | | | |



| E care | | | | GROUNDW | ATER SAMP | LING DATA | SHEET | | | |
|-------------|----------------|------------------|---------------|---------------|---------------|-------------|-------------------|-----------------|-------------|---------------|
| Client: | NAVFAC | | | Proj | | 695610.04.F | | Page: \ | of | |
| tion: | | | | | | | WI-AF-3-MW | - 2 | | 1 |
| Event: | | 18 Groundwate | r Sampling | | | | W-2-0218 | | | |
| Date: | 02/18/16 | | | | pling Team: | M ARK | | | | |
| Weather: | CLOUDY, 1 | -ow 30's F, N | of B coming | -15 mph. | | ERIC C | UTLEL | | | |
| Total Dept | th: | 98.20 | FT (BTOC) | soft betton | 1 | Ma | assuring Davice: | | 7 21363 | |
| Depth to v | | (-) 56.91 | FT (BTOC) | wi no pump, | | 2057 | easuring Device: | GEOTZCH WZ | C25039 | |
| Water Col | | 41.29 | FT. | mi no toob' | 1311 FE () 1. | | | MULTIPAE P | 64-50 # 11 | 3776 |
| Water Oor | | (x) 0.653 | GAL/FT. | | | Well Dia. | Volume | 1 | 11 40 m | 3/15 |
| Well Volum | | 26.9 | GAL. | | | (inches) | (gallons/foot) | | | |
| Total Purg | - | 1.75 | GAL. | | | 1 | 0.041 | 1 | | |
| | | | | | | 1.25 | 0.064 | | | |
| Purge Dev | rice: | GEOTECH BLAD | DER Puna | #1424 | | 2 | 0.163 | | | |
| | • | CIECTECH CON | | | | 4 | 0.653 | | | |
| | | | 1770 | | | | | | | |
| 医 | | MARINE SOM | | PARAMET | ER STABILI | ZATION CRIT | TERIA | | | PROMINE TO SE |
| | | Temp. | Cond. | DO . | рН | ORP | Turbidity | DTW | | |
| Pa | rameter | °C ' | mS/cm | mg/L | SU | mV | NTU | ft BTOC | | |
| _ | disale | .04 | ±0.01 (if <1) | ±0.05 (if <1) | | | ±10 % | | | |
| C | riteria | ±0.1 + | | ±0.2 (if >1) | ±0.1 | ±10 | ≤ 10 NTU | ±0.3 (low flow) | | |
| W 18 8 8 8 | The lieu lat | | | | IELD PARA | METERS | | | | |
| | Purge Vol | . Temp. | Cond. | DO | рН | ORP | Turbidity | DTW | | 77-2 |
| Time | (gals) | °C | mS/cm | mg/L | SU | mV | NTU | ft BTOC | Color / Odo | r / Comments |
| 1243 | NA | _ | | | | | | 56.5 | | |
| 1254 | NA | | | | | | | 57,32' | | ~ |
| 1324 | 0.30 | 6.77 | 0.812 | 3,06 | 7.90 | 15 | 11.3 | 57.81 | No odor | /chox |
| 1379 | | 663 | 0.314 | 2.70 | 8.07 | 9 | 11.2 | 57.31" | 4 | |
| 1334 | 0.70 | 6.57 | 0.316 | 2.44 | 3.15 | ٦ | 10.5 | 57.31 | 21. | |
| 1359 | 0.90 | 6.45 | 0.818 | 2.28 | 822 | \$ | 10.4 | 57.81 | - 11 | |
| 1344 | 1.10 | 6.32 | 0,820 | 2.20 | 8.26 | 8 | 105 | 57.81- | 0 | |
| 1349 | 1.30 | 6.24 | 0.825 | 2.04 | 8.31 | 8 | 10.9 | 57.82- | 2.1 | |
| 1354 | 1.35 | 6.14 | 0.828 | 1.99 | 8.33 | 9 | 11.1 | 57.82 | TF | |
| 1359 | 1-40 | 6.09 | 0.833 | 2.62 | 8.37 | 9 | 11.6 | 57.84 | - 0 | |
| 1404 | 1.45 | 6.03 | 0.841 | 2.07 | 8.39 | 9 | 10.8 | 57.86 | 11 | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| Sample inf | | ethod, container | number, size, | | | | | | | |
| | | nalysis | | | rvative | | Container require | ments | | containers |
| | METHOD S | 37 (PFAS) | | None | ,6'6 | | 125ml HOPE | POLY | 2 | |
| | | | | | | | | | | |
| Observation | ons/Notes: P | arameters | stable a | + 1404.1 | orn ce est | to samp | he. | Air Monitoring: | | BZ |
| | | | | , v | | - 1 | | VOC (ppm)= | 0.6 | 6-6 |
| | | | | | | | | H2S (ppm) | 6.6 | 0.0 |
| | 1 | 245 | | | | | | LEL (%)= | 0 | 6 |
| Pump Sta | it illie. | | 9 | | Final Fill Ti | 39 | | CO (ppm)= | 0.6 | 0.0 |
| | Initial Fill I | ime(FT; sec): | 23 | | | | - | 02 (%)= | 26.9 | 20.9 |
| | initiai Disc | harge Time(DT | ; sec): | | Final Disch | arge Time: | 2 | | | |
| D C | J.Times (A) | 120 | | | Durana Data | . ~35.11 | min @ 1322 | | | |
| Pump End | d Time: 1 1/94 | 120 | | | Purge Rate | = >35 ML/ | M. 1 (00 1220 | | | |
| Pump De | oth: gq' | 5000 | | | | | | | | |
| 0 | Town Inc. | - | | | | | | | | |
| | ime: 140 | > | | | | | Dunlingt: ID: | | | |
| MS/MSD | 2). | | | | | | Duplicate ID: | | | |
| Signature(| 5). | Yel a | | | | | | | | |

Attachment 5 Groundwater Elevation Data MASWI: Aut Field: Weather: 03/01 47 0F, Sunny 03/0238 0F, Rain (ontoff) 03/01/18-03/02/18 Existing Wells Staff: Mark Green/SAC Shannon Fitzsimmons/ROD WATER LEYEL SURVEY: EXISTING WELLS DTW (ft btoc) TD (ft btoc) DTW TD VOCs 0, LEL H2S Site SI (ft bgs) Locaton ID Date Time Samplers Well Conditions and Additional Comments [09/2017] [09/2017] (ft btoc) (ft btoc) (%) (ppm) (ppm) (%) (ppm) B/02/18 11:34 112.46 122.80 MG/SF Area 2 N2-3 112 - 122 112.6 122.84 209 0 0 0 MG/SF N2-6C Area 2 03/02/18/11 06 58.22 74 09 64 - 74 209 58 74 0 NZ-72 Written on cap not NZ-75. Correct 10 on stak-up MG/SF 20.9 Area 2 N2-7S 8 - 18 03/02/18/11/4 7.39 2036 0 0 11.3 20.33 Sheen in water puddle M4/5F 03/02/18 11:19 56,37 113,38 Area 2 N2-8 33 0 102 - 112 57.1 113.32 20,7 0 surrounding well. MG/SF 03/02/18 11:47 49.68 98.70 0 0 Area 2 N2-9 20.9 0 88 - 98 50.71 98.7 MG/SF 03/02/18 12:10 56.88 98.10 0 209 0 Area 3 3-MW-2 84 - 94 57.43 98.1 0 MG/SF 03/02/18 12:03 52.06 58.95 N3-12 Area 3 48-58 51.61 58.91 20.9 0 0 MG/SF 03/02/18 10-02 69.33 82.78 4-MW-3 209 0 Area 4 69 - 79 69.3 82.74 0 MG/SF 03/02/18 09:12 57.89 65.94 Area 29 52 - 62 209 0 29-MW-4 58.78 65.97 0 MG/SF 13/02/18/09.22/92.72 105,21 0 0 0 209 Area 29 N29-22D Unknown 20.6 105 MG/SF Current Fire 1.62 13 35 0 20.4 0 03/02/18/0:45 MW3 4-14 3.98 13.55 Fighting School MEYSF Current Fire 03/02/18/10 21 794 14.00 209 0 13.98 MW-114 8 - 18 10.2 **Fighting** MG/SFI School Current Fire 03/02/18 10.36 83.45 10760 0 5. 201 MW-200 Unknown 83.44 107.7 Fighting School MG/SF Current Fire 209 0 0 0 98.28 03/02/18 10:31 86.63 78.25 MW-201 Unknown 86.72 0 Fighting School MG/SF Current Fire 03/02/18 10:58 2.15 15.28 209 0 0 15.23 4.45 MW-202 Unknown Fighting Stripped scrows. Labeled as AFRO25 in field. Re-labeled MW-204 Under well lid. MEYSE School Current Fire 03/02/18/10.18 9.47/18.42 209 0 0 18.42 11.68 Fighting MW-204 Unknown School MOYSE Current Fire 03/03/18 10:53 5.57 18.80 209 7.91 18.85 7 - 17 Fighting N2-5 School

STA

ecti

**

Bes'

51

1c

ste

g

General Comments: All locks (albeit new) were rusted and difficult to open.

NASWI: Ault Field

Weather: 03/01 47°F, Synny 03/02 38°F, Rain/ Overcost.

03/01/18-03/02/18 Staff: Mark Green/SAC Shannon Fitzsimmons/ ROD

| Site | Location ID | SI (ft bgs) | DTW (ft btoc) [02/2018] | TD (ft btoc) [02/2018] | Date | Time | (ft btoc) | TD (ft btoc) | VOCs (ppm) | O ₂ (%) | LEL (%) | H₂S (ppm) | CO (ppm) | Samplers | Well Conditions and Additional Comments |
|-----------|--------------|-------------|----------------------------|---------------------------|----------|-------|-----------|-----------------|---------------|-----------------------|------------|--------------|-------------|-----------|---|
| New Wells | WI-AF-MW-805 | 105-115 | 13.75 | 120,6 | 03/02/18 | 15.38 | 13.19 | 120,55 | 0 | 20.2 | 0 | 0 | 0 | MG/ SF | Sheen on water in well. |
| New Wells | WI-AF-MW-606 | 91-101 | 0.25 | 103.74 | 03/02/18 | 15.47 | 0.00 | 103.79 | 0 | 20.9 | 0 | 0 | 0 | MG/SF | |
| New Wells | WI-AF-MW-607 | 101-111 | 3.85 | 104.8 | 03/02/18 | 15:56 | 2.38 | 114.29 | 0 | 209 | 0 | 0 | 0 | MG | Double checked Total Depth. B.ZPASS Returned at 110: |
| lew Wells | WI-AF-MW-608 | 40-50 | 31.7 | 54.5 | 03/02/18 | 15.25 | 30,70 | 54.22 | D | 209 | 6 | 0,8 | 67 | MG/SF | B.ZPASS Returned of 110: Pressurged J-Plug. DTW-30.72 Water above casing. |
| ew Wells | WI-AF-MW-609 | 45-55 | 35,4 | 59.7 | 03/02/18 | 15-19 | 34.17 | 59,35 | 0 | 209 | 0 | 0 | 0 | MGKE | Water above casing. |
| ew Wells | WEAF-MW-610 | 40-50 | NM | NM | 03/02/18 | 15.08 | 37.79 | 54.52 | 0 | 20,9 | 4 | 0 | 18 | MG/SF | J |
| w Wells | WI-AF-MW-611 | 70-90 | 59.27 | 169.74 | 03/01/18 | 13:40 | 81.75 | 170.20 | 0.2 | 209 | 0 | 0 | 0 | MUST | J-Plug fit isn't completely hight. |
| w Wells | WI-AF-MW-612 | 69-79 | 50.3 | 84.45 | 03/02/18 | 08.36 | 49 28 | 84.47 | 0 | 209 | 0 | 0 | 0 | MG/SF | |
| Wells | WI-AF-MW-613 | 64-74 | 55.76 | 78,6 | 03/02/18 | 08:29 | 54.64 | 78.12 | 0 | 0 | 0 | 0 | | MG/SF | Water was above J-plug . Bail below casing before tagging |
| Wells | WI-AF-MW-614 | 59-69 | 52.75 | 69.8 | 3/02/18 | 08:43 | 51.06 | 69.48 | 0 | 0 | 0 | 0 | 0 | MG/SF | |
| Wells | WI-AF-MW-615 | 145-165 | 54.6 | 95.54 | 3/01/18 | 09:10 | 53.82 | 95.25 | Ō | 20:9 | 0 | 0 | 0 | MG/SF | |
| 1 | 4 | | | | | | | | | | | | | | |
| | ' | | | | | | | | | | | | | | |
| + | | | | | | | | | | | - | | | | Labeled as AFR025 in field |

100 DI-P.N.-695610.04. FI. FS NASWI: Aut Field: GW New/2xisting 03/02/18 Personnel: Shannon Fitzsimmons /RIDD Mork Green / SAC Task: Synophic Water Level Gauge, IDW Management, Ship samples. Weather: (AM) 40°F Rainy W/ overcast
(PM) 38°F, cloudy W/ 10mph wind. 0730 Meet S. Skeehan + M. Green + S. Hasimmons meet at Best Western then demile to Clover Valley Laydown. 0755 Calibrate PID MultiRAE Lot# 039680 My Hi Comp. Gas-Pine Envir. Service Lot#: 833558

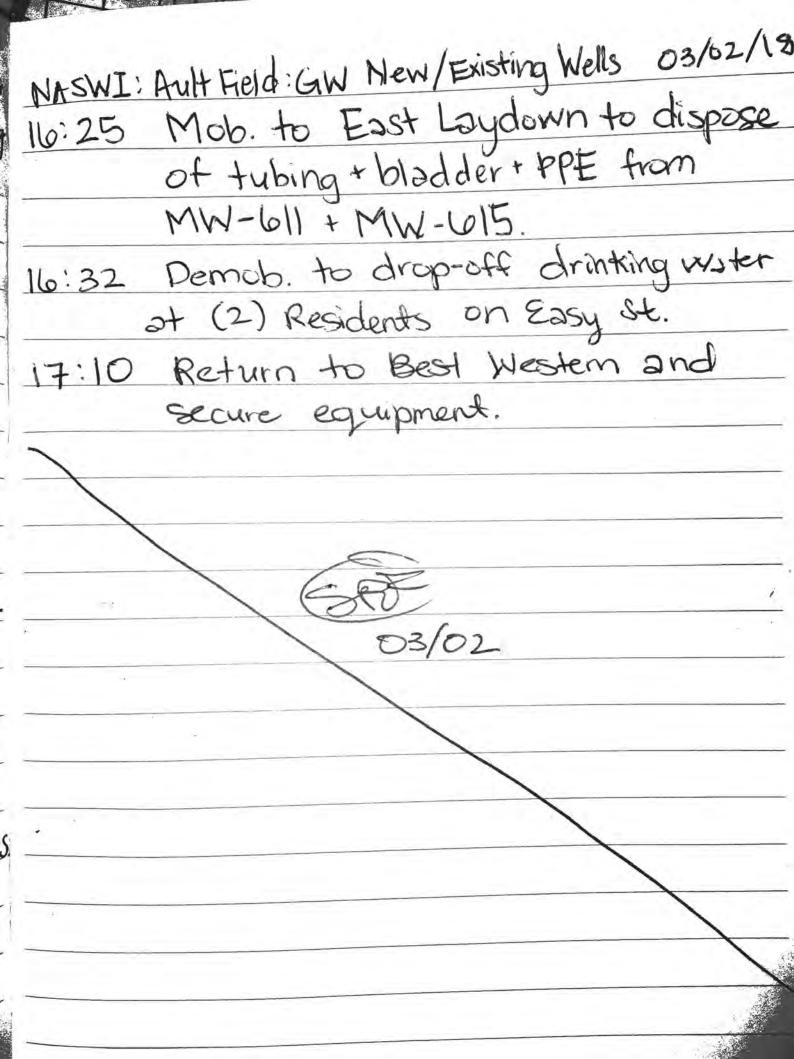
Isobutylene Argus-HAZCO Lot#:062947 FRESH AIR: Pass OXY LEL CO H25 VOC 12.17. 52 7. 49 ppm 11.3 ppm 160.4 ppm 0815 Demob. from Laydown to Clover Valley Field. Tagged (3) wells. 0852 Talk with Kendra Leibman & Steve Skeehan about DW deliveries today. 0933 Finish tagging (2) Area 29 Wells. 0937 Meet S. Skeehan in Laydown. Demob. Need a DBTD pass. Mob to Best Western to get on base.

tec

pp

nd cor

NASWI: Ault Field: GW New/Existing Wells 03/02/18 0958 Armire at Firefighting School Begin taggin II Area 2,3,4 + Current Firefighting School, 12-55 Complete WL survey for Existing 11 Wells. Only weapons welk remain 12:32 Demob. from firefighting School to QC + pack samples. 12:45 Begin cooler packing process. 13:55 Tape coolers at Pony Express and drop-off (2) coolers - Viztat Test America SEA Saturday Delivery. 14:10 Mob. to get b.W. from Haggen. No Crystal Water. Mob to Walmart still no Caystal Springs Water Mob. to Safeway for Crystal Springs Water. Purchased 20 opthing Demob. to Wespons to meet Steve Skeehon Call Weapons to approve work in area. Begin tagging (6) wells in weapon 15:05 area. complete tagging wells. 16:18



Attachment 6 Archaeological Monitoring Technical Memorandum



Archaeological Monitoring of NAS Whidbey Island Phase 1 Monitoring Wells, Ault Field Off-Base Location Residences 1 & 2.

PREPARED FOR: Department of the Navy Naval Facilities Engineering Command Northwest

Under the: NAVFAC CLEAN 9000 Program. Contract N62470-16-D-9000

PREPARED BY: Matthew J. Steinkamp M.S., RPA

DATE: March 21, 2018

At the request of NAVFAC NW, CH2M conducted archaeological monitoring of well drill borings in support of the Phase 1 Site Investigations at Residence 1 (Boring MW-611) (Figure 1 and 2) and Residence 2 (Boring MW-615) (Figures 3 and 4). On February 12 and 13 and February 19 and 20, 2018, CH2M geoarchaeologist Matthew Steinkamp, M.S., Registered Professional Archaeologist, conducted archaeological monitoring of well drill borings in support of the Phase 1 Site Investigations. The Area of Potential Effect (APE) for each boring was 15.24 x 15.24 meters at each Residence (0.11-acres total).

Methods

Prior to set up and drill boring, the CH2M geoarchaeologist conducted a visual inspection of the ground surface at the boring location and within a surrounding 20-meter buffer for cultural resources preboring clearance. Following drill equipment set up, the CH2M geoarchaeologist monitored three predrill 7.5 cm diameter hand augers placed in a triangular arrangement around the proposed well drill location to determine presence/absence of buried utilities from 0 cm to 210 cm below ground surface (bgs) (Appendix A, Photo 1). The hand augured soils were visually inspected and hand-trowel sorted to determine the presence/absence of cultural resources or evidence of buried features or paleosols (buried surface soils).

Following the utility hand auger clearance, the CH2M geoarchaeologist field monitored the sonic well drilling. The boring consisted of a 20 cm diameter continuous mechanized sonic drill coring and sample retrieval obtained by Yellow Jacket Drilling and collected by CH2M geologists (Appendix A, Photo 2).

The samples (Appendix A, Photo 3) were logged by the CH2M geoarchaeologist from 0 cm to 210 cm bgs. Following retrieval of the 20 cm diameter, 0.45 m long sonic core bag samples, the sample bags were placed in a linear bottom to top alignment from 210 cm to 0 cm. Once aligned, the sample bags were cut longitudinally and photographed prior to logging, inspection and sampling.

The samples were then visually inspected by the the CH2M geoarchaeologist to correlate and log soil horizons and sedimentary strata. The depth of soil horizon changes, such as O, Ap, A, Ab, E, B and C horizons and bioturbations (krotovinae), and stratigraphic changes such as fill and glacial sediments were recorded. Next, the soils and sediments were inspected for evidence of macro content (artifacts, wood, gravel, and roots), then trowel-sorted for micro content (fine artifacts, plant remains, organics, shell, seeds, bone, wood or camas charcoal, inclusions, etc.).

Geoarchaeological logging of samples consisted of describing the Munsell soil color; structure; consistence (rupture resistance, stickiness, plasticity); grain size (feel and 10x hand lens inspection); presence of redoximorphic features, such as oxidation and reduction mottles, or Liesegang bands

(indicative of water table fluctuations and oxygen availability, iron content, gleying, etc.); presence or absence of archaeological materials or paleosols (intact buried soil horizons/sola); and depth of modern fill.

Following field logging of samples, a roughly 250-gram grab sample of each soil horizon was obtained for field lab analysis. In the lab, the samples were air dried and first inspected under a Hastings Triplet 10x power hand lense, followed by a Russian MHKPOCKON MN6-2 24x power field microscope with built-in micrometer of .05 mm incremental scale. The lab samples were inspected for cultural evidence such as micro debitage, charred wood, bone, camas and seed fragments, as well as natural soil components, such as clay bridging, pore linings, insects, etc.

Results

Residence 1-Boring MW-611 (UTM 527450.07m E, 5354362.47m N, Zone 10, Elevation 31m)

No artifacts or evidence of cultural features or paleosols were observed during the hand auguring and sonic boring. Hand augers 1-3 and Boring MW-611 exhibited the following stratigraphy;

- 0-10 cm; A Horizon/Fill. 10YR 3/2 very dark grayish brown sandy loam, lightly compact from vehicle traffic, many fine grass roots. A Horizon is 3 cm thick, yet organic staining by leaching has reached to 10 cm bgs. A Horizon formed in fill.
- 10-45 cm; Fill. 10YR 4/4 dark yellowish brown gravelly sandy loam, few (grass) roots confined to upper 5 cm, moist, granular structure, soft, 20% rounded pebbles and cobbles, few boulders observed, abrupt smooth boundary.
- 45-60 cm; Bw Horizon. 2.5Y 4/3 olive brown gravelly sandy loam, moist, granular to faint blocky structure, 10 % rounded pebbles, diffuse boundary. MN6 microcopy indicates slight water adhesion and sand grains ranging from .20 to .70 mm (medium to coarse sand) that is moderately sorted, with angular to subrounded grains of wide ranging mineralogy (lithic wacke sand).
- 60-210 cm; C Horizon. 2.5Y 5/3 light olive brown gravelly sand, few oxidation mottles. MN6 microcopy indicates sand grains ranging from 0.20 to 1.1 mm (medium to very coarse sand) that is moderately sorted, with angular to rounded grains of wide ranging mineralogy (lithic wacke sand). Below 90 cm the sand alternates grain size ranges, and appears to represent multiple, normal graded depositional sequences over time.

Soils in MW-611 appear to resemble Keystone series soils, though a modern unconformity is evident through the presence of a fill layer that overlies the Bw Horizon. A thin A Horizon has formed within the fill layer which suggest some time has passed since the upper sola removal and concurrent fill placement. The lower undisturbed portion of the sola overlies a thick sequence of glaciomarine or glaciofluvial deposits.

Residence 2-Boring MW-615 (UTM 523247.94m E, 5352449.11m N, Zone 10, Elevation 28m)

No artifacts or evidence of cultural features or paleosols were observed during the hand auguring and sonic boring. Hand augers 1-3 and Boring MW-615 exhibited the following stratigraphy;

- 0-30 cm; Fill. 10YR 3/2 very dark grayish brown gravelly sandy loam, many fine (grass) roots, wet, granular structure with water adhesion of grains, soft, slightly sticky and plastic, 10% rounded pebbles and cobbles, smooth abrupt boundary.
- 30-60 cm; Ap Horizon. 10YR 4/2 dark grayish brown gravelly sandy loam, few fine roots, moist, granular structure, slight water adhesion, slightly plastic and sticky, 10 % rounded pebbles, wavy abrupt boundary. MN6 microcopy indicates water adhesion and sand grains up to 0.35 mm (medium sand) that are poorly sorted, with angular to subrounded grains.

- 60-105 cm; B Horizon. 10YR 5/3 brown gravelly sandy loam, few oxidation mottles, slightly sticky and plastic, angular blocky to faint columnar structure, abrupt broken boundary. MN6 microcopy indicates sand grains up to 0.40 mm (medium sand), poorly sorted, angular to subrounded grains.
- 105-150 cm; B2 Horizon. 10YR 5/3 brown loam, many prominent iron oxidation masses of 10YR 4/6, moist (indicative of a seasonally high water table), pH 6.8. MN6 microcopy indicates sand grains up to .10 mm (very fine sand), poorly sorted, angular to subrounded grains.
- 150-180 cm; Cg Horizon. Gley 1 4/10Y dark greenish gray silty clay, very hard, extremely firm, pH 7.2.
 MN6 microcopy indicates grains up to .05 mm (coarse silt). Grades into clay that continues to 4.57 meters bgs.

Soils in MW-615 appear to resemble Mitchellbay series soils, though no E Horizon was observed. A few rounded pebbles were observed in a clay matrix below the solum, which could be dropstones or ice rafted debris (IRDs), which is very interesting, but non-cultural. The sand content within the solum (A and B horizons) of MW-615 may be higher than typical Mitchellbay soils due to colluvial input from the adjacent ridge.

CH2M monitored the drilling activities according to Washington Department of Archaeology and Historic Preservation (DAHP) guidelines for conducting archaeological monitoring in Washington.

Recommendations

No evidence of buried archaeological deposits, artifacts, features or paleosols were observed during the Phase 1 monitoring well installation. As such, a finding of No Adversed Effect to Historical Resources is recommended. If, however, additional project work encounters historical resources or human remains, the Inadvertent Discover Plan (IDP) should be followed.

References

Department of Public Works. 2014. *Inadvertent Discovery Plan for Naval Air Station Whidbey Island, Island County, Washington.* Naval Air Station, Whidbey Island. April 25, 2014.

Department of The Navy. 2017. Log No 2017-10-07155-USN: Request for Section 106 Consultation on Amended Area of Potential Effects and continued finding of No historic properties affected for the proposed ground disturbing activities to install groundwater monitoring wells at Ault Field and Outlying Field Coupeville, Naval Air Station Whidbey Island, Island County, Washington. Consultation Letter to Washington State Historic Preservation Officer, dated November 28, 2017.

Dragovich, J.D., Petro, G.T., Thorsen, G.W., Larson, S.L., Foster, G.R., and Norman, D.K., 2005, *Geologic map of the Oak Harbor, Crescent Harbor, and part of the Smith Island 7.5-minute quadrangles, Island County, Washington:* Washington Division of Geology and Earth Resources, Geologic Map GM-59, scale 1:24,000.

Figures







NOTIFICATION: FIGURE 1 CONTAINS SENSITIVE BUT UNCLASSIFIED INFORMATION WHICH IS PROTECTED BY THE FREEDOM OF INFORMATION ACT

FOIA Exemption 6 (5 USC 552(b)(6))
Personal Information Affecting an Individual's Privacy

TO REQUEST A COPY OF THE DOCUMENT PLEASE CONTACT

Department of the Navy
Freedom of Information Act Office

http://www.secnav.navy.mil/foia/Pages/default.aspx







NOTIFICATION: FIGURE 2 CONTAINS SENSITIVE BUT UNCLASSIFIED INFORMATION WHICH IS PROTECTED BY THE FREEDOM OF INFORMATION ACT

FOIA Exemption 6 (5 USC 552(b)(6))
Personal Information Affecting an Individual's Privacy

TO REQUEST A COPY OF THE DOCUMENT PLEASE CONTACT

Department of the Navy
Freedom of Information Act Office

http://www.secnav.navy.mil/foia/Pages/default.aspx







NOTIFICATION: FIGURE 3 CONTAINS SENSITIVE BUT UNCLASSIFIED INFORMATION WHICH IS PROTECTED BY THE FREEDOM OF INFORMATION ACT

FOIA Exemption 6 (5 USC 552(b)(6))
Personal Information Affecting an Individual's Privacy

TO REQUEST A COPY OF THE DOCUMENT PLEASE CONTACT

Department of the Navy
Freedom of Information Act Office

http://www.secnav.navy.mil/foia/Pages/default.aspx







NOTIFICATION: FIGURE 4 CONTAINS SENSITIVE BUT UNCLASSIFIED INFORMATION WHICH IS PROTECTED BY THE FREEDOM OF INFORMATION ACT

FOIA Exemption 6 (5 USC 552(b)(6))
Personal Information Affecting an Individual's Privacy

TO REQUEST A COPY OF THE DOCUMENT PLEASE CONTACT

Department of the Navy
Freedom of Information Act Office

http://www.secnav.navy.mil/foia/Pages/default.aspx

Appendix A



Photo 1. Overview of pre-drilling hand auger placement at boring location.



Photo 2. Recovery and delivery of sonic core sample to CH2M geologist.



Photo 3. Example of sample recovery from 0-210 cm below ground surface. Top of core sample is at left. Note distinct color change from A to B Horizons.

Attachment 7 Raw Data and Data Validation Report



DATA VALIDATION SUMMARY REPORT NAS WHIDBEY ISLAND, WASHINGTON

Client: CH2M HILL, Inc., Corvallis, Oregon

SDG: 1800266

Laboratory: Vista Analytical Laboratory, El Dorado Hills, California Site: NAS Whidbey Island, Ault Field, CTO-4041, Washington

Date: May 29, 2018

| | | PFCs | |
|--------|---------------------------|----------------------|--------|
| EDS ID | Client Sample ID | Laboratory Sample ID | Matrix |
| 1 | WI-AF-SB606-0001-0118 | 1800266-01 | Soil |
| 2 | WI-AF-SB606-0405-0118 | 1800266-02 | Soil |
| 3 | WI-AF-SB606-06.507.5-0118 | 1800266-03 | Soil |
| 4 | WI-AF-SB605-0001-0118 | 1800266-04 | Soil |
| 5 | WI-AF-SB605-0202.5-0118 | 1800266-05 | Soil |
| 6 | WI-AF-SB605-03.504.5-0118 | 1800266-06 | Soil |
| 7 | WI-AF-SB608-0002-0118 | 1800266-07 | Soil |
| 8 | WI-AF-SB608-02.503.5-0118 | 1800266-08 | Soil |
| 9 | WI-AF-SB608-08.509.5-0118 | 1800266-09 | Soil |
| 10 | WI-AF-SB608-3940-0118 | 1800266-10 | Soil |
| 10MS | WI-AF-SB608-3940-0118MS | 1800266-10MS | Soil |
| 10MSD | WI-AF-SB608-3940-0118MSD | 1800266-10MSD | Soil |
| 11 | WI-AF-SB609-00.501.5-0118 | 1800266-11 | Soil |
| 12 | WI-AF-SB609-0607-0118 | 1800266-12 | Soil |
| 13 | WI-AF-SB609P-0607-0118 | 1800266-13 | Soil |
| 14 | WI-AF-SB609-0708-0118 | 1800266-14 | Soil |
| 15 | WI-AF-SB609-3940-0118 | 1800266-15 | Soil |
| 16 | WI-AF-SB610-0001.5-0118 | 1800266-16 | Soil |
| 17 | WI-AF-SB610-07.508-0118 | 1800266-17 | Soil |

A full data validation was performed on the analytical data for seventeen soil samples collected on January 20-25, 2018 by CH2M HILL at the NAS Whidbey Island Ault Field 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 Method References
PFCs VAL Method PFAS

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, the Final Sampling and Analysis Plan Phase I Site Investigation for Per- and Polyfluoroalkyl Substances in Soil and Groundwater Ault Field, February 2018, and the USEPA National Functional Guidelines for Organic Data Review as follows:

- The USEPA "Contract Laboratories Program National Functional Guidelines for Organic Superfund Methods Data Review," January 2017;
- 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
- 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 (Level IV) data validation was performed with this review including a recalculation of 10% of the detected results in the samples.

Data Usability Assessment

There were no rejections of data.

Overall the data is 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 Compounds (PFCs)

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 28 days for soil samples and analyzed within 30 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 samples are summarized below.

| Blank ID | Compound | Conc. ng/L | Qualifier | Affected Samples |
|--------------------|-----------|------------|-----------|-------------------|
| WI-AF-EB05-SO-0118 | None - ND | - | - | |
| WI-AF-EB06-SO-0118 | None - ND | | 121 | - |
| WI-AF-EB07-SO-0118 | PFOA | 0.898 | None | All Associated ND |
| WI-AF-EB08-SO-0118 | None - ND | - | NAC - | |
| WI-AF-FB-012018 | PFHxS | 1.12 | None | All Associated ND |
| WI-AF-FB-012218 | PFOA | 0.936 | None | All Associated ND |
| WI-AF-FB-012418 | PFHxS | 1.09 | None | All Associated ND |
| | PFOA | 0.725 | None | |
| WI-AF-FB-012518 | PFOA | 0.862 | None | All Associated ND |

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

• The MS/MSD samples exhibited acceptable percent recoveries (%R) and RPD values except for the following.

| MS/MSD Sample | Compound | MS %R/MSD %R/RPD | Qualifier |
|---------------|----------|------------------|------------------|
| 10 | PFUnA | 136%/OK/OK | None - Sample ND |
| | PFTeDA | 131%/OK/OK | |

Laboratory Control Samples

• The LCS samples exhibited acceptable percent recoveries (%R) except for the following.

| LCS ID | Compound | %R | Qualifier | Affected Samples |
|-------------|----------|------|-----------|------------------|
| B8B0053-BS1 | PFDoA | 131% | None | All ND |
| | PFTeDA | 131% | None | |

Internal Standard (IS) Area Performance

· All internal standards met response and retention time (RT) criteria except for the following.

| EDS Sample ID | Internal Standard | %R | Qualifier | Affected Samples |
|---------------|-------------------|-------|-----------|------------------|
| 12 | 13C2-PFTeDA | 37.4% | UJ | Associated Cmpd |
| 13 | 13C2-PFTeDA | 34.8% | UI | Associated Cmpd |

Target Compound Identification

• All mass spectra and quantitation criteria were met.

Compound Quantitation

• All criteria were met.

Field Duplicate Sample Precision

• Field duplicate results are summarized below. The precision was acceptable.

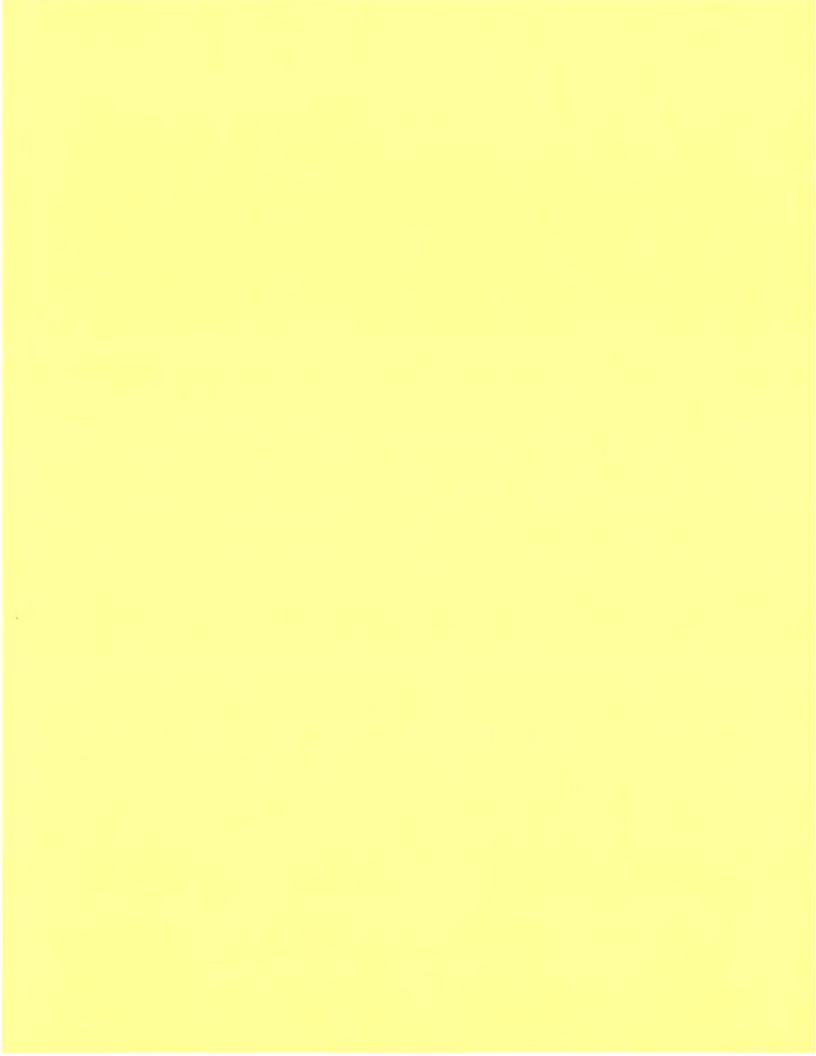
| Compound | WI-AF-SB609-0607-0118 ng/g | WI-AF-SB609P-0607-0118 ng/g | RPD | Qualifier |
|----------|-------------------------------|--------------------------------|-----|-----------|
| None | ND | ND | | 060 |

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed:

Nancy Weaver Senior Chemist Dated: 6/1/18

| Data Qualifier | Definition |
|-------------------|--|
| U | The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit. |
| J | The analyte is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample. |
| NJ | The analysis has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the samples. |
| UJ | The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise. |
| R | The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the samples. |





| Sample ID: W | I-AF-SB606-0001-0118 | | | | | | | | | VAL | - PFAS |
|--------------------------------------|--|---------------------|-----------------------|-------------|-------|--------------------------------|------------------------|-----------|-----------|-----------------|----------|
| Client Data Name: Project: Location: | CH2M Hill NAS WI- AULT FIELD SB606 | Matrix: Date Col | Soil lected: 20-Ja | an-18 14:40 | Lab S | oratory Data Sample: Received: | 1800266-0 07-Feb-18 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.217 | 0.598 | 1.20 | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | 1 |
| PFHxA | | ND | 0.121 | 0.598 | 1.20 | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | |
| PFHpA | | ND | 0.123 | 0.598 | 1.20 | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | |
| PFHxS | | ND | 0.185 | 0.598 | 1.20 | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | |
| PFOA | | 0.163 | 0.141 | 0.598 | 1.20 | J | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | |
| PFOS | | ND | 0.505 | 0.598 | 1.20 | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | |
| PFNA | | ND | 0.106 | 0.598 | 1.20 | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | |
| PFDA | | ND | 0.153 | 0.598 | 1.20 | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | |
| MeFOSAA | | ND | 0.181 | 0.598 | 1.20 | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | |
| PFUnA | | ND | 0.212 | 0.598 | 1.20 | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | |
| EtFOSAA | | ND | 0.192 | 0.598 | 1.20 | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | |
| PFDoA | | ND | 0.165 | 0.598 | 1.20 | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | |
| PFTrDA | | ND | 0.0729 | 0.598 | 1.20 | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | |
| PFTeDA | | ND | 0.118 | 0.598 | 1.20 | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | |
| Labeled Standard | ls Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 97.1 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | 1 |
| 13C2-PFHxA | IS | 96.6 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | 1 |
| 13C4-PFHpA | IS | 96.1 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | 1 |
| 18O2-PFHxS | 18 | 84.8 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | 1 |
| 13C2-PFOA | IS | 76.9 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | 1 |
| 13C8-PFOS | IS | 73.5 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | 1 |
| 13C5-PFNA | IS | 89.7 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | 1 |
| 13C2-PFDA | IS | 91.4 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | |
| d3-MeFOSAA | IS | 77.5 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | 1 |
| 13C2-PFUnA | IS | 80.7 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | |
| d5-EtFOSAA | IS | 79.0 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | |
| 13C2-PFDoA | IS | 79.4 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | |
| 13C2-PFTeDA | IS | 80.9 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 2.37 g | 16-Feb-18 01:56 | |

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit

The results are reported in dry weight.
The sample size is reported in wet weight.
Results reported to the DL.

When reported, PFHxS. PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.



| Sample 1D. W | I-AF-SB606-0405-0118 | | | | | | | | | VAL | - PFAS |
|--------------------------------------|--|---------------------|-----------------------|-------------|-------|----------------------|--------------------------------|-----------|-----------|-----------------|----------|
| Client Data Name: Project: Location: | CH2M Hill NAS WI- AULT FIELD SB606 | Matrix: Date Col | Soil lected: 20-Ja | an-18 14:45 | Lab S | Sample: Received: | 1800266-0 07-Feb-18 84.8 | | Column: | ВЕН С18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.357 | 0.983 | 1.97 | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | 1 |
| PFHxA | | ND | 0.199 | 0.983 | 1.97 | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | 1 |
| PFHpA | | ND | 0.201 | 0.983 | 1.97 | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | |
| PFHxS | | ND | 0.305 | 0.983 | 1.97 | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | 1 |
| PFOA | | ND | 0.232 | 0.983 | 1.97 | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | |
| PFOS | | ND | 0.830 | 0.983 | 1.97 | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | |
| PFNA | | ND | 0.175 | 0.983 | 1.97 | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | 1 |
| PFDA | | ND | 0.252 | 0.983 | 1.97 | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | |
| MeFOSAA | | ND | 0.297 | 0.983 | 1.97 | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | |
| PFUnA | | ND | 0.348 | 0.983 | 1.97 | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | |
| EtFOSAA | | ND | 0.315 | 0.983 | 1.97 | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | 1 |
| PFDoA | | ND | 0.271 | 0.983 | 1.97 | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | |
| PFTrDA | | ND | 0.120 | 0.983 | 1.97 | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | |
| PFTeDA | | ND | 0.195 | 0.983 | 1.97 | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | |
| Labeled Standard | ls Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 110 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | 1 |
| 13C2-PFHxA | IS | 91.2 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | 1 |
| 13C4-PFHpA | · IS | 85.9 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | 1 |
| 18O2-PFHxS | IS | 107 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | 1 |
| 13C2-PFOA | IS | 109 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | 1 |
| 13C8-PFOS | IS | 93.3 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | 1 |
| 13C5-PFNA | IS | 114 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | 1 |
| 13C2-PFDA | IS | 85.9 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | 1 |
| d3-MeFOSAA | IS | 75.1 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | 1 |
| 13C2-PFUnA | IS | 82.9 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | 1 |
| d5-EtFOSAA | IS | 81.9 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | 1 |
| 13C2-PFDoA | IS | 88.6 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | |
| 13C2-PFTeDA | IS | 98.8 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.20 g | 16-Feb-18 02:08 | |

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight
The results in the results are reported in the resul

The sample size is reported in wet weight Results reported to the DL

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



| Sample ID: WI- | -AF-SB606-06.507.5-0118 | | | | | | | | | VAL | - PFAS |
|----------------------|--|----------------------|-------------------|---------------------------|-------|--------------------------------|--------------------------------|-----------|-----------|------------------------|----------|
| Project: | CH2M Hill NAS WI- AULT FIELD SB606 | Matrix: Date Coll | Soi ected: 20- | 1 Jan-18 14:50 | Lab S | oratory Data Sample: Received: | 1800266-0 07-Feb-18 84.8 | | Column: | ВЕН С18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.348 | 0.958 | 1.92 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | 1 |
| PFHxA | | ND | 0.195 | 0.958 | 1.92 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | |
| PFHpA | | ND | 0.196 | 0.958 | 1.92 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | |
| PFHxS | | ND | 0.297 | 0.958 | 1.92 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | |
| PFOA | | ND | 0.226 | 0.958 | 1.92 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | |
| PFOS | | ND | 0.810 | 0.958 | 1.92 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | |
| PFNA | | ND | 0.171 | 0.958 | 1.92 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | |
| PFDA | | ND | 0.245 | 0.958 | 1.92 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | |
| MeFOSAA | | ND | 0.289 | 0.958 | 1.92 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | |
| PFUnA | | ND | 0.339 | 0.958 | 1.92 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | |
| EtFOSAA | | ND | 0.308 | 0.958 | 1.92 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | |
| PFDoA | | ND | 0.264 | 0.958 | 1.92 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | |
| PFTrDA | | ND | 0.117 | 0.958 | 1.92 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | |
| PFTeDA | | ND | 0.190 | 0.958 | 1.92 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 134 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | 1 |
| 13C2-PFHxA | IS | 107 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | 1 |
| 13C4-PFHpA | IS | 101 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | |
| 18O2-PFHxS | IS | 99.4 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | 1 |
| 13C2-PFOA | IS | 98.4 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | 1 |
| 13C8-PFOS | IS | 82.6 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | 1 |
| 13C5-PFNA | IS | 70.2 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | 1 |
| 13C2-PFDA | IS | 88.9 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | |
| d3-MeFOSAA | IS | 74.0 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | |
| 13C2-PFUnA | 18 | 77.9 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | |
| d5-EtFOSAA | IS | 72.8 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | |
| 13C2-PFDoA | IS | 76.5 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | 1 |
| 13C2-PFTeDA | IS | 81.3 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:19 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | | | ımit - unner control limi | | **** | I BYNLL O | | | ar and branched isomer | |

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit The results are reported in dry weight

The sample size is reported in wet weight Results reported to the DL

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.



| Sample ID: W | I-AF-SB605-0001-0118 | | | | | | | | | VAL | - PFAS |
|--------------------------------------|--|---------------------|---------------------|--------------------------|-------|--------------------------------|--------------------------------|---------------|-------------------|-----------------------|----------|
| Client Data Name: Project: Location: | CH2M Hill NAS WI- AULT FIELD SB605 | Matrix: Date Col | Soil ected: 22-J | an-18 09:45 | Lab S | oratory Data Sample: Received: | 1800266-0 07-Feb-18 77.3 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.382 | 1.05 | 2.10 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | 1 |
| PFHxA | | ND | 0.213 | 1.05 | 2.10 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | 4 |
| PFHpA | | ND | 0.216 | 1.05 | 2.10 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | 1 |
| PFHxS | | ND | 0.326 | 1.05 | 2.10 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | 1 |
| PFOA | | ND | 0.248 | 1.05 | 2.10 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | 1 |
| PFOS | | ND | 0.889 | 1.05 | 2.10 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | 1 |
| PFNA | | ND | 0.187 | 1.05 | 2.10 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | |
| PFDA | | ND | 0.269 | 1.05 | 2.10 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | |
| MeFOSAA | | ND | 0.318 | 1.05 | 2.10 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | |
| PFUnA | | ND | 0.372 | 1.05 | 2.10 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | |
| EtFOSAA | | ND | 0.338 | 1.05 | 2.10 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | |
| PFDoA | | ND | 0.290 | 1.05 | 2.10 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | |
| PFTrDA | | ND | 0.128 | 1.05 | 2.10 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | |
| PFTeDA | | ND | 0.208 | 1.05 | 2.10 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | |
| Labeled Standard | ds Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 89.7 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | 1 |
| 13C2-PFHxA | IS | 83.4 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | |
| 13C4-PFHpA | IS | 92.2 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | |
| 18O2-PFHxS | IS | 95.4 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | |
| 13C2-PFOA | IS | 82.1 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | |
| 13C8-PFOS | IS | 82.0 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | |
| 13C5-PFNA | IS | 88.2 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | |
| 13C2-PFDA | IS | 82.7 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | |
| d3-MeFOSAA | IS | 73.0 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | |
| 13C2-PFUnA | IS | 90.3 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | |
| d5-EtFOSAA | IS | 70.2 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | |
| 13C2-PFDoA | IS | 74.3 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | |
| 13C2-PFTeDA | IS | 92.1 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 02:31 | |
| DL - Detection Limit | LOD - Limit of Detection | LCL-UCL- | Lower control lin | nit - upper control limi | t | When rep | orted, PFHxS, | PFOA and PFOS | include both line | ar and branched isome | TE: |

m 5/29/18

The results are reported in dry weight
The sample size is reported in wet weight

Results reported to the DL

LOQ - Limit of quantitation

Work Order 1800266 Page 11 of 31



| Sample ID: W | I-AF-SB605-0202.5-0118 | | | | | | | | | VAL | - PFAS |
|--------------------------------------|--|---------------------|---------------------|--------------------------|-------|---------------------------------------|--------------------------------|---------------|-------------------|------------------------|----------|
| Client Data Name: Project: Location: | CH2M Hill NAS WI- AULT FIELD SB605 | Matrix: Date Col | Soil lected: 22- | Jan-18 09:50 | Lab S | Dratory Data Sample: Received: olids: | 1800266-0 07-Feb-18 79.1 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.340 | 0.936 | 1.87 | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | 1 |
| PFHxA | | ND | 0.190 | 0.936 | 1.87 | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | |
| PFHpA | | ND | 0.192 | 0.936 | 1.87 | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | |
| PFHxS | | ND | 0.290 | 0.936 | 1.87 | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | |
| PFOA | | ND | 0.221 | 0.936 | 1.87 | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | |
| PFOS | | ND | 0.791 | 0.936 | 1.87 | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | |
| PFNA | | ND | 0.167 | 0.936 | 1.87 | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | |
| PFDA | | ND | 0.240 | 0.936 | 1.87 | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | |
| MeFOSAA | | ND | 0.283 | 0.936 | 1.87 | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | |
| PFUnA | | ND | 0.331 | 0.936 | 1.87 | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | |
| EtFOSAA | | ND | 0.301 | 0.936 | 1.87 | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | |
| PFDoA | | ND | 0.258 | 0.936 | 1.87 | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | |
| PFTrDA | | ND | 0.114 | 0.936 | 1.87 | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | . 1 |
| PFTeDA | | ND | 0.185 | 0.936 | 1.87 | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | 1 |
| Labeled Standar | ls Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 132 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | 1 |
| 13C2-PFHxA | IS | 97.0 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | 1 |
| 13C4-PFHpA | IS | 101 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | 1 |
| 18O2-PFHxS | IS | 88.8 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | 1 |
| 13C2-PFOA | IS | 90.6 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | 1 |
| 13C8-PFOS | IS | 95.6 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | 1 |
| 13C5-PFNA | IS | 100 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | 1 |
| 13C2-PFDA | IS | 99.8 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | 1 |
| d3-MeFOSAA | IS | 90.6 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | 1 |
| 13C2-PFUnA | IS | 100 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | 1 |
| d5-EtFOSAA | IS | 98.0 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | 1 |
| 13C2-PFDoA | IS | 109 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | 1 |
| I3C2-PFTeDA | IS | 97.2 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.35 g | 16-Feb-18 02:42 | 1 |
| DL - Detection Limit | LOD - Limit of Dete | ation 1 CL-UCL- | Lower control I | mit - upper control limi | it | When rer | norted PFHyS | PFOA and PFOS | include both line | ar and branched isomer | re |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight.
The sample size is reported in wet weight
Results reported to the DL

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



| Sample ID: WI-AF-S | B605-03.504.5-0118 | | | | | | | | | VAL | - PFAS |
|---|--------------------------|----------------------|----------------------|--------------------------|-------|--------------------------------|--------------------------------|--------------|---------------|------------------------|----------|
| Client Data Name: CH2M Project: NAS W Location: SB605 | Hill VI- AULT FIELD | Matrix: Date Coll | Soil ected; 22-Ja | un-18 10:00 | Lab S | oratory Data Sample: Received: | 1800266-0 07-Feb-18 83.1 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.361 | 0.994 | 1.99 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | 1 |
| PFHxA | | ND | 0.202 | 0.994 | 1.99 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | 1 |
| PFHpA | | ND | 0.204 | 0.994 | 1.99 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | |
| PFHxS | | ND | 0.308 | 0.994 | 1.99 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | 1 |
| PFOA | | ND | 0.235 | 0.994 | 1.99 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | |
| PFOS | | ND | 0.840 | 0.994 | 1.99 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | 1 |
| PFNA | | ND | 0.177 | 0.994 | 1.99 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | |
| PFDA | | ND | 0.255 | 0.994 | 1.99 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | |
| MeFOSAA | | ND | 0.300 | 0.994 | 1.99 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | |
| PFUnA | | ND | 0.352 | 0.994 | 1.99 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | 1 |
| EtFOSAA | | ND | 0.319 | 0.994 | 1.99 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | 1 |
| PFDoA | | ND | 0.274 | 0.994 | 1.99 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | 1 |
| PFTrDA | | ND | 0.121 | 0.994 | 1.99 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | 1 |
| PFTeDA | | ND | 0.197 | 0.994 | 1.99 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 117 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | 1 |
| 13C2-PFHxA | IS | 91.5 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | 1 |
| I3C4-PFHpA | IS | 86.2 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | 1 |
| 18O2-PFHxS | IS | 89.3 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | 1 |
| 13C2-PFOA | IS | 97.3 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | 1 |
| 13C8-PFOS | IS | 92.7 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | 1 |
| 13C5-PFNA | IS | 92.5 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | 1 |
| 13C2-PFDA | IS | 91.3 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | 1 |
| d3-MeFOSAA | IS | 95.7 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | 1 |
| 13C2-PFUnA | 1S | 68.2 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | 1 |
| d5-EtFOSAA | IS | 94.7 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | 1 |
| 13C2-PFDoA | IS | 73.0 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | |
| 13C2-PFTeDA | IS | 70.7 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 02:54 | |
| DL - Detection Limit | LOD - Limit of Detection | LCL UCL | | nit - upper control limi | | 11/1 | . 1 0211 0 | DEO 4 I BEOG | 2 1 1 1 1 1 1 | ar and branched isomer | |

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight
The sample size is reported in wet weight

Results reported to the DL

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

Work Order 1800266 Page 13 of 31



| Sample ID: WI-AF- | SB608-0002-0118 | | | | | | | | | VAL | - PFAS |
|-------------------------------------|--------------------------|---------------------|-----------------------|-------------------------|-------|-------------------------------|--------------------------------|---------------|-------------------|-----------------------|----------|
| Client Data Name: CH2M Project: NAS | 1 Hill WI- AULT FIELD | Matrix: Date Col | Soil lected: 23-Ja | an-18 15:40 | Lab S | ratory Data Sample: Received: | 1800266-0 07-Feb-18 81.6 | | Column: | ВЕН С18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.362 | 0.996 | 1.99 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | 1 |
| PFHxA | | ND | 0.202 | 0.996 | 1.99 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | |
| PFHpA | | ND | 0.204 | 0.996 | 1.99 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | |
| PFHxS | | ND | 0.309 | 0.996 | 1.99 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | 1 |
| PFOA | | ND | 0.235 | 0.996 | 1.99 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | |
| PFOS | | ND | 0.842 | 0.996 | 1.99 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | |
| PFNA | | ND | 0.177 | 0.996 | 1.99 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | |
| PFDA | | ND | 0.255 | 0.996 | 1.99 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | |
| MeFOSAA | | ND | 0.301 | 0.996 | 1.99 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | 1 |
| PFUnA | | ND | 0.353 | 0.996 | 1.99 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | |
| EtFOSAA | | ND | 0.320 | 0.996 | 1.99 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | 1 |
| PFDoA | | ND | 0.275 | 0.996 | 1.99 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | 1 |
| PFTrDA | | ND | 0.122 | 0.996 | 1.99 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | 1 |
| PFTeDA | | ND | 0.197 | 0.996 | 1.99 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 104 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | 1 |
| 13C2-PFHxA | IS | 105 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | 1 |
| 13C4-PFHpA | IS | 96.2 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | 1 |
| 18O2-PFHxS | IS | 93.5 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | 1 |
| 13C2-PFOA | IS | 83.7 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | 1 |
| 13C8-PFOS | IS | 91.0 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | 1 |
| 13C5-PFNA | IS | 93.1 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | 1 |
| 13C2-PFDA | IS | 85.8 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | |
| d3-MeFOSAA | IS | 85.8 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | 1 |
| 13C2-PFUnA | 18 | 88.9 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | 1 |
| d5-EtFOSAA | IS | 78.8 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | 1 |
| 13C2-PFDoA | IS | 87.2 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | 1 |
| I3C2-PFTeDA | IS | 91.5 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 03:05 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | LCL-UCL | - Lower control lim | nit - upper control lim | it | When ret | orted PFHxS | PFOA and PFOS | include both line | ar and branched isome | TS |

LOQ - Limit of quantitation

The results are reported in dry weight

The sample size is reported in wet weight Results reported to the DL

Only the linear isomer is reported for all other analytes

Work Order 1800266 Page 14 of 31



| Sample ID: WI-AF-S | SB608-02.503.5-0118 | | | | | | | | | VAL | - PFAS |
|------------------------------|------------------------|----------------------|----------------------|-------------|-------|--------------------------------|--------------------------------|-----------|-----------|-----------------|----------|
| Name: CH2M Project: NAS V | Hill VI- AULT FIELD | Matrix: Date Coll | Soil ected: 23-Ja | ın-18 15:45 | Lab S | oratory Data Sample: Received: | 1800266-0 07-Feb-18 81.9 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.382 | 1.05 | 2.11 | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | 1 |
| PFHxA | | ND | 0.214 | 1.05 | 2.11 | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | |
| PFHpA | | ND | 0.216 | 1.05 | 2.11 | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | |
| PFHxS | | ND | 0.326 | 1.05 | 2.11 | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | |
| PFOA | | ND | 0.249 | 1.05 | 2.11 | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | |
| PFOS | | ND | 0.890 | 1.05 | 2.11 | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | |
| PFNA | | ND | 0.187 | 1.05 | 2.11 | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | |
| PFDA | | ND | 0.270 | 1.05 | 2.11 | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | |
| MeFOSAA | | ND | 0.318 | 1.05 | 2.11 | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | |
| PFUnA | | ND | 0.373 | 1.05 | 2.11 | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | |
| EtFOSAA | | ND | 0.338 | 1.05 | 2.11 | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | |
| PFDoA | | ND | 0.291 | 1.05 | 2.11 | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | |
| PFTrDA | | ND | 0.128 | 1.05 | 2.11 | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | |
| PFTeDA | | ND | 0.208 | 1.05 | 2.11 | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 107 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | 1 |
| 13C2-PFHxA | IS | 91.1 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | 1 |
| 13C4-PFHpA | IS | 91.2 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | 1 |
| 18O2-PFHxS | IS | 94.7 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | 1 |
| 13C2-PFOA | IS | 83.6 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | |
| 13C8-PFOS | 18 | 92.5 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | 1 |
| 13C5-PFNA | IS | 104 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | 1 |
| 13C2-PFDA | IS | 93.5 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | |
| d3-MeFOSAA | IS | 84.6 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | |
| 13C2-PFUnA | IS | 71.7 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | 1 |
| d5-EtFOSAA | IS | 75.1 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | |
| 13C2-PFDoA | IS | 89.4 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | |
| 13C2-PFTeDA | IS | 80.1 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.16 g | 16-Feb-18 03:17 | |

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit The results are reported in dry weight The sample size is reported in wet weight Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.

Work Order 1800266 Page 15 of 31

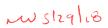


| Sample ID: WI-AF-S | B608-08.509.5-0118 | | | | | | | | | VAL | - PFAS |
|---------------------------------------|--------------------------|---------------------|-----------------------|--------------------------|-------|--------------------------------|--------------------------------|-----------|-----------|-----------------------|----------|
| Client Data Name: CH2M Project: NAS W | Hill /I- AULT FIELD | Matrix: Date Col | Soil lected: 23-Ja | n-18 15:55 | Lab S | Gratory Data Gample: Received: | 1800266-0 07-Feb-18 88.2 | | Column: | ВЕН С18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.358 | 0.986 | 1.97 | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | 1 |
| PFHxA | | ND | 0.200 | 0.986 | 1.97 | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | |
| PFHpA | | ND | 0.202 | 0.986 | 1.97 | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | |
| PFHxS | | ND | 0.306 | 0.986 | 1.97 | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | |
| PFOA | | ND | 0.233 | 0.986 | 1.97 | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | |
| PFOS | | ND | 0.833 | 0.986 | 1.97 | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | |
| PFNA | | ND | 0.175 | 0.986 | 1.97 | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | |
| PFDA | | ND | 0.252 | 0.986 | 1.97 | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | |
| MeFOSAA | | ND | 0.298 | 0.986 | 1.97 | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | |
| PFUnA | | ND | 0.349 | 0.986 | 1.97 | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | 1 |
| EtFOSAA | | ND | 0.316 | 0.986 | 1.97 | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | 1 |
| PFDoA | | ND | 0.272 | 0.986 | 1.97 | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | |
| PFTrDA | | ND | 0.120 | 0.986 | 1.97 | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | |
| PFTeDA | | ND | 0.195 | 0.986 | 1.97 | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 112 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | 1 |
| 13C2-PFHxA | IS | 97.1 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | |
| 13C4-PFHpA | IS | 96.0 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | 1 |
| 18O2-PFHxS | IS | 105 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | |
| 13C2-PFOA | IS | 78.8 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | |
| 13C8-PFOS | IS | 93.9 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | 1 |
| 13C5-PFNA | IS | 84.4 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | -1 |
| 13C2-PFDA | IS | 94.8 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | 1 |
| d3-MeFOSAA | IS | 90.2 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | |
| 13C2-PFUnA | IS | 93.9 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | 1 |
| d5-EtFOSAA | IS | 86.8 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | 1 |
| 13C2-PFDoA | IS | 97.0 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | |
| 13C2-PFTeDA | IS | 73.5 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.15 g | 16-Feb-18 03:28 | |
| DL - Detection Limit | LOD - Limit of Detection | | Lower control lim | it - upper control limit | | When rep | | | | ar and branched isome | |

LOQ - Limit of quantitation

The results are reported in dry weight The sample size is reported in wet weight Results reported to the DL

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



Work Order 1800266 Page 16 of 31



| Sample 1D. WI-AI | -SB608-3940-0118 | | | | | | | | | VAL | - PFAS |
|-------------------|----------------------------|----------------------|----------------------|-------------|-------|---|--------------------------------|-----------|-----------|-----------------|----------|
| | M Hill S WI- AULT FIELD | Matrix: Date Coll | Soil ected: 24-Ja | ın-18 09:10 | Lab S | oratory Data Sample: Received: lids: | 1800266-1 07-Feb-18 81.6 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.397 | 1.09 | 2.19 | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | 1 |
| PFHxA | | ND | 0.222 | 1.09 | 2.19 | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | |
| PFHpA | | ND | 0.224 | 1.09 | 2.19 | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | |
| PFHxS | | ND | 0.339 | 1.09 | 2.19 | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | |
| PFOA | | ND | 0.258 | 1.09 | 2.19 | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | |
| PFOS | | ND | 0.924 | 1.09 | 2.19 | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | |
| PFNA | | ND | 0.195 | 1.09 | 2.19 | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | |
| PFDA | | ND | 0.280 | 1.09 | 2.19 | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | |
| MeFOSAA | | ND | 0.330 | 1.09 | 2.19 | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | |
| PFUnA | | ND | 0.387 | 1.09 | 2.19 | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | |
| EtFOSAA | | ND | 0.351 | 1.09 | 2.19 | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | |
| PFDoA | | ND | 0.302 | 1.09 | 2.19 | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | |
| PFTrDA | | ND | 0.133 | 1.09 | 2.19 | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | |
| PFTeDA | | ND | 0.217 | 1.09 | 2.19 | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 102 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | 1 |
| 13C2-PFHxA | IS | 96.2 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | 1 |
| 13C4-PFHpA | IS | 88.3 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | |
| 18O2-PFHxS | IS | 96.6 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | |
| 13C2-PFOA | IS | 92.0 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | 1 |
| 13C8-PFOS | IS | 98.7 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | |
| 13C5-PFNA | IS | 95.9 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | 1 |
| 13C2-PFDA | IS | 84.6 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | |
| d3-MeFOSAA | IS | 78.6 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | 1 |
| 13C2-PFUnA | IS | 75.6 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | |
| d5-EtFOSAA | IS | 76.1 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | |
| 13C2-PFDoA | IS | 80.5 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | |
| 13C2-PFTeDA | IS | 73.2 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.12 g | 16-Feb-18 03:40 | |

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight.

The sample size is reported in wet weight Results reported to the DL

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.



| Sample ID: WI | I-AF-SB609-00.501.5-0 | 118 | | | | | | | | | VAL | - PFAS |
|----------------------|---------------------------------|-----|----------------------|---------------------|--------------------------|-------|--------------------------------------|------------------------|----------------|-------------------|------------------------|----------|
| | CH2M Hill NAS WI- AULT FIELD | | Matrix: Date Coll | Soil ected: 24-J | an-18 13:45 | Lab S | oratory Data Sample: Received: | 1800266-1 07-Feb-18 | | Column: | BEH C18 | |
| Location: | SB609 | | | | | % So | lids: | 91.4 | | | | |
| Analyte | | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | | ND | 0.328 | 0.905 | 1.81 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | 1 |
| PFHxA | | | ND | 0.184 | 0.905 | 1.81 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | 1 |
| PFHpA | | | ND | 0.185 | 0.905 | 1.81 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | 1 |
| PFHxS | | | ND | 0.280 | 0.905 | 1.81 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | 1 |
| PFOA | | | ND | 0.214 | 0.905 | 1.81 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | 1 |
| PFOS | | | ND | 0.764 | 0.905 | 1.81 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | 1 |
| PFNA | | | ND | 0.161 | 0.905 | 1.81 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | 1 |
| PFDA | | | ND | 0.232 | 0.905 | 1.81 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | |
| MeFOSAA | | | ND | 0.273 | 0.905 | 1.81 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | 1 |
| PFUnA | | | ND | 0.320 | 0.905 | 1.81 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | |
| EtFOSAA | | | ND | 0.290 | 0.905 | 1.81 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | |
| PFDoA | | | ND | 0.250 | 0.905 | 1.81 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | 1 |
| PFTrDA | | | ND | 0.110 | 0.905 | 1.81 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | 1 |
| PFTeDA | | | ND | 0.179 | 0.905 | 1.81 | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | |
| Labeled Standards | s T | ype | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | | IS | 103 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | 1 |
| 13C2-PFHxA | | IS | 95.2 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | 1 |
| 13C4-PFHpA | | IS | 94.7 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | 1 |
| 18O2-PFHxS | | IS | 92.1 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | 1 |
| 13C2-PFOA | | IS | 108 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | 1 |
| 13C8-PFOS | | IS | 92.4 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | 1 |
| 13C5-PFNA | | IS | 88.9 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | 1 |
| 13C2-PFDA | | IS | 104 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | 1 |
| d3-MeFOSAA | | IS | 98.0 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | 1 |
| 13C2-PFUnA | | 1S | 98.9 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | 1 |
| d5-EtFOSAA | | IS | 90.8 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | 1 |
| 13C2-PFDoA | | 1S | 109 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | 1 |
| 13C2-PFTeDA | | IS | 115 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.21 g | 16-Feb-18 04:26 | 1 |
| DL - Detection Limit | LOD - Limit | CD: | 1.01.1101 | 1 1i- | nit - unner control limi | | When ren | ortad DELLyC 1 | DEO 4 and DEOS | inalada bath lina | ar and branched isomer | |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight

The sample size is reported in wet weight Results reported to the DL

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



| Sample ID: WI- | -AF-SB609-0607-0118 | | | | | | | | | VAL | - PFAS |
|----------------------|--|-----------------------|----------------------|--------------------------|-------|---------------------------------------|-------------------------------|-----------------|-------------------|-----------------------|----------|
| Project: | CH2M Hill NAS WI- AULT FIELD SB609 | Matrix: Date Colle | Soil ected: 24-Ja | ın-18 13:50 | Lab S | Dratory Data Sample: Received: blids: | 1800266- 07-Feb-18 84.8 | | Column: | ВЕН С18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.329 | 0.907 | 1.81 | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | 1 |
| PFHxA | | ND | 0.184 | 0.907 | 1.81 | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | - |
| PFHpA | | ND | 0.186 | 0.907 | 1.81 | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | |
| PFHxS | | ND | 0.281 | 0.907 | 1.81 | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | |
| PFOA | | ND | 0.214 | 0.907 | 1.81 | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | |
| PFOS | | ND | 0.766 | 0.907 | 1.81 | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | |
| PFNA | | ND | 0.161 | 0.907 | 1.81 | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | |
| PFDA | | ND | 0.232 | 0.907 | 1.81 | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | |
| MeFOSAA | | ND | 0.274 | 0.907 | 1.81 | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | |
| PFUnA | | ND | 0.321 | 0.907 | 1.81 | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | |
| EtFOSAA | | ND | 0.291 | 0.907 | 1.81 | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | |
| PFDoA | | ND | 0.250 | 0.907 | 1.81 | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | |
| PFTrDA | | ND | 0.111 | 0.907 | 1.81 | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | 1 |
| PFTeDA | | TW DW | 0.180 | 0.907 | 1.81 | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 124 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | 1 |
| 13C2-PFHxA | IS | 98.7 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | 1 |
| I3C4-PFHpA | IS | 86.9 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | 1 |
| 18O2-PFHxS | IS | 99.7 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | |
| 13C2-PFOA | IS | 84.4 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | 1 |
| 13C8-PFOS | IS | 89.7 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | 1 |
| 13C5-PFNA | IS | 97.6 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | - 1 |
| 13C2-PFDA | IS | 79.6 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | 1 |
| d3-MeFOSAA | IS | 61.8 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | 1 |
| 13C2-PFUnA | IS | 75.3 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | 1 |
| d5-EtFOSAA | IS | 61.3 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | 1 |
| 13C2-PFDoA | IS | 79.3 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | 1 |
| 13C2-PFTeDA | IS | 37.4 | | 50 - 150 | | Н | B8B0053 | 07-Feb-18 | 1.30 g | 16-Feb-18 04:37 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | 1.CL-UCL-1 | | nit - upper control limi | | When car | owted DELLex | DECLA and DECLE | include both line | ar and branched isome | |

LOD - Limit of Detection LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit The results are reported in dry weight

The sample size is reported in wet weight Results reported to the DL

When reported, PFHxS. PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.

res 5/29/18



| - PFAS | VAL | | | | | | | | | 60/-0118 | WI-AF-SB609P- | Sample ID: V |
|----------|-----------------|-----------|-----------|--------------------------------|--|-------|------------|----------------------|-----------------------|----------|------------------------------------|--------------------------------------|
| | ВЕН С18 | Column: | | 1800266-1 07-Feb-18 84.6 | ratory Data ample: Received: ids: | Lab S | n-18 13:55 | Soil ected: 24-Ja | Matrix: Date Colle | PIELD | CH2M Hill NAS WI- AULT SB609 | Client Data Name: Project: Location: |
| Dilution | Analyzed | Samp Size | Extracted | Batch | Qualifiers | LOQ | LOD | DL | Conc. (ng/g) | | | Analyte |
| 1 | 16-Feb-18 04:48 | 1.34 g | 07-Feb-18 | B8B0053 | | 1.77 | 0.883 | 0.320 | ND | | | PFBS |
| | 16-Feb-18 04:48 | 1.34 g | 07-Feb-18 | B8B0053 | | 1.77 | 0.883 | 0.179 | ND | | | PFHxA |
| | 16-Feb-18 04:48 | 1.34 g | 07-Feb-18 | B8B0053 | | 1.77 | 0.883 | 0.181 | ND | | | PFHpA |
| | 16-Feb-18 04:48 | 1.34 g | 07-Feb-18 | B8B0053 | | 1.77 | 0.883 | 0.274 | ND | | | PFHxS |
| 1 | 16-Feb-18 04:48 | | 07-Feb-18 | B8B0053 | | 1.77 | 0.883 | 0.208 | ND | | | PFOA |
| 1 | 16-Feb-18 04:48 | 1.34 g | 07-Feb-18 | B8B0053 | | 1.77 | 0.883 | 0.746 | ND | | | PFOS |
| 1 | 16-Feb-18 04:48 | _ | 07-Feb-18 | B8B0053 | | 1.77 | 0.883 | 0.157 | ND | | | PFNA |
| 1 | 16-Feb-18 04:48 | _ | 07-Feb-18 | B8B0053 | | 1.77 | 0.883 | 0.226 | ND | | | PFDA |
| 1 | 16-Feb-18 04:48 | | 07-Feb-18 | B8B0053 | | 1.77 | 0.883 | 0.267 | ND | | | MeFOSAA |
| 1 | 16-Feb-18 04:48 | | 07-Feb-18 | B8B0053 | | 1.77 | 0.883 | 0.312 | ND | | | PFUnA |
| 1 | 16-Feb-18 04:48 | _ | 07-Feb-18 | B8B0053 | | 1.77 | 0.883 | 0.283 | ND | | | EtFOSAA |
| 1 | 16-Feb-18 04:48 | | 07-Feb-18 | B8B0053 | | 1.77 | 0.883 | 0.244 | ND | | | PFDoA |
| 1 | 16-Feb-18 04:48 | - | 07-Feb-18 | B8B0053 | | 1.77 | 0.883 | 0.108 | ND | | | PFTrDA |
| 1 | 16-Feb-18 04:48 | | 07-Feb-18 | B8B0053 | | 1.77 | 0.883 | 0.175 | MOUT | | | PFTeDA |
| Dilution | | Samp Size | Extracted | Batch | Qualifiers | | Limits | | % Recovery | Type | rds | Labeled Standa |
| 1 | 16-Feb-18 04:48 | 1.34 g | 07-Feb-18 | B8B0053 | | | 50 - 150 | | 125 | IS | | 13C3-PFBS |
| 1 | 16-Feb-18 04:48 | 1.34 g | 07-Feb-18 | B8B0053 | | | 50 - 150 | | 104 | IS | | 13C2-PFHxA |
| 1 | 16-Feb-18 04:48 | 1.34 g | 07-Feb-18 | B8B0053 | | | 50 - 150 | | 102 | IS | | 13C4-PFHpA |
| 1 | 16-Feb-18 04:48 | _ | 07-Feb-18 | B8B0053 | | | 50 - 150 | | 99.9 | IS | | 18O2-PFHxS |
| 1 | 16-Feb-18 04:48 | 1.34 g | 07-Feb-18 | B8B0053 | | | 50 - 150 | | 94.4 | IS | | 13C2-PFOA |
| 1 | 16-Feb-18 04:48 | _ | 07-Feb-18 | B8B0053 | | | 50 - 150 | | 104 | 18 | | 13C8-PFOS |
| 1 | 16-Feb-18 04:48 | | 07-Feb-18 | B8B0053 | | | 50 - 150 | | 81.3 | IS | | 13C5-PFNA |
| 1 | 16-Feb-18 04:48 | | 07-Feb-18 | B8B0053 | | | 50 - 150 | | 82.4 | IS | | 13C2-PFDA |
| 1 | 16-Feb-18 04:48 | _ | 07-Feb-18 | B8B0053 | | | 50 - 150 | | 62.1 | IS | | d3-MeFOSAA |
| 1 | 16-Feb-18 04:48 | _ | 07-Feb-18 | B8B0053 | | | 50 - 150 | | 83.8 | IS | | 13C2-PFUnA |
| 1 | 16-Feb-18 04:48 | _ | 07-Feb-18 | B8B0053 | | | 50 - 150 | | 60.2 | IS | | d5-EtFOSAA |
| 1 | 16-Feb-18 04:48 | - | 07-Feb-18 | B8B0053 | | | 50 - 150 | | 76.5 | IS | | 13C2-PFDoA |
| 1 | 16-Feb-18 04:48 | _ | 07-Feb-18 | B8B0053 | H | | 50 - 150 | | 34.8 | IS | | 13C2-PFTeDA |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight
The sample size is reported in wet weight
Results reported to the DL

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.



| Sample ID: W | I-AF-SB609-0708-0118 | | | | | | | | | VAL | - PFAS |
|--------------------------------------|--|----------------------|----------------------|-------------------------|-------|--------------------------------------|-------------------------------|-----------|-----------|------------------------|----------|
| Client Data Name: Project: Location: | CH2M Hill NAS WI- AULT FIELD SB609 | Matrix: Date Coll | Soil ected: 24-Ja | an-18 14:05 | Lab S | oratory Data Sample: Received: | 1800266- 07-Feb-18 83.9 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilutio |
| PFBS | | ND | 0.404 | 1.11 | 2.23 | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | 1 |
| PFHxA | | ND | 0.226 | 1.11 | 2.23 | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | |
| PFHpA | | ND | 0.228 | 1.11 | 2.23 | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | |
| PFHxS | | ND | 0.345 | 1.11 | 2.23 | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | |
| PFOA | | ND | 0.263 | 1.11 | 2,23 | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | |
| PFOS | | ND | 0.941 | 1.11 | 2.23 | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | |
| PFNA | | ND | 0.198 | 1.11 | 2.23 | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | |
| PFDA | | ND | 0.285 | 1.11 | 2.23 | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | Ī |
| MeFOSAA | | ND | 0.336 | 1.11 | 2.23 | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | 1 |
| PFUnA | | ND | 0.394 | 1.11 | 2.23 | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | T. |
| EtFOSAA | | ND | 0.358 | 1.11 | 2.23 | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | 1 |
| PFDoA | | ND | 0.307 | 1.11 | 2.23 | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | 1 |
| PFTrDA | | ND | 0.136 | 1.11 | 2.23 | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | 1 |
| PFTeDA | | ND | 0.221 | 1.11 | 2.23 | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | 1 |
| Labeled Standard | s Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 120 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | -1 |
| 13C2-PFHxA | IS | 96.1 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | 1. |
| 13C4-PFHpA | IS | 78.7 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | 1 |
| 18O2-PFHxS | IS | 94.6 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | 1 |
| 13C2-PFOA | IS | 84.4 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | 1 |
| 13C8-PFOS | 1S | 85.3 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | 1 |
| 13C5-PFNA | IS | 79.1 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | 1 |
| 13C2-PFDA | IS | 99.8 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | 1 |
| d3-MeFOSAA | IS | 91.2 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | 1 |
| 13C2-PFUnA | IS | 84.6 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | 1 |
| d5-EtFOSAA | IS | 104 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | 1 |
| 13C2-PFDoA | IS | 118 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | 1 |
| 13C2-PFTeDA | IS | 126 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.07 g | 16-Feb-18 05:00 | 1 |
| DL = Detection Limit | LOD - Limit of Detection | | | vit - upper control lim | | | | | | ar and branched isomer | |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight

The sample size is reported in wet weight

Results reported to the DL

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.



| Sample ID: WI-AF- | SB609-3940-0118 | | | | | | | | | VAL | - PFAS |
|---|------------------------|----------------------|----------------------|--------------------------|-------|--------------------------------|-------------------------------|---------------|-----------|-----------------|----------|
| Client Data Name: CH2M Project: NAS 3 Location: SB609 | WI- AULT FIELD | Matrix: Date Coll | Soil ected: 24-Ja | an-18 15:15 | Lab S | oratory Data Sample: Received: | 1800266- 07-Feb-18 80.9 | | Column: | ВЕН С18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.377 | 1.04 | 2.08 | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | 1 |
| PFHxA | | ND | 0.211 | 1.04 | 2.08 | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | |
| PFHpA | | ND | 0.213 | 1.04 | 2.08 | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | |
| PFHxS | | ND | 0.322 | 1.04 | 2.08 | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | |
| PFOA | | ND | 0.245 | 1.04 | 2.08 | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | |
| PFOS | | ND | 0.878 | 1.04 | 2.08 | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | |
| PFNA | | ND | 0.185 | 1.04 | 2.08 | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | |
| PFDA | | ND | 0.266 | 1.04 | 2.08 | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | |
| MeFOSAA | | ND | 0.314 | 1.04 | 2.08 | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | |
| PFUnA | | ND | 0.368 | 1.04 | 2.08 | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | |
| EtFOSAA | | ND | 0.334 | 1.04 | 2.08 | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | |
| PFDoA | | ND | 0.287 | 1.04 | 2.08 | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | |
| PFTrDA | | ND | 0.127 | 1.04 | 2.08 | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | |
| PFTeDA | | ND | 0.206 | 1.04 | 2.08 | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 116 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | 1 |
| 13C2-PFHxA | IS | 108 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | 1 |
| 13C4-PFHpA | IS | 100 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | 1 |
| 18O2-PFHxS | IS | 84.9 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | 1 |
| 13C2-PFOA | IS | 99.6 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | 1 |
| 13C8-PFOS | IS | 82.8 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | 1 |
| 13C5-PFNA | IS | 106 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | 1 |
| 13C2-PFDA | IS | 96.6 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | 1 |
| d3-MeFOSAA | IS | 79.2 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | 1 |
| 13C2-PFUnA | IS | 77.5 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | 1 |
| d5-EtFOSAA | IS | 76.6 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | |
| 13C2-PFDoA | IS | 77.0 | 4 | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | |
| 13C2-PFTeDA | IS | 103 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.19 g | 16-Feb-18 05:11 | |
| DI Datustion Limit | LOD Limit of Detection | | | uit - upper control limi | | | | PEOA and PEOS | | | |

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit The results are reported in dry weight

The sample size is reported in wet weight Results reported to the DL

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers



| Project: Location: Analyte | CH2M Hill NAS WI- AULT FIELD SB610 | Matrix: Date Co | Soil llected: 25-J | | | ratory Data | | | | | |
|----------------------------------|--|--------------------|-----------------------|-------------|------|-------------------------------|--------------------------------|-----------|-----------|-----------------|----------|
| | | | | an-18 15:50 | | Sample: Received: Iids: | 1800266-1 07-Feb-18 86.0 | | Column: | BEH C18 | |
| | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.343 | 0.946 | 1.89 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | 1 |
| PFHxA | | ND | 0.192 | 0.946 | 1.89 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | 1 |
| PFHpA | | ND | 0.194 | 0.946 | 1.89 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | 1 |
| PFHxS | | ND | 0.293 | 0.946 | 1.89 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | 1 |
| PFOA | | ND | 0.223 | 0.946 | 1.89 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | 1 |
| PFOS | | ND | 0.799 | 0.946 | 1.89 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | 1 |
| PFNA | | ND | 0.168 | 0.946 | 1.89 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | 1 |
| PFDA | | ND | 0.242 | 0.946 | 1.89 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | 1 |
| MeFOSAA | | ND | 0.286 | 0.946 | 1.89 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | 1 |
| PFUnA | | ND | 0.335 | 0.946 | 1.89 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | 1 |
| EtFOSAA | | ND | 0.304 | 0.946 | 1.89 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | 1 |
| PFDoA | | ND | 0.261 | 0.946 | 1.89 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | 1 |
| PFTrDA | | ND | 0.115 | 0.946 | 1.89 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | |
| PFTeDA | | ND | 0.187 | 0.946 | 1.89 | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 108 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | 1 |
| 13C2-PFHxA | IS | 98.1 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | 1 |
| 13C4-PFHpA | IS | 98.1 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | 1 |
| 18O2-PFHxS | IS | 101 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | 1 |
| 13C2-PFOA | IS | 76.5 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | 1 |
| 13C8-PFOS | IS | 95.3 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | 1 |
| 13C5-PFNA | IS | 82.3 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | 1 |
| 13C2-PFDA | IS | 79.2 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | |
| d3-MeFOSAA | IS | 75.4 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | |
| 13C2-PFUnA | IS | 84.6 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | 1 |
| d5-EtFOSAA | IS | 84.2 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | 1 |
| 13C2-PFDoA | IS | 95.6 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | 1 |
| 13C2-PFTeDA | IS | 102 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.23 g | 16-Feb-18 05:23 | .1 |

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit The results are reported in dry weight The sample size is reported in wet weight

Results reported to the DL

Only the linear isomer is reported for all other analytes

Work Order 1800266 Page 24 of 31



| Client Data | | | | | Labo | oratory Data | | | | | |
|-------------------|----------------|----------------------|----------------------|-------------|-------|----------------------|--------------------------------|-----------|-----------|-----------------|----------|
| Name: CH2N | WI- AULT FIELD | Matrix: Date Coll | Soil ected: 25-Ja | nn-18 15:55 | Lab S | Sample: Received: | 1800266-1 07-Feb-18 84.7 | | Column: | ВЕН С18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.343 | 0.945 | 1.89 | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | 1 |
| PFHxA | | ND | 0.192 | 0.945 | 1.89 | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | 1 |
| PFHpA | | ND | 0.194 | 0.945 | 1.89 | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | |
| PFHxS | | ND | 0.293 | 0.945 | 1.89 | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | 1 |
| PFOA | | ND | 0.223 | 0.945 | 1.89 | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | |
| PFOS | | ND | 0.798 | 0.945 | 1.89 | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | |
| PFNA | | ND | 0.168 | 0.945 | 1.89 | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | 1 |
| PFDA | | ND | 0.242 | 0.945 | 1.89 | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | 1 |
| MeFOSAA | | ND | 0.285 | 0.945 | 1.89 | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | 1 |
| PFUnA | | ND | 0.334 | 0.945 | 1.89 | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | 1 |
| EtFOSAA | | ND | 0.303 | 0.945 | 1.89 | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | 1 |
| PFDoA | | ND | 0.261 | 0.945 | 1.89 | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | 1 |
| PFTrDA | | ND | 0.115 | 0.945 | 1.89 | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | 1 |
| PFTeDA | | ND | 0.187 | 0.945 | 1.89 | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 121 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | 1 |
| 13C2-PFHxA | IS | 91.6 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | 1 |
| 13C4-PFHpA | IS | 93.6 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | 1 |
| 18O2-PFHxS | IS | 97.0 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | 1 |
| 13C2-PFOA | IS | 101 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | 1 |
| 13C8-PFOS | IS | 97.3 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | 1 |
| I3C5-PFNA | IS | 83.6 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | 1 |
| 13C2-PFDA | IS | 83.3 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | 1 |
| d3-MeFOSAA | IS | 74.4 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | 1 |
| 13C2-PFUnA | 1S | 83.2 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | 1 |
| d5-EtFOSAA | IS | 73.5 | | 50 - 150 | | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | 1 |
| | 10 | 01.7 | | 50 150 | | | B8B0053 | 07-Feb-18 | 1.25 g | 16-Feb-18 05:34 | 1 |
| 13C2-PFDoA | IS | 91.7 | | 50 - 150 | | | CCOODS | 07-160-16 | 1.23 g | 10-160-16 03:34 | 39. |

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight
The sample size is reported in wet weight
Results reported to the DL

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers



DATA VALIDATION SUMMARY REPORT NAS WHIDBEY ISLAND, WASHINGTON

Client: CH2M HILL, Inc., Corvallis, Oregon

SDG: 1800267

Laboratory: Vista Analytical Laboratory, El Dorado Hills, California Site: NAS Whidbey Island, Ault Field, CTO-4041, Washington

Date: May 29, 2018

| | | PFCs | |
|--------|--------------------|----------------------|--------|
| EDS ID | Client Sample ID | Laboratory Sample ID | Matrix |
| 1 | WI-AF-EB05-SO-0118 | 1800267-01 | Water |
| 2 | WI-AF-FB-012018 | 1800267-02 | Water |
| 3 | WI-AF-EB06-SO-0118 | 1800267-03 | Water |
| 4 | WI-AF-FB-012218 | 1800267-04 | Water |
| 5* | WI-AF-FB-012318 | 1800267-05 | Water |
| 6 | WI-AF-EB07-SO-0118 | 1800267-06 | Water |
| 7 | WI-AF-FB-012418 | 1800267-07 | Water |
| 8 | WI-AF-EB08-SO-0118 | 1800267-08 | Water |
| 9 | WI-AF-EB09-SO-0118 | 1800267-09 | Water |
| 10 | WI-AF-FB-012518 | 1800267-10 | Water |

^{*}Sample not received but listed on EOC

A full data validation was performed on the analytical data for five aqueous field blank samples and five aqueous equipment blank samples collected on January 20-25, 2018 by CH2M HILL at the NAS Whidbey Island Ault Field 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 Method References
PFCs USEPA Method 537 Modified

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, the Final Sampling and Analysis Plan Phase I Site Investigation for Per- and Polyfluoroalkyl Substances in Soil and Groundwater Ault Field, February 2018, and the USEPA National Functional Guidelines for Organic Data Review as follows:

- The USEPA "Contract Laboratories Program National Functional Guidelines for Organic Superfund Methods Data Review," January 2017;
- 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
- 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 (Level IV) data validation was performed with this review including a recalculation of 10% of the detected results in the samples.

Data Usability Assessment

There were no rejections of data.

Overall the data is 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 Compounds (PFCs)

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 except for the following.

| EDS Sample ID | Date Collected | Date Extracted | # Days | Qualifier |
|---------------|----------------|----------------|--------|-----------|
| 1 | 1/20/18 | 2/8/18 | 19 | J/UJ |
| 2 | 1/20/18 | 2/8/18 | 19 | I/UI |

| EDS Sample ID | Date Collected | Date Extracted | # Days | Qualifier |
|---------------|----------------|----------------|--------|-----------|
| 3 | 1/22/18 | 2/8/18 | 17 | J/UJ |
| 4 | 1/22/18 | 2/8/18 | 17 | J/UJ |
| 6 | 1/23/18 | 2/8/18 | 16 | I/UI |
| 7 | 1/24/18 | 2/8/18 | 15 | I/UI |
| 8 | 1/24/18 | 2/8/18 | 15 | I/UI |

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 samples were free of contamination.

| Blank ID | Compound | Conc. ng/L | Qualifier | Affected Samples |
|--------------------|-----------|------------|-----------|---------------------------|
| WI-AF-EB05-SO-0118 | None - ND | | | |
| WI-AF-FB-012018 | PFHxS | 1.12 | None | Applies to Other Packages |
| WI-AF-EB06-SO-0118 | None - ND | | | - |
| WI-AF-FB-012218 | PFOA | 0.936 | None | Applies to Other Packages |
| WI-AF-EB07-SO-0118 | PFOA | 0.898 | None | Applies to Other Packages |
| WI-AF-FB-012418 | PFHxS | 1.09 | None | Applies to Other Packages |
| | PFOA | 0.725 | None | |
| WI-AF-EB08-SO-0118 | None - ND | 10)1=5e=11 | 4 | |
| WI-AF-EB09-SO-0118 | PFHxS | 1.05 | None | Applies to Other Packages |
| WI-AF-FB-012518 | PFOA | 0.862 | None | Applies to Other Packages |

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

• MS/MSD samples were not analyzed.

Laboratory Control Samples

The LCS samples exhibited acceptable percent recoveries (%R) except for the following.

| LCS ID | Compound | %R | Qualifier | Affected Samples |
|-------------|----------|------|-----------|------------------|
| B8B0049-BS1 | MeFOSAA | 131% | None | All ND |

Internal Standard (IS) Area Performance

All internal standards met response and retention time (RT) criteria except for the following.

| EDS Sample ID | Internal Standard | %R | Qualifier | Affected Samples |
|---------------|-------------------|-------|-----------|------------------|
| 7 | d5-EtFOSAA | 48.7% | None | See HT |

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.

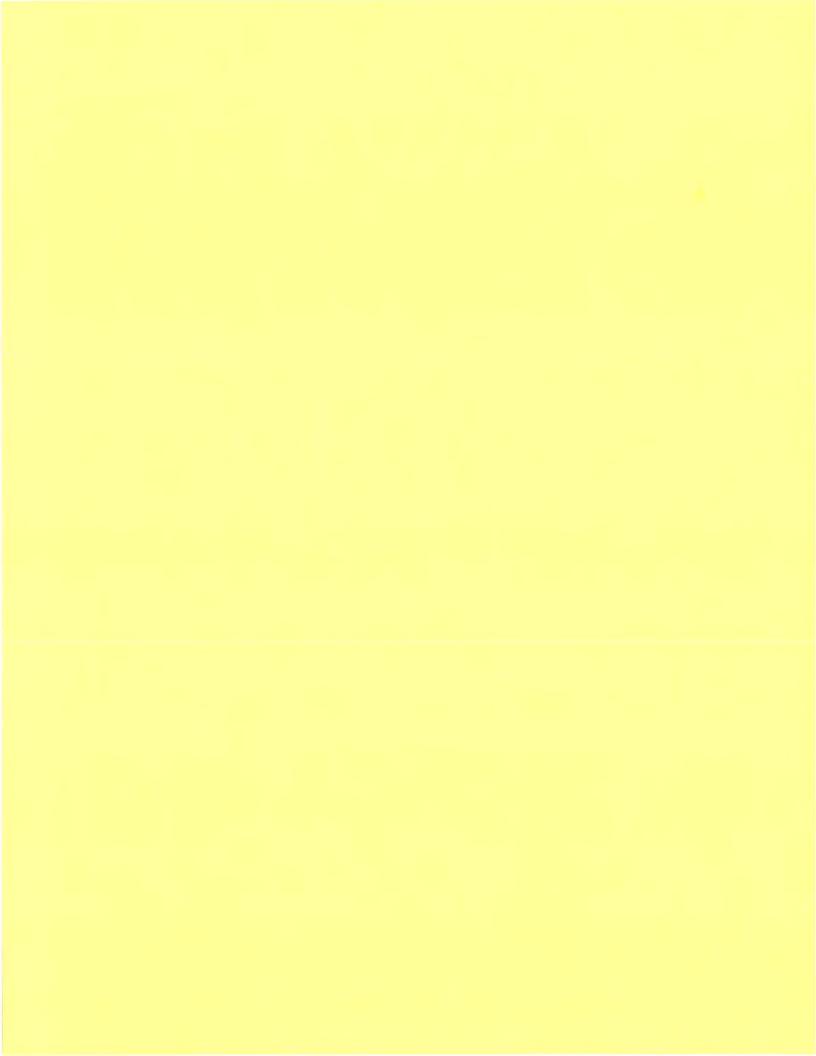
Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed:

Many Weaver Dated: 6/1/18 Nancy Weaver

Senior Chemist

| Data Qualifier | Definition |
|-------------------|--|
| U | The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit. |
| J | The analyte is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample. |
| NJ | The analysis has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the samples. |
| UJ | The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise. |
| R | The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the samples. |





| Sample ID: WI | -AF-EB05-SO-0118 | | | | | | | | Mod | ified EPA Met | hod 537 |
|----------------------|--|-----------------------|-----------------|-------------------------|------|--------------------------------------|----------------------------|---------------|-------------------|------------------------|----------|
| Project: | CH2M Hill NAS WI- AULT FIELD SB606 | Matrix: Date Colle | | eous lan-18 14:55 | Lab | oratory Data Sample: Received: | 1800267 - 07-Feb-18 | | Column: | ВЕН С18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | NDUJ | 2.00 | 5.58 | 8.95 | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | 1 |
| PFHxA | | ND | 2.44 | 5.58 | 8.95 | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | 1 |
| PFHpA | | ND | 0.661 | 5.58 | 8.95 | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | 1 |
| PFHxS | | ND | 1.06 | 5.58 | 8.95 | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | 1 |
| PFOA | | ND | 0.728 | 5.58 | 8.95 | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | |
| PFOS | | ND | 0.903 | 5.58 | 8.95 | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | 1 |
| PFNA | | ND | 0.906 | 5.58 | 8.95 | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | 1 |
| PFDA | | ND | 1.67 | 5.58 | 8.95 | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | |
| MeFOSAA | | ND | 1.85 | 5.58 | 8.95 | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | |
| PFUnA | | ND | 1.17 | 5.58 | 8.95 | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | |
| EtFOSAA | | ND | 1.53 | 5.58 | 8.95 | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | 1 |
| PFDoA | | ND | 0.886 | 5.58 | 8.95 | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | 1 |
| PFTrDA | | ND | 0.552 | 5.58 | 8.95 | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | 1 |
| PFTeDA | | ND 1 | 0.844 | 5.58 | 8.95 | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | |
| Labeled Standard | s Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 102 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | 1 |
| 13C2-PFHxA | IS | 85.5 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | 1 |
| 13C4-PFHpA | IS | 84.7 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | 1 |
| 18O2-PFHxS | IS | 85.8 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | 1 |
| 13C2-PFOA | IS | 85.6 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | 1 |
| 13C8-PFOS | IS | 85.6 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | 1 |
| 13C5-PFNA | IS | 90.9 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | 1 |
| 13C2-PFDA | IS | 63.2 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | 1 |
| d3-MeFOSAA | IS | 53.1 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | 1 |
| 13C2-PFUnA | IS | 62.8 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | 1 |
| d5-EtFOSAA | IS | 60.5 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | 1 |
| 13C2-PFDoA | IS | 62.6 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | |
| 13C2-PFTeDA | IS | 99.0 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.112 L | 18-Feb-18 17:49 | |
| DL - Detection Limit | LOD - Limit of Detection | 1.01.1103.1 | ower control li | mit - upper control lin | i. | When ret | ported PFHyS | PEOA and PEOS | include both line | ear and branched isome | ne e |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW 5/29/18

Work Order 1800267 Page 8 of 22



| Sample ID: W | I-AF-FB-012018 | | | | | | | | | Mod | ified EPA Metl | hod 537 |
|--------------------------------------|--|--------------|-----------------------|---------------------|-------------------------|-------|--------------------------------------|------------------------|-----------|-----------|-----------------------|----------|
| Client Data Name: Project: Location: | CH2M Hill NAS WI- AULT FIELD SB606 | | Matrix: Date Colle | Aque cted: 20-Ja | ous .n-18 15:15 | Lab S | oratory Data Sample: Received: | 1800267-0 07-Feb-18 | | Column: | BEH C18 | |
| Analyte | | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | | ND U.J | 1.92 | 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| PFHxA | | | ND | 2.34 | 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| PFHpA | | | ND | 0.633 | 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| PFHxS | | | 1.12 | 1.01 | 5.34 | 8.57 | 8 | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| PFOA | | | ND UJ | 0.697 | 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| PFOS | | | ND | 0.864 | 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| PFNA | | | ND | 0.868 | 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| PFDA | | | ND | 1.60 | 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| MeFOSAA | | | ND | 1.77 | 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| PFUnA | | | иp | 1.12 | 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| EtFOSAA | | | иp | 1.47 | 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| PFDoA | | | ND | 0.848 | 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| PFTrDA | | | ND | 0.529 | 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| PFTeDA | | | ND 🕴 | 0.809 | 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| Labeled Standard | ls Ty | pe | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | | IS | 104 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| 13C2-PFHxA | | IS | 85.8 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| 13C4-PFHpA | | IS | 91.6 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| 18O2-PFHxS | | IS | 90.7 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| 13C2-PFOA | | IS | 87.2 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| 13C8-PFOS | | IS | 90.5 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| 13C5-PFNA | | IS | 72.0 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| 13C2-PFDA | | IS | 60.7 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| d3-MeFOSAA | | IS | 57.2 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| 13C2-PFUnA | | IS | 53.4 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| d5-EtFOSAA | | IS | 59.5 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| 13C2-PFDoA | | IS | 83.6 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| 13C2-PFTeDA | | IS | 96.5 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:01 | 1 |
| DL - Detection Limit | LOD - Limit o | of Detection | LCL-UCL-1 | ower control lim | it - upper control limi | t | | orted, PFHxS, I | | | ar and branched isome | is |

N 5/29/18

Results reported to the DL

LOQ - Limit of quantitation

Work Order 1800267 Page 9 of 22



| Sample ID: WI-Al | F-EB06-SO-0118 | | | | | | | | Mod | ified EPA Metl | hod 537 |
|-------------------|-----------------------------------|-----------------------|-------|------------------------|-------|--------------------------------------|------------------------|-----------|-----------|-----------------|----------|
| | 2M Hill S WI-AULT FIELD 505 | Matrix: Date Colle | | ueous -Jan-18 10:05 | Lab S | oratory Data Sample: Received: | 1800267-0 07-Feb-18 | - | Column: | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND UJ | 1.85 | 5.17 | 8.25 | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| PFHxA | | ND | 2.25 | 5.17 | 8.25 | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| PFHpA | | ND | 0.610 | 5.17 | 8.25 | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| PFHxS | | ND | 0.977 | 5.17 | 8.25 | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| PFOA | | ND | 0.671 | 5.17 | 8.25 | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| PFOS | | ND | 0.832 | 5.17 | 8.25 | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| PFNA | | ND | 0.835 | 5.17 | 8.25 | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| PFDA | | ND | 1.54 | 5.17 | 8.25 | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| MeFOSAA | | ND | 1.70 | 5.17 | 8.25 | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| PFUnA | | ND | 1.08 | 5.17 | 8.25 | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | |
| EtFOSAA | | ND | 1.41 | 5.17 | 8.25 | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| PFDoA | | ND | 0.817 | 5.17 | 8.25 | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| PFTrDA | | ND | 0.510 | 5.17 | 8.25 | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| PFTeDA | | ND 🖠 | 0.779 | 5.17 | 8.25 | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 101 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| 13C2-PFHxA | IS | 89.8 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| 13C4-PFHpA | IS | 96.5 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| 18O2-PFHxS | IS | 88.4 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| 13C2-PFOA | IS | 69.6 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| 13C8-PFOS | IS | 90.9 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| 13C5-PFNA | IS | 76.6 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| 13C2-PFDA | IS | 69.9 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| d3-MeFOSAA | IS | 69.8 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| 13C2-PFUnA | IS | 80.8 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| d5-EtFOSAA | IS | 70.7 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| 13C2-PFDoA | IS | 93.1 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |
| 13C2-PFTeDA | IS | 86.5 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.121 L | 18-Feb-18 18:12 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.

Page 10 of 22



| Sample ID: W | I-AF-FB-012218 | | | | | | | | | Mod | ified EPA Metl | nod 537 |
|--------------------------------------|--|-----------|-----------------------|----------|----------------------------------|-------|--------------------------------------|------------------------|---------------|-------------------|------------------------|----------|
| Client Data Name: Project: Location: | CH2M Hill NAS WI- AULT FIELD SB605 | | Matrix: Date Colle | | Aqueous 22-Jan-18 10:10 | Lab S | oratory Data Sample: Received: | 1800267-0 07-Feb-18 | | Column: | BEH C18 | |
| Analyte | | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | | ND WJ | 1.92 | 2 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | 1 |
| PFHxA | | | ND | 2.34 | 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | |
| PFHpA | | | ND | 0.63 | 3 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | 1 |
| PFHxS | | | ND | 1.01 | 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | 1 |
| PFOA | | | 0.936 | 0.69 | 7 5.34 | 8.57 | r | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | 1 |
| PFOS | | | ND U.J | 0.86 | 4 5.34 | 8.57 | · | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | 1 |
| PFNA | | | ND | 0.86 | 8 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | |
| PFDA | | | ND | 1.60 | 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | |
| MeFOSAA | | | ND | 1.77 | 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | -0.117 L | 18-Feb-18 18:24 | |
| PFUnA | | | ND | 1.12 | 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | 1 |
| EtFOSAA | | | ND | 1.47 | 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | |
| PFDoA | | | ND | 0.848 | 8 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | 1 |
| PFTrDA | | | ND | 0.529 | 9 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | 1 |
| PFTeDA | | | ND d | 0.809 | 9 5.34 | 8.57 | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | 1 |
| Labeled Standard | s Typ | e | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | | IS | 100 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | 1 |
| 13C2-PFHxA | | IS | 89.1 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | 1 |
| 13C4-PFHpA | | IS | 91.3 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | 1 |
| 18O2-PFHxS | | IS | 85.6 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | 1 |
| 13C2-PFOA | | IS | 69.4 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | 1 |
| 13C8-PFOS | | IS | 94.8 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | 1 |
| 13C5-PFNA | | IS | 76.8 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | 1 |
| 13C2-PFDA | | S | 57.1 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | 1 |
| d3-MeFOSAA | | S | 64.5 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | 1 |
| 13C2-PFUnA | | IS | 69.9 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | 1 |
| d5-EtFOSAA | 1 | S | 60.7 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | |
| 13C2-PFDoA | i | S | 81.9 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | 1 |
| 13C2-PFTeDA | | S | 79.3 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.117 L | 18-Feb-18 18:24 | 1 |
| DL - Detection Limit | LOD - Limit of | Detection | LCL-UCL- L | ower con | trol limit - upper control limit | | When rep | orted, PFHxS, I | PFOA and PFOS | include both line | ar and branched isomer | rs. |

w S/29/18

Results reported to the DL

LOQ - Limit of quantitation



| od 537 | fied EPA Metl | Modi | | | | | | | | | | WI-AF-EB07-SO-0118 | Sample ID: V |
|----------|-----------------|-----------|-----------|------------------------|------------------------------------|-------|-------------------|--------------|-----------------|-------------|------|---------------------------------|----------------------------|
| | BEH C18 | Column: | | 1800267-0 07-Feb-18 | ratory Data ample: Received: | Lab S | ous n-18 16:00 | Aqueted: 23- | rix: : Colle | Mat Date | | CH2M Hill NAS WI- AULT FIELD | Client Data Name: Project: |
| Dilution | Analyzed | Samp Size | Extracted | Batch | Qualifiers | LOQ | LOD | DL |) | Conc. (ng/L | | | Analyte |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | 8.40 | 5.25 | 1.88 | いブ | ND | | | PFBS |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | 8.40 | 5.25 | 2.29 | 1 | ND | | | PFHxA |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | 8.40 | 5.25 | 0.621 | | ND | | | PFHpA |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | 8.40 | 5.25 | 0.994 | < | ND | | | PFHxS |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | 8 | 8.40 | 5.25 | 0.684 | J | 0.898 | | | PFOA |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | 8.40 | 5.25 | 0.847 | UJ | ND | | | PFOS |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | 8.40 | 5.25 | 0.851 | 1 | ND | | | PFNA |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | 8.40 | 5.25 | 1.56 | | ND | | | PFDA |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | 8.40 | 5.25 | 1.73 | | ND | | | MeFOSAA |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | 8.40 | 5.25 | 1.10 | | ND | | | PFUnA |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | 8.40 | 5.25 | 1.44 | | ND | | | EtFOSAA |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | 8.40 | 5.25 | 0.832 | | ND | | | PFDoA |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | 8.40 | 5.25 | 0.519 | | ND | | | PFTrDA |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | 8.40 | 5.25 | 0.793 | 4 | ND | | | PFTeDA |
| Dilution | Analyzed | Samp Size | Extracted | Batch | Qualifiers | | Limits | | егу | % Recov | Type | rds | Labeled Standa |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | | 50 - 150 | | | 102 | IS | | 13C3-PFBS |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | | 50 - 150 | | | 92.1 | IS | | 13C2-PFHxA |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | | 50 - 150 | | | 92.1 | IS | | 13C4-PFHpA |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | | 50 - 150 | | | 91.2 | IS | | 18O2-PFHxS |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | | 50 - 150 | | | 76.4 | IS | | I3C2-PFOA |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | | 50 - 150 | | | 98.3 | IS | | 13C8-PFOS |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | | 50 - 150 | | | 83.7 | IS | | 13C5-PFNA |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | | 50 - 150 | | | 65.5 | IS | | 3C2-PFDA |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | | 50 - 150 | | | 57.6 | IS | | l3-MeFOSAA |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | | 50 - 150 | | | 55.0 | 1S | | 13C2-PFUnA |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | | 50 - 150 | | | 55.8 | IS | | i5-EtFOSAA |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | | 50 - 150 | | | 76.0 | IS | | 13C2-PFDoA |
| 1 | 18-Feb-18 18:35 | 0.119 L | 08-Feb-18 | B8B0049 | | | 50 - 150 | | | 92.3 | IS | | 13C2-PFTeDA |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers Only the linear isomer is reported for all other analytes



| Sample ID: WI-AF- | FB-012418 | | | | | | | | Mod | ified EPA Met | hod 537 |
|------------------------|---------------|--------------|-------------|-------------|------|-------------------------|-----------|-----------|-----------|-----------------|----------|
| Client Data Name: CH2N | A Hill | Matrix: | Aque | eous | | oratory Data Sample: | 1800267-0 | 07 | Column: | BEH C18 | |
| Project: NAS | WI-AULT FIELD | Date Colle | cted: 24-Ja | an-18 09:35 | Date | Received: | 07-Feb-18 | 10:29 | | | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND U.J | 1.87 | 5.21 | 8.34 | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | 1 |
| PFHxA | | ND | 2.27 | 5.21 | 8.34 | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | |
| PFHpA | | ND | 0.616 | 5.21 | 8.34 | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | |
| PFHxS | | 1.09 | 0.987 | 5.21 | 8.34 | 8 | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | |
| PFOA | | 0.725 | 0.678 | 5.21 | 8.34 | 81 | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | |
| PFOS | | NIP UIT | 0.841 | 5.21 | 8.34 | / | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | |
| PFNA | | ND | 0.844 | 5.21 | 8.34 | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | |
| PFDA | | ND | 1.55 | 5.21 | 8.34 | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | |
| MeFOSAA | | ND | 1.72 | 5.21 | 8.34 | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | |
| PFUnA | | ND | 1.09 | 5.21 | 8.34 | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | |
| EtFOSAA | | LN GK | 1.43 | 5.21 | 8.34 | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | |
| PFDoA | | ND | 0.825 | 5.21 | 8.34 | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | |
| PFTrDA | | ND | 0.515 | 5.21 | 8.34 | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | 1 |
| PFTeDA | | NID * | 0.787 | 5.21 | 8.34 | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | 1 |
| Labeled Standards | Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 100 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | 1 |
| 13C2-PFHxA | IS | 97.9 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | 1 |
| 13C4-PFHpA | IS | 90.3 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | 1 |
| 18O2-PFHxS | IS | 103 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | 1 |
| 13C2-PFOA | IS | 76.3 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | 1 |
| 13C8-PFOS | IS | 108 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | 1 |
| 13C5-PFNA | IS | 72.5 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | 1 |
| 13C2-PFDA | IS | 74.8 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | 1 |
| d3-MeFOSAA | IS | 50.9 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | 1 |
| 13C2-PFUnA | 18 | 60.3 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | |
| d5-EtFOSAA | IS | 48.7 | | 50 - 150 | | Н | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | 1 |
| 13C2-PFDoA | IS | 74.3 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | 1 |
| 13C2-PFTeDA | IS | 117 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 18:46 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.

pu 329/18



| Sample ID: WI-AF-EB08-SO-0118 Modified EPA Method 537 | | | | | | | | | | | |
|---|---------------------|---|-------|----------|-------|--|---------|-------------------------------|-----------|-----------------|----------|
| Client Data Name: CH2M H Project: NAS WI- | ill · AULT FIELD | Matrix: Aqueous Date Collected: 24-Jan-18 09:40 | | | Lab S | Laboratory Data Lab Sample: Date Received: | | 1800267-08 07-Feb-18 10:29 | | ВЕН С18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND WJ | 1.80 | 5.04 | 8.06 | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |
| PFHxA | | ND | 2.20 | 5.04 | 8.06 | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |
| PFHpA | | ND | 0.595 | 5.04 | 8.06 | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | |
| PFHxS | | ND | 0.954 | 5.04 | 8.06 | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |
| PFOA | | ND | 0.656 | 5.04 | 8.06 | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |
| PFOS | | ND | 0.813 | 5.04 | 8.06 | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | |
| PFNA | | ND | 0.816 | 5.04 | 8.06 | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |
| PFDA | | ND | 1.50 | 5.04 | 8.06 | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |
| MeFOSAA | | ND | 1.66 | 5.04 | 8.06 | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |
| PFUnA | | ND | 1.06 | 5.04 | 8.06 | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |
| EtFOSAA | | ND | 1.38 | 5.04 | 8.06 | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |
| PFDoA | | ND | 0.798 | 5.04 | 8.06 | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |
| PFTrDA | | ND | 0.498 | 5.04 | 8.06 | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |
| PFTeDA | | ND 🕴 | 0.760 | 5.04 | 8.06 | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |
| Labeled Standards | Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 88.9 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |
| 13C2-PFHxA | IS | 86.0 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |
| 13C4-PFHpA | IS | 85.0 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |
| 18O2-PFHxS | 1S | 89.9 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |
| I3C2-PFOA | IS | 74.7 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |
| 13C8-PFOS | IS | 99.9 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |
| 13C5-PFNA | IS | 80.2 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |
| 13C2-PFDA | IS | 59.4 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |
| d3-MeFOSAA | IS | 55.6 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |
| 13C2-PFUnA | IS | 63.7 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |
| d5-EtFOSAA | IS | 60.7 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |
| 13C2-PFDoA | IS | 70.1 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |
| 13C2-PFTeDA | IS | 88.1 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.124 L | 18-Feb-18 18:58 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers: Only the linear isomer is reported for all other analytes

Work Order 1800267 Page 14 of 22



| Sample ID: WI-AF-EB09-SO-0118 Modified EPA Method 537 | | | | | | | | | | | | |
|---|--|------|----------------------------|-------|-------------------------|--|------------|-------------------------------|-----------|-----------|-----------------|----------|
| Project: | CH2M Hill NAS WI- AULT FIELD SB610 | | Matrix: Date Collected: | | jueous -Jan-18 16:00 | Laboratory Data Lab Sample: Date Received: | | 1800267-09 07-Feb-18 10:29 | | Column: | ВЕН С18 | |
| Analyte | | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | | ND | 1.88 | 5.25 | 8.40 | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | 1 |
| PFHxA | | | ND | 2.29 | 5.25 | 8.40 | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | |
| PFHpA | | | ND | 0.620 | 5.25 | 8.40 | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | |
| PFHxS | | | 1.05 | 0.994 | 5.25 | 8.40 | J. | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | |
| PFOA | | | ND | 0.683 | 5.25 | 8.40 | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | 1 |
| PFOS | | | ND | 0.847 | 5.25 | 8.40 | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | 1 |
| PFNA | | | ND | 0.850 | 5.25 | 8.40 | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | 1 |
| PFDA | | | ND | 1.56 | 5.25 | 8.40 | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | 1 |
| MeFOSAA | | | ND | 1.73 | 5.25 | 8.40 | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | 1 |
| PFUnA | | | ND | 1.10 | 5.25 | 8.40 | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | 1 |
| EtFOSAA | | | ND | 1.44 | 5.25 | 8.40 | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | 1 |
| PFDoA | | | ND | 0.831 | 5.25 | 8.40 | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | 1 |
| PFTrDA | | | ND | 0.519 | 5.25 | 8.40 | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | 1 |
| PFTeDA | | | ND | 0.793 | 5.25 | 8.40 | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | 1 |
| Labeled Standard | s | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | | IS | 99.5 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | 1 |
| 13C2-PFHxA | | IS | 86.3 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | 1 |
| 13C4-PFHpA | | IS | 82.5 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | 1 |
| 18O2-PFHxS | | IS | 96.9 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | 1 |
| 13C2-PFOA | | IS | 76.4 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | 1 |
| 13C8-PFOS | | IS | 92.7 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | 1 |
| 13C5-PFNA | | IS | 82.8 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | 1 |
| 13C2-PFDA | | IS | 78.7 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | 1 |
| d3-MeFOSAA | | IS | 72.7 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | 1 |
| 13C2-PFUnA | | 1S | 64.0 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | 1 |
| d5-EtFOSAA | | IS | 69.0 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | 1 |
| 13C2-PFDoA | | IS | 71.4 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | 1 |
| 13C2-PFTeDA | | IS | 98.4 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.119 L | 18-Feb-18 19:09 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.

Work Order 1800267 Page 15 of 22



| Sample ID: WI | I-AF-FB-012518 | | | | | | | | Mod | ified EPA Met | hod 537 |
|--------------------------------------|--|---------------------|-------|----------------------|------|--------------------------------------|-----------------------|---------------|-----------|-----------------|----------|
| Client Data Name: Project: Location: | CH2M Hill NAS WI- AULT FIELD SB610 | Matrix: Date Col | | eous lan-18 16:05 | Lab | oratory Data Sample: Received: | 1800267- 07-Feb-18 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 1.86 | 5.21 | 8.33 | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | 1 |
| PFHxA | | ND | 2.27 | 5.21 | 8.33 | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | |
| PFHpA | | ND | 0.615 | 5.21 | 8.33 | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | |
| PFHxS | | ND | 0.986 | 5.21 | 8.33 | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | |
| PFOA | | 0.862 | 0.678 | 5.21 | 8.33 | J | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | |
| PFOS | | ND | 0.840 | 5.21 | 8.33 | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | |
| PFNA | | ND | 0.843 | 5.21 | 8.33 | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | 1 |
| PFDA | | ND | 1.55 | 5.21 | 8.33 | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | 1 |
| MeFOSAA | | ND | 1.72 | 5.21 | 8.33 | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | 1 |
| PFUnA | | ND | 1.09 | 5.21 | 8.33 | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | 1 |
| EtFOSAA | | ND | 1.43 | 5.21 | 8.33 | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | 1 |
| PFDoA | | ND | 0.825 | 5,21 | 8.33 | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | 1 |
| PFTrDA | | ND | 0.514 | 5.21 | 8.33 | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | 1 |
| PFTeDA | | ND | 0.786 | 5.21 | 8.33 | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | 1 |
| Labeled Standard | s Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 97.6 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | 1 |
| 13C2-PFHxA | IS | 88.5 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | 1 |
| 13C4-PFHpA | IS | 78.3 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | 1 |
| 18O2-PFHxS | IS | 81.9 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | 1 |
| 13C2-PFOA | IS | 76.9 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | 1 |
| 13C8-PFOS | IS | 95.1 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | 1 |
| 13C5-PFNA | IS | 81.9 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | 1 |
| 13C2-PFDA | IS | 72.3 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | 1 |
| d3-MeFOSAA | IS | 54.1 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | 1 |
| 13C2-PFUnA | IS | 61.0 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | 1 |
| d5-EtFOSAA | IS | 54.4 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | 1 |
| 13C2-PFDoA | IS | 62.0 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | 1 |
| 13C2-PFTeDA | IS | 85.8 | | 50 - 150 | | | B8B0049 | 08-Feb-18 | 0.120 L | 18-Feb-18 19:21 | 1 |
| DL - Detection Limit | LOD - Limit of Detec | etion 1 C1 -UCL- | | | | | | PFOA and PFOS | | | |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS 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: 1800268

Laboratory: Vista Analytical Laboratory, El Dorado Hills, California Site: NAS Whidbey Island, Ault Field, CTO-4041, Washington

Date: May 29, 2018

| | | PFCs | |
|--------|------------------------------|----------------------|--------|
| EDS ID | Client Sample ID | Laboratory Sample ID | Matrix |
| 1 | WI-AF-SB614-0001-0118 | 1800268-01 | Soil |
| 2 | WI-AF-SB614-0102-0118 | 1800268-02 | Soil |
| 3 | WI-AF-SB614P-0102-0118 | 1800268-03 | Soil |
| 4 | WI-AF-SB612-0001-0118 | 1800268-04 | Soil |
| 5 | WI-AF-SB612-0204-0118 | 1800268-05 | Soil |
| 6 | WI-AF-SB612-04.505.5-0118 | 1800268-06 | Soil |
| 6MS | WI-AF-SB612-04.505.5-0118MS | 1800268-06MS | Soil |
| 6MSD | WI-AF-SB612-04.505.5-0118MSD | 1800268-06MSD | Soil |
| 7 | WI-AF-SB612-6870-0118 | 1800268-07 | Soil |
| 8 | WI-AF-SB613-000.5-0118 | 1800268-08 | Soil |
| 9 | WI-AF-SB613-0.502-0118 | 1800268-09 | Soil |
| 10 | WI-AF-SB613-03.504.5-0118 | 1800268-10 | Soil |
| 11 | WI-AF-SB613-5657.5-0118 | 1800268-11 | Soil |
| 12 | WI-AF-SB607-000H-0118 | 1800268-12 | Soil |
| 13 | WI-AF-SB607P-000H-0118 | 1800268-13 | Soil |
| 14 | WI-AF-SB607-0203-0118 | 1800268-14 | Soil |
| 15 | WI-AF-SB607-0405-0118 | 1800268-15 | Soil |
| 16 | WI-AF-SB607-1011-0118 | 1800268-16 | Soil |
| 17 | WI-AF-SB610-3940-0118 | 1800268-17 | Soil |
| 18 | WI-AF-SB610P-3940-0118 | 1800268-18 | Soil |

A full data validation was performed on the analytical data for eighteen soil samples collected on January 5-26, 2018 by CH2M HILL at the NAS Whidbey Island Ault Field 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 Method References
PFCs VAL Method PFAS

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

Polyfluoroalkyl Substances in Soil and Groundwater Ault Field, February 2018, and the USEPA National Functional Guidelines for Organic Data Review as follows:

- The USEPA "Contract Laboratories Program National Functional Guidelines for Organic Superfund Methods Data Review," January 2017;
- 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
- 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 (Level IV) data validation was performed with this review including a recalculation of 10% of the detected results in the samples.

Data Usability Assessment

There were no rejections of data.

Overall the data is acceptable for the intended purposes. There were no qualifications.

Perfluorinated Compounds (PFCs)

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 28 days for soil samples and analyzed within 30 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 samples are summarized below.

| Blank ID | Compound | Conc. ng/L | Qualifier | Affected Samples |
|--------------------|-----------|---|-----------|---|
| WI-AF-EB01-SO-0118 | None - ND | 1 | \$- | 4 |
| WI-AF-EB02-SO-0118 | PFHxS | 1.44 | None | All Associated ND |
| WI-AF-EB03-SO-0118 | None - ND | | | 1- |
| WI-AF-EB04-SO-0118 | None - ND | 949 | 4 | 15- |
| WI-AF-EB10-SO-0118 | None - ND | - | | |
| WI-AF-FB-010518 | None - ND | | | |
| WI-AF-FB-010718 | None - ND | | 4 | 4 |
| WI-AF-FB-011018 | None - ND | | 14 | 1 |
| WI-AF-FB-011218 | None - ND | | 8.0 | d by the state of |
| WI-AF-FB-012618 | PFOA | 0.725 | None | All Associated ND |

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

• The MS/MSD samples exhibited acceptable percent recoveries (%R) and RPD values except for the following.

| MS/MSD Sample | Compound | MS %R/MSD %R/RPD | Qualifier |
|---------------|----------|------------------|--------------------|
| 6 | PFBS | 135%/OK/OK | None - Sample ND |
| | PFTrDA | 146%/OK/OK | |
| | PFDoA | OK/OK/39.7 | None for RPD Alone |

Laboratory Control Samples

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 results are summarized below. The precision was acceptable.

| Compound | WI-AF-SB614-0102-0118 ng/g | WI-AF-SB614P-0102-0118 ng/g | RPD | Qualifier |
|----------|-------------------------------|--------------------------------|------|-----------|
| None | ND | ND | 12 1 | - |
| Compound | WI-AF-SB607-000H-0118 | WI-AF-SB607P-000H-0118 | RPD | Qualifier |
| None | ND | ND | 4 | - 6 |
| Compound | WI-AF-SB610-3940-0118 ng/g | WI-AF-SB610P-3940-0118 | RPD | Qualifier |
| None | ND | ND | | - |

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed:

Senior Chemist

Dated: 6/1/18

| Data Qualifier | Definition |
|-------------------|--|
| U | The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit. |
| J | The analyte is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample. |
| NJ | The analysis has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the samples. |
| UJ | The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise. |
| R | The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the samples. |





| Sample ID: V | VI-AF-SB614-0001-0118 | | | | | | | | | VAL | - PFAS |
|--------------------------------------|---|---------------------|----------------------|-------------|-------|--------------------------------|--------------------------------|-----------|-----------|-----------------|----------|
| Client Data Name: Project: Location: | CH2M Hill NAS WI- AULT FIELD SB-614 | Matrix: Date Col | Soil ected: 05-Ja | ın-18 09:15 | Lab S | oratory Data Sample: Received: | 1800268-0 07-Feb-18 52.9 | | Column: | ВЕН С18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.388 | 1.07 | 2.14 | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | 1 |
| PFHxA | | ND | 0.217 | 1.07 | 2.14 | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | 1 |
| PFHpA | | ND | 0.219 | 1.07 | 2.14 | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | |
| PFHxS | | ND | 0.331 | 1.07 | 2.14 | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | |
| PFOA | | ND | 0.252 | 1.07 | 2.14 | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | 1 |
| PFOS | | ND | 0.902 | 1.07 | 2.14 | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | 1 |
| PFNA | | ND | 0.190 | 1.07 | 2.14 | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | 1 |
| PFDA | | ND | 0.273 | 1.07 | 2.14 | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | 1 |
| MeFOSAA | | ND | 0.323 | 1.07 | 2.14 | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | 1 |
| PFUnA | | ND | 0.378 | 1.07 | 2.14 | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | 1 |
| EtFOSAA | | ND | 0.343 | 1.07 | 2.14 | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | 1 |
| PFDoA | | ND | 0.295 | 1.07 | 2.14 | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | |
| PFTrDA | | ND | 0.130 | 1.07 | 2.14 | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | 1 |
| PFTeDA | | ND | 0.211 | 1.07 | 2.14 | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | 1 |
| Labeled Standar | rds Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 89.6 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | 1 |
| 13C2-PFHxA | IS | 88.9 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | 1 |
| 13C4-PFHpA | IS | 85.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | 1 |
| 18O2-PFHxS | IS | 91.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | 1 |
| 13C2-PFOA | IS | 75.0 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | 1 |
| 13C8-PFOS | IS | 84.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | 1 |
| 13C5-PFNA | IS | 79.0 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | 1 |
| 13C2-PFDA | IS | 62.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | 1 |
| d3-MeFOSAA | IS | 50.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | 1 |
| 13C2-PFUnA | 1S | 51.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | 1 |
| d5-EtFOSAA | IS | 57.9 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | 1 |
| 13C2-PFDoA | IS | 60.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | 1 |
| 13C2-PFTeDA | IS | 93.9 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.77 g | 22-Feb-18 00:17 | 1 |

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight
The sample size is reported in wet weight

Results reported to the DL

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



| Sample ID: W | /I-AF-SB614-0102-0118 | | | | | | | | | VAL | - PFAS |
|--------------------------------------|---|----------------------|----------------------|--------------------------|-------|--------------------------------|--------------------------------|---------------|-------------------|-------------------------|----------|
| Client Data Name: Project: Location: | CH2M Hill NAS WI- AULT FIELD SB-614 | Matrix: Date Coll | Soil ected: 05-Ja | ın-18 09:18 | Lab S | Gratory Data Gample: Received: | 1800268-0 07-Feb-18 73.2 | | Column: | ВЕН С18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.397 | 1.09 | 2.19 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| PFHxA | | ND | 0.222 | 1.09 | 2.19 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| PFHpA | | ND | 0.224 | 1.09 | 2.19 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| PFHxS | | ND | 0.339 | 1.09 | 2.19 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| PFOA | | ND | 0.258 | 1.09 | 2.19 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| PFOS | | ND | 0.923 | 1.09 | 2.19 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| PFNA | | ND | 0.194 | 1.09 | 2.19 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| PFDA | | ND | 0.280 | 1.09 | 2.19 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| MeFOSAA | | ND | 0.330 | 1.09 | 2.19 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| PFUnA | | ND | 0.387 | 1.09 | 2.19 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| EtFOSAA | | ND | 0.351 | 1.09 | 2.19 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| PFDoA | | ND | 0.302 | 1.09 | 2.19 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| PFTrDA | | ND | 0.133 | 1.09 | 2.19 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| PFTeDA | | ND | 0.216 | 1.09 | 2.19 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| Labeled Standar | ds Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 97.7 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| 13C2-PFHxA | IS | 88.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| 13C4-PFHpA | IS | 88.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| 18O2-PFHxS | IS | 78.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| 13C2-PFOA | IS | 79.0 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| 13C8-PFOS | IS | 80.7 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| 13C5-PFNA | IS | 72.9 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| 13C2-PFDA | IS | 88.0 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| d3-MeFOSAA | IS | 59.5 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| 13C2-PFUnA | IS | 78.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| d5-EtFOSAA | IS | 74.9 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| 13C2-PFDoA | IS | 76.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| 13C2-PFTeDA | IS | 108 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 00:29 | 1 |
| DL - Detection Limi | t LOD - Limit of Detection | LCL-UCL- | Lower control lin | nit - upper control limi | t | When re | ported, PFHxS, | PFOA and PFOS | include both line | ear and branched isomer | ıs |

LOD - Limit of Detection LOQ - Limit of quantitation

The results are reported in dry weight The sample size is reported in wet weight Results reported to the DL

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

pu 3/29/1.8

Page 9 of 33 Work Order 1800268

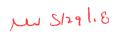


| Sample ID: V | VI-AF-SB614P-0102-0118 | | | | | | | | | VAL | - PFAS |
|--------------------------------------|---|---------------------|----------------------|-------------------------|-------|--------------------------------|--------------------------------|-----------------|-------------------|------------------------|----------|
| Client Data Name: Project: Location: | CH2M Hill NAS WI- AULT FIELD SB-614 | Matrix: Date Col | Soil lected: 05-J | an-18 09:20 | Lab S | Fratory Data Sample: Received: | 1800268-0 07-Feb-18 72.5 | | Column | BEH C18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.391 | 1.08 | 2.15 | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | 1 |
| PFHxA | | ND | 0.219 | 1.08 | 2.15 | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | |
| PFHpA | | ND | 0.221 | 1.08 | 2.15 | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | 1 |
| PFHxS | | ND | 0.334 | 1.08 | 2.15 | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | |
| PFOA | | ND | 0.254 | 1.08 | 2.15 | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | |
| PFOS | | ND | 0.910 | 1.08 | 2.15 | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | 1 |
| PFNA | | ND | 0.192 | 1.08 | 2.15 | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | 1 |
| PFDA | | ND | 0.276 | 1.08 | 2.15 | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | |
| MeFOSAA | | ND | 0.325 | 1.08 | 2.15 | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | 1 |
| PFUnA | | ND | 0.381 | 1.08 | 2.15 | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | 1 |
| EtFOSAA | | ND | 0.346 | 1.08 | 2.15 | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | 1 |
| PFDoA | | ND | 0.297 | 1.08 | 2.15 | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | |
| PFTrDA | | ND | 0.131 | 1.08 | 2.15 | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | -1 |
| PFTeDA | | ND | 0.213 | 1.08 | 2.15 | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | 1 |
| Labeled Standa | rds Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 97.7 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | 1 |
| 13C2-PFHxA | IS | 76.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | 1 |
| 13C4-PFHpA | IS | 87.9 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | 1 |
| 18O2-PFHxS | IS | 83.3 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | 1 |
| 13C2-PFOA | IS | 80.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | 1 |
| 13C8-PFOS | IS | 94.4 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | 1 |
| 13C5-PFNA | IS | 87.7 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | 1 |
| 13C2-PFDA | IS | 93.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | 1 |
| d3-MeFOSAA | IS | 58.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | 1 |
| 13C2-PFUnA | IS | 77.5 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | 1 |
| d5-EtFOSAA | IS | 71.0 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | 1 |
| 13C2-PFDoA | IS | 69.5 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | 1 |
| 13C2-PFTeDA | IS | 55.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.28 g | 22-Feb-18 17:30 | 1 |
| DL - Detection Lim | it LOD - Limit of Detection | 101 193 | | mit - upper control lin | | When | DELL'S | DECLY and DECLE | Tented to test To | ear and branched isome | |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight
The sample size is reported in wet weight
Results reported to the DL

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.



Work Order 1800268 Page 10 of 33



| Sample ID: W | I-AF-SB612-0001-0118 | | | | | | | | | VAL | - PFAS |
|--------------------------------------|---|----------------------|----------------------|-------------------------|-------|--------------------------------|--------------------------------|---------------|-------------------|------------------------|----------|
| Client Data Name: Project: Location: | CH2M Hill NAS WI- AULT FIELD SB-612 | Matrix: Date Coll | Soil ected: 07-Ja | an-18 08:55 | Lab S | pratory Data Sample: Received: | 1800268-0 07-Feb-18 74.1 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.371 | 1.02 | 2.04 | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | 1 |
| PFHxA | | ND | 0.207 | 1.02 | 2.04 | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | 1 |
| PFHpA | | ND | 0.209 | 1.02 | 2.04 | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | |
| PFHxS | | ND | 0.317 | 1.02 | 2.04 | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | |
| PFOA | | ND | 0.241 | 1.02 | 2.04 | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | |
| PFOS | | ND | 0.864 | 1.02 | 2.04 | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | 1 |
| PFNA | | ND | 0.182 | 1.02 | 2.04 | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | 1 |
| PFDA | | ND | 0.262 | 1.02 | 2,04 | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | |
| MeFOSAA | | ND | 0.309 | 1.02 | 2.04 | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | |
| PFUnA | | ND | 0.362 | 1.02 | 2.04 | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | |
| EtFOSAA | | ND | 0.328 | 1.02 | 2.04 | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | 1 |
| PFDoA | | ND | 0.282 | 1.02 | 2.04 | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | |
| PFTrDA | | ND | 0.125 | 1.02 | 2.04 | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | 1 |
| PFTeDA | | ND | 0.202 | 1.02 | 2.04 | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | 1 |
| Labeled Standard | ls Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 89.4 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | 1 |
| 13C2-PFHxA | IS | 78.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | 1 |
| 13C4-PFHpA | IS | 85.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | 1 |
| 18O2-PFHxS | IS | 78.5 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | 1 |
| 13C2-PFOA | IS | 84.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | 1 |
| 13C8-PFOS | IS | 86.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | 1 |
| 13C5-PFNA | IS | 76.7 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | 1 |
| 13C2-PFDA | 1S | 74.5 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | 1 |
| d3-MeFOSAA | IS | 64.5 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | 1 |
| 13C2-PFUnA | IS | 67.3 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | . 1 |
| d5-EtFOSAA | IS | 76.5 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | 1 |
| 13C2-PFDoA | IS | 76.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | 1 |
| 13C2-PFTeDA | IS | 81.6 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.32 g | 22-Feb-18 00:52 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | 1.01.4101 | Lower control lin | nit - upper control lin | nit | When re | norted, PFHxS. | PFOA and PFOS | include both line | ear and branched isome | :15 |

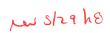
LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight

The sample size is reported in wet weight Results reported to the DL

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



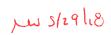
Work Order 1800268 Page 11 of 33



| Sample ID: WI-AF-SI | B612-0204-0118 | | | | | | | | | VAL | - PFAS |
|--|----------------|----------------------|-----------------------|------------|-------|---------------------------------------|--------------------------------|-----------|-----------|-----------------|----------|
| Client Data Name: CH2M I Project: NAS W Location: SB-612 | I- AULT FIELD | Matrix: Date Coll | Soil lected: 07-Ja | n-18 09:00 | Lab S | Fratory Data Sample: Received: lids: | 1800268-0 07-Feb-18 77.7 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.374 | 1.03 | 2.06 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | 1 |
| PFHxA | | ND | 0.209 | 1.03 | 2.06 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | 1 |
| PFHpA | | ND | 0.211 | 1.03 | 2.06 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | 1 |
| PFHxS | | ND | 0.319 | 1.03 | 2.06 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | 1 |
| PFOA | | ND | 0.243 | 1.03 | 2.06 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | 1 |
| PFOS | | ND | 0.870 | 1.03 | 2.06 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | 1 |
| PFNA | | ND | 0.183 | 1.03 | 2.06 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | 1 |
| PFDA | | ND | 0.263 | 1.03 | 2.06 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | 1 |
| MeFOSAA | | ND | 0.311 | 1.03 | 2.06 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | |
| PFUnA | | ND | 0.364 | 1.03 | 2.06 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | |
| EtFOSAA | | ND | 0.330 | 1.03 | 2.06 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | 1 |
| PFDoA | | ND | 0.284 | 1.03 | 2.06 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | |
| PFTrDA | | ND | 0.126 | 1.03 | 2.06 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | 1 |
| PFTeDA | | ND | 0.204 | 1.03 | 2.06 | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 107 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | 1 |
| 13C2-PFHxA | IS | 94.3 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | 1 |
| 13C4-PFHpA | IS | 89.3 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | 1 |
| 18O2-PFHxS | IS | 100 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | 1 |
| 13C2-PFOA | IS | 82.4 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | 1 |
| 13C8-PFOS | IS | 110 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | 1 |
| 13C5-PFNA | IS | 75.7 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | 1 |
| 13C2-PFDA | IS | 99.5 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | 1 |
| d3-MeFOSAA | IS | 75.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | 1 |
| 13C2-PFUnA | IS | 84.4 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | 1 |
| d5-EtFOSAA | IS | 73.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | 1 |
| 13C2-PFDoA | IS | 85.9 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | 1 |
| 13C2-PFTeDA | IS | 125 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.25 g | 22-Feb-18 17:42 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight.
The sample size is reported in wet weight
Results reported to the DL

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



Work Order 1800268 Page 12 of 33



| Sample ID: WI- | -AF-SB612-04H05H- | 0118 | | | | | | | | | VAL | - PFAS |
|-------------------|---|------------------|----------------------|----------------------|-------------------------|-------|--------------------------------|--------------------------------|---------------|---------------------|-----------------------|----------|
| Project: | CH2M Hill NAS WI- AULT FIELD SB-612 | | Matrix: Date Coll | Soil ected: 07-Ja | n-18 09:20 | Lab S | Fratory Data Sample: Received: | 1800268-0 07-Feb-18 71.6 | | Column: | ВЕН С18 | |
| Analyte | | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | | ND | 0.345 | 0.951 | 1.90 | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| PFHxA | | | ND | 0.193 | 0.951 | 1.90 | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| PFHpA | | | ND | 0.195 | 0.951 | 1.90 | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| PFHxS | | | ND | 0.295 | 0.951 | 1.90 | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| PFOA | | | ND | 0.224 | 0.951 | 1.90 | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| PFOS | | | ND | 0.803 | 0.951 | 1.90 | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| PFNA | | | ND | 0.169 | 0.951 | 1.90 | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| PFDA | | | ND | 0.243 | 0.951 | 1.90 | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | |
| MeFOSAA | | | ND | 0.287 | 0.951 | 1.90 | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| PFUnA | | | ND | 0.336 | 0.951 | 1.90 | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| EtFOSAA | | | ND | 0.305 | 0.951 | 1.90 | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| PFDoA | | | ND | 0.262 | 0.951 | 1.90 | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| PFTrDA | | | ND | 0.116 | 0.951 | 1.90 | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| PFTeDA | | | ND | 0.188 | 0.951 | 1.90 | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| Labeled Standards | | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | | IS | 105 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| 13C2-PFHxA | | IS | 84.0 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| 13C4-PFHpA | | IS | 89.5 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| 18O2-PFHxS | | IS | 91.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| 13C2-PFOA | | IS | 79.4 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| 13C8-PFOS | | IS | 95.5 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| 13C5-PFNA | | IS | 88.7 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| 13C2-PFDA | | IS | 77.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| d3-MeFOSAA | | IS | 77.4 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| 13C2-PFUnA | | IS | 95.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| d5-EtFOSAA | | IS | 86.6 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| 13C2-PFDoA | | IS | 90.5 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| 13C2-PFTeDA | | IS | 132 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.47 g | 22-Feb-18 01:14 | 1 |
| DI Datasias Lieut | | nit of Datustian | | | uit - unner control lim | | 777 | T need o | pro t English | - 1 - 1 - 1 - 1 - 1 | ar and branched isome | |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight
The sample size is reported in wet weight
Results reported to the DL

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

Work Order 1800268 Page 13 of 33



| Sample ID: W | /I-AF-SB612-6870-0118 | | | | | | | | | VAL | - PFAS |
|--------------------------------------|--|----------------------|----------------------|------------|-------|---------------------------------------|--------------------------------|-----------|-----------|-----------------|----------|
| Client Data Name: Project: Location: | CH2M Hill NAS WI- AULT FIELD SB612 | Matrix: Date Coll | Soil ected: 07-Ja | n-18 13:00 | Lab S | Fratory Data Sample: Received: lids: | 1800268-0 07-Feb-18 82.3 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.339 | 0.935 | 1.87 | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |
| PFHxA | | ND | 0.190 | 0.935 | 1.87 | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |
| PFHpA | | ND | 0.192 | 0.935 | 1.87 | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |
| PFHxS | | ND | 0.290 | 0.935 | 1.87 | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |
| PFOA | | ND | 0.221 | 0.935 | 1.87 | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |
| PFOS | | ND | 0.790 | 0.935 | 1.87 | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |
| PFNA | | ND | 0.166 | 0.935 | 1.87 | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |
| PFDA | | ND | 0.239 | 0.935 | 1.87 | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |
| MeFOSAA | | ND | 0.282 | 0.935 | 1.87 | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |
| PFUnA | | ND | 0.331 | 0.935 | 1.87 | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |
| EtFOSAA | | ND | 0.300 | 0.935 | 1.87 | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |
| PFDoA | | ND | 0.258 | 0.935 | 1.87 | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |
| PFTrDA | | ND | 0.114 | 0.935 | 1.87 | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |
| PFTeDA | | ND | 0.185 | 0.935 | 1.87 | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |
| Labeled Standar | ds Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 97.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |
| 13C2-PFHxA | IS | 81.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | . 1 |
| 13C4-PFHpA | IS | 88.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |
| 18O2-PFHxS | IS | 105 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |
| 13C2-PFOA | IS | 83.0 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |
| 13C8-PFOS | IS | 74.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | . 1 |
| 13C5-PFNA | IS | 77.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |
| 13C2-PFDA | IS | 93.9 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |
| d3-MeFOSAA | IS | 78.6 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |
| 13C2-PFUnA | IS | 68.6 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |
| d5-EtFOSAA | IS | 71.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |
| 13C2-PFDoA | IS | 88.0 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |
| 13C2-PFTeDA | IS | 92.6 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.30 g | 22-Feb-18 17:53 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight
The sample size is reported in wet weight
Results reported to the DL

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

ner 5/29/18

Work Order 1800268 Page 15 of 33



| Sample ID: WI-A | AF-SB613-000H-0118 | | | | | | | | | VAL | - PFAS |
|-------------------|---------------------------------------|---------------------|-----------------------|------------|-------|---------------------------------|--------------------------------|-----------|-----------|-----------------|----------|
| Project: N. | H2M Hill AS WI- AULT FIELD B613 | Matrix: Date Col | Soil lected: 07-Ja | n-18 11:55 | Lab S | Fratory Data Sample: Received: | 1800268-0 07-Feb-18 72.6 | - | Column: | ВЕН С18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.360 | 0.991 | 1.98 | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| PFHxA | | ND | 0.201 | 0.991 | 1.98 | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| PFHpA | | ND | 0.203 | 0.991 | 1.98 | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | |
| PFHxS | | ND | 0.307 | 0.991 | 1.98 | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| PFOA | | ND | 0.234 | 0.991 | 1.98 | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| PFOS | | ND | 0.837 | 0.991 | 1.98 | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| PFNA | | ND | 0.176 | 0.991 | 1.98 | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| PFDA | | ND | 0.254 | 0.991 | 1.98 | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| MeFOSAA | | ND | 0.299 | 0.991 | 1.98 | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| PFUnA | | ND | 0.351 | 0.991 | 1.98 | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| EtFOSAA | | ND | 0.318 | 0.991 | 1.98 | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| PFDoA | | ND | 0.273 | 0.991 | 1.98 | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| PFTrDA | | ND | 0.121 | 0.991 | 1.98 | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| PFTeDA | | ND | 0.196 | 0.991 | 1.98 | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| Labeled Standards | Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 89.9 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| 13C2-PFHxA | IS | 72.7 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| 13C4-PFHpA | IS | 81.7 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| 18O2-PFHxS | IS | 76.7 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| 13C2-PFOA | IS | 70.9 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| 13C8-PFOS | 18 | 90.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| 13C5-PFNA | IS | 68.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| 13C2-PFDA | IS | 85.6 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| d3-MeFOSAA | IS | 75.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| 13C2-PFUnA | IS | 77.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| d5-EtFOSAA | IS | 75.3 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| 13C2-PFDoA | IS | 89.7 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |
| 13C2-PFTeDA | IS | 113 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.39 g | 22-Feb-18 18:05 | 1 |

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight
The sample size is reported in wet weight

Results reported to the DL

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes

sle size is reported in wet weight

Work Order 1800268 Page 16 of 33



| Client Data | | | | | Labo | oratory Data | | | | | |
|-------------------|-----------------------------------|----------------------|----------------------|-------------|-------|----------------------|--------------------------------|-----------|-----------|-----------------|----------|
| Name: CH | 2M Hill S WI-AULT FIELD 513 | Matrix: Date Coll | Soil ected: 07-Ja | an-18 12:00 | Lab S | Sample: Received: | 1800268-0 07-Feb-18 72.1 | | Column | BEH C18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.376 | 1.04 | 2.07 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |
| PFHxA | | ND | 0.210 | 1.04 | 2.07 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |
| PFHpA | | ND | 0.212 | 1.04 | 2.07 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |
| PFHxS | | ND | 0.321 | 1.04 | 2.07 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 11 |
| PFOA | | ND | 0.244 | 1.04 | 2.07 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |
| PFOS | | ND | 0.875 | 1.04 | 2.07 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |
| PFNA | | ND | 0.184 | 1.04 | 2.07 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |
| PFDA | | ND | 0.265 | 1.04 | 2.07 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |
| MeFOSAA | | ND | 0.313 | 1.04 | 2.07 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | -1 |
| PFUnA | | ND | 0.367 | 1.04 | 2.07 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |
| EtFOSAA | | ND | 0.332 | 1.04 | 2.07 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |
| PFDoA | | ND | 0.286 | 1.04 | 2.07 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |
| PFTrDA | | ND | 0.126 | 1.04 | 2.07 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |
| PFTeDA | | ND | 0.205 | 1.04 | 2.07 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 99.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |
| 13C2-PFHxA | IS | 76.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |
| 13C4-PFHpA | IS | 85.9 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |
| 18O2-PFHxS | IS | 75.9 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |
| 13C2-PFOA | IS | 69.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |
| 13C8-PFOS | IS | 89.0 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |
| 13C5-PFNA | IS | 75.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |
| 13C2-PFDA | IS | 76.9 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |
| d3-MeFOSAA | IS | 62.7 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |
| 13C2-PFUnA | 18 | 66.4 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |
| d5-EtFOSAA | IS | 68.4 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |
| 13C2-PFDoA | IS | 80.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |
| 13C2-PFTeDA | IS | 113 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 18:16 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight.
The sample size is reported in wet weight
Results reported to the DL

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

Work Order 1800268 Page 17 of 33



| Sample ID: W | 'I-AF-SB613-03H04H-0118 | | | | | | | | | VAL | - PFAS |
|--------------------------------------|--|---------------------|-----------------------|-------------|-------|--------------------------------|--------------------------------|-----------|-----------|-----------------|----------|
| Client Data Name: Project: Location: | CH2M Hill NAS WI- AULT FIELD SB613 | Matrix: Date Col | Soil lected: 10-Ja | an-18 12:10 | Lab S | oratory Data Sample: Received: | 1800268-1 07-Feb-18 73.8 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.410 | 1.13 | 2.26 | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| PFHxA | | ND | 0.229 | 1.13 | 2.26 | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| PFHpA | | ND | 0.232 | 1.13 | 2.26 | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| PFHxS | | ND | 0.350 | 1.13 | 2.26 | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| PFOA | | ND | 0.267 | 1.13 | 2.26 | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| PFOS | | ND | 0.955 | 1.13 | 2.26 | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| PFNA | | ND | 0.201 | 1.13 | 2.26 | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| PFDA | | ND | 0.289 | 1.13 | 2.26 | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| MeFOSAA | | ND | 0.341 | 1.13 | 2.26 | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| PFUnA | | ND | 0.400 | 1.13 | 2.26 | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| EtFOSAA | | ND | 0.363 | 1.13 | 2.26 | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| PFDoA | | ND | 0.312 | 1.13 | 2.26 | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| PFTrDA | | ND | 0.138 | 1.13 | 2.26 | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| PFTeDA | | ND | 0.224 | 1.13 | 2.26 | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| Labeled Standar | ds Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 95.4 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| 13C2-PFHxA | IS | 79.5 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| 13C4-PFHpA | IS | 84.6 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| 18O2-PFHxS | IS | 93.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| 13C2-PFOA | IS | 75.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| 13C8-PFOS | 18 | 88.4 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| 13C5-PFNA | IS | 63.7 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| 13C2-PFDA | IS | 84.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| d3-MeFOSAA | IS | 62.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| 13C2-PFUnA | IS | 74.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | . 1 |
| d5-EtFOSAA | IS | 58.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| 13C2-PFDoA | IS | 66.3 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |
| 13C2-PFTeDA | IS | 81.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.20 g | 22-Feb-18 18:28 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight.

The sample size is reported in wet weight Results reported to the DL

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

Work Order 1800268 Page 18 of 33



| Client Data Name: Project: Location: Analyte PFBS | CH2M Hill NAS WI- AULT FIELD SB613 | | Matrix: Date Colle | Soil | | | ratory Data | | | | | |
|--|--|----|-----------------------|--------------|------------|------|------------------------------|--------------------------------|-----------|-----------|-----------------|----------|
| PFBS | | | | ected: 10-Ja | n-18 15:15 | | ample: Received: lids: | 1800268-1 07-Feb-18 94.9 | | Column: | BEH C18 | |
| | | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| | | | ND | 0.311 | 0.857 | 1.71 | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | - 1 |
| PFHxA | | | ND | 0.174 | 0.857 | 1.71 | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | 1 |
| PFHpA | | | ND | 0.176 | 0.857 | 1.71 | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | 1 |
| PFHxS | | | ND | 0.266 | 0.857 | 1.71 | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | 1 |
| PFOA | | | ND | 0.202 | 0.857 | 1.71 | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | 1 |
| PFOS | | | ND | 0.724 | 0.857 | 1.71 | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | |
| PFNA | | | ND | 0.153 | 0.857 | 1.71 | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | 1 |
| PFDA | | | ND | 0.219 | 0.857 | 1.71 | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | 1 |
| MeFOSAA | | | ND | 0.259 | 0.857 | 1.71 | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | 1 |
| PFUnA | | | ND | 0.303 | 0.857 | 1.71 | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | |
| EtFOSAA | | | ND | 0.275 | 0.857 | 1.71 | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | 1 |
| PFDoA | | | ND | 0.237 | 0.857 | 1.71 | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | 1 |
| PFTrDA | | | ND | 0.105 | 0.857 | 1.71 | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | 1 |
| PFTeDA | | | ND | 0.170 | 0.857 | 1.71 | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | 1 |
| Labeled Standard | ls Ty | pe | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | | IS | 116 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | 1 |
| 13C2-PFHxA | | IS | 78.9 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | 1 |
| 13C4-PFHpA | | IS | 101 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | 1 |
| 18O2-PFHxS | | IS | 81.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | 1 |
| 13C2-PFOA | | IS | 84.3 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | 1 |
| 13C8-PFOS | | IS | 97.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | 1 |
| 13C5-PFNA | | IS | 90.5 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | 1 |
| 13C2-PFDA | | IS | 75.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | 1 |
| d3-MeFOSAA | | IS | 88.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | 1 |
| 13C2-PFUnA | | IS | 74.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | 1 |
| d5-EtFOSAA | | IS | 81.0 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | 1 |
| 13C2-PFDoA | | IS | 83.7 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | 1 |
| 13C2-PFTeDA | | IS | 100 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.23 g | 22-Feb-18 18:39 | 1 |

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit The results are reported in dry weight

The sample size is reported in wet weight Results reported to the DL

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes

per s/29/18

Work Order 1800268 Page 19 of 33



| Sample ID: WI | -AF-SB607-000H-0118 | | | | | | | | | VAL | - PFAS |
|----------------------|--|---------------------|---------------------|-------------------------|-------|--------------------------------------|-------------------------------|---------------|------------------|-----------------------|----------|
| Project: | CH2M Hill NAS WI- AULT FIELD SB607 | Matrix: Date Col | Soil ected: 12-J | an-18 15:20 | Lab S | oratory Data Sample: Received: | 1800268- 07-Feb-18 88.5 | | Column | BEH C18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.387 | 1.07 | 2.13 | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | 1 |
| PFHxA | | ND | 0.216 | 1.07 | 2.13 | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | 1 |
| PFHpA | | ND | 0.219 | 1.07 | 2.13 | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | |
| PFHxS | | ND | 0.331 | 1.07 | 2.13 | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | |
| PFOA | | ND | 0.252 | 1.07 | 2.13 | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | |
| PFOS | | ND | 0.901 | 1.07 | 2.13 | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | |
| PFNA | | ND | 0.190 | 1.07 | 2.13 | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | |
| PFDA | | ND | 0.273 | 1.07 | 2.13 | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | |
| MeFOSAA | | ND | 0.322 | 1.07 | 2.13 | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | |
| PFUnA | | ND | 0.377 | 1.07 | 2.13 | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | 1 |
| EtFOSAA | | ND | 0.342 | 1.07 | 2.13 | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | |
| PFDoA | | ND | 0.294 | 1.07 | 2.13 | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | 1 |
| PFTrDA | | ND | 0.130 | 1.07 | 2.13 | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | 1 |
| PFTeDA | | ND | 0.211 | 1.07 | 2.13 | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 94.3 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | 1 |
| 13C2-PFHxA | IS | 82.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | 1 |
| 13C4-PFHpA | IS | 83.6 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | 1 |
| 18O2-PFHxS | IS | 96.0 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | 1 |
| 13C2-PFOA | IS | 69.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | 1 |
| 13C8-PFOS | IS | 84.5 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | 1 |
| 13C5-PFNA | IS | 76.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | 1 |
| 13C2-PFDA | IS | 86.6 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | 1 |
| d3-MeFOSAA | IS | 58.3 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | 1 |
| 13C2-PFUnA | IS | 78.6 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | 1 |
| d5-EtFOSAA | IS | 71.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | 1 |
| 13C2-PFDoA | IS | 71.7 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | 1 |
| 13C2-PFTeDA | IS | 81.9 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.06 g | 22-Feb-18 18:51 | 1 |
| DL - Detection Limit | LOD - Limit of Dete | 1.01.1101 | t . CF | nit - upper control lim | 4. | When | d DELL.E | DEO 4 4 DECKE | Control back the | ar and branched isome | |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight.
The sample size is reported in wet weight
Results reported to the DL

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

Work Order 1800268 Page 20 of 33



| Sample ID: W | /I-AF-SB607P-000H-0118 | | | | | | | | VAL | - PFAS |
|--------------------------------------|--|----------------------------|---|-------|---------------------------------------|-------------------------------|-----------|-----------|------------------------------------|----------|
| Client Data Name: Project: Location: | CH2M Hill NAS WI- AULT FIELD SB607 | Matrix: Date Collected: | Soil 12-Jan-18 15:25 | Lab S | Pratory Data Sample: Received: lids: | 1800268- 07-Feb-18 84.2 | | Column | BEH C18 | |
| Analyte | | Conc. (ng/g) | DL LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND 0. | 322 0.886 | 1.77 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | 1 |
| PFHxA | | ND 0. | 180 0.886 | 1.77 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | 1 |
| PFHpA | | ND 0. | 182 0.886 | 1.77 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | 1 |
| FHxS | | | 275 0.886 | 1.77 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | 1 |
| PFOA | | | 209 0.886 | 1.77 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | . 1 |
| PFOS | | | 749 0.886 | 1.77 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | . 1 |
| FNA | | | 158 0.886 | 1.77 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | . 1 |
| PFDA | | | 227 0.886 | 1.77 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | . 1 |
| MeFOSAA | | | 268 0.886 | 1.77 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | -1- |
| FUnA | | | 314 0.886 | 1.77 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | . 1 |
| EtFOSAA | | | 285 0.886 | 1.77 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | 1 |
| PFDoA | | | 245 0.886 | 1.77 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | |
| PFTrDA | | ND 0. | 108 0.886 | 1.77 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | . 1 |
| PFTeDA | | | 176 0.886 | 1.77 | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | |
| Labeled Standar | ds Type | % Recovery | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 3C3-PFBS | IS | 89.6 | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | 1 |
| 3C2-PFHxA | IS | 75.1 | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | 1 |
| 3C4-PFHpA | IS | 72.3 | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | 1 |
| 8O2-PFHxS | IS | 91.9 | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | 1 |
| 3C2-PFOA | IS | 80.7 | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | 1 |
| 3C8-PFOS | IS | 82.5 | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | 1 |
| 3C5-PFNA | IS | 82.4 | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | 1 |
| 3C2-PFDA | IS | 72.4 | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | 1 |
| 3-MeFOSAA | IS | 63.6 | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | 1 |
| 3C2-PFUnA | IS | 61.8 | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | 1 |
| 15-EtFOSAA | IS | 63.8 | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | 1 |
| 3C2-PFDoA | IS | 64.5 | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | 1 |
| 3C2-PFTeDA | IS | 82.9 | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.34 g | 22-Feb-18 19:02 | 1 |
| 3C2-PFTeDA DL - Detection Limit | | | 50 - 150 control limit - upper control lin | mit | When re | | | | 22-Feb-18 19 ar and branched is | |

LOD - Limit of Detection LOQ - Limit of quantitation

The results are reported in dry weight The sample size is reported in wet weight Results reported to the DL

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

rw5/29/18

Work Order 1800268 Page 21 of 33



| Sample ID: W | I-AF-SB607-0203-0118 | | | | | | | | | VAL | - PFAS |
|--------------------------------------|--|----------------------|---------------------|--------------------------|-------|--------------------------------|--------------------------------|-----------------|-------------------|------------------------|----------|
| Client Data Name: Project: Location: | CH2M Hill NAS WI- AULT FIELD SB607 | Matrix: Date Coll | Soil ected: 12-J | Jan-18 15:30 | Lab S | oratory Data Sample: Received: | 1800268-1 07-Feb-18 87.5 | | Column | BEH C18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.340 | 0.937 | 1.87 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | 1 |
| PFHxA | | ND | 0.190 | 0.937 | 1.87 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | |
| PFHpA | | ND | 0.192 | 0.937 | 1.87 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | |
| PFHxS | | ND | 0.290 | 0.937 | 1.87 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | |
| PFOA | | ND | 0.221 | 0.937 | 1.87 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | |
| PFOS | | ND | 0.792 | 0.937 | 1.87 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | |
| PFNA | | ND | 0.167 | 0.937 | 1.87 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | |
| PFDA | | ND | 0.240 | 0.937 | 1.87 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | |
| MeFOSAA | | ND | 0.283 | 0.937 | 1.87 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | |
| PFUnA | | ND | 0.332 | 0.937 | 1.87 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | |
| EtFOSAA | | ND | 0.301 | 0.937 | 1.87 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | |
| PFDoA | | ND | 0.259 | 0.937 | 1.87 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | |
| PFTrDA | | ND | 0.114 | 0.937 | 1.87 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | |
| PFTeDA | | ND | 0.185 | 0.937 | 1.87 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | |
| Labeled Standard | s Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 94.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | 1 |
| 13C2-PFHxA | IS | 83.0 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | 1 |
| 13C4-PFHpA | IS | 95.9 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | 1 |
| 18O2-PFHxS | IS | 81.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | 1 |
| 13C2-PFOA | IS | 86.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | 1 |
| 13C8-PFOS | IS | 85.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | 1 |
| 13C5-PFNA | IS | 107 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | 1 |
| 13C2-PFDA | IS | 74.4 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | |
| d3-MeFOSAA | IS | 59.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | 1 |
| 13C2-PFUnA | 18 | 81.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | 1 |
| d5-EtFOSAA | IS | 70.9 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | |
| 13C2-PFDoA | IS | 81.5 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | |
| 13C2-PFTeDA | IS | 119 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 19:48 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | LCL UCL | Lawar aantal li | mit - upper control limi | | When re | DELICE | PECIA and PECIS | include both line | ar and branched isomer | ide. |

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight

The sample size is reported in wet weight Results reported to the DL

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.

Work Order 1800268 Page 22 of 33



| Sample ID: WI | -AF-SB607-0405-0118 | | | | | | | | | VAL | - PFAS |
|--------------------|--|----------------------|------------------|----------------------------|-------|--------------------------------|--------------------------------|------------------------|-----------|-------------------------|----------|
| Project: | CH2M Hill NAS WI- AULT FIELD SB607 | Matrix: Date Coll | So lected: 12 | il -Jan-18 15:45 | Lab S | oratory Data Sample: Received: | 1800268-1 07-Feb-18 85.2 | | Column | BEH C18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.422 | 1.16 | 2.32 | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | 1 |
| PFHxA | | ND | 0.236 | 1.16 | 2.32 | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | |
| PFHpA | | ND | 0.238 | 1.16 | 2.32 | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | |
| PFHxS | | ND | 0.360 | 1.16 | 2.32 | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | |
| PFOA | | ND | 0.274 | 1.16 | 2.32 | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | 1 |
| PFOS | | ND | 0.982 | 1.16 | 2.32 | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | 1 |
| PFNA | | ND | 0.207 | 1.16 | 2.32 | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | 1 |
| PFDA | | ND | 0.298 | 1.16 | 2.32 | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | |
| MeFOSAA | | ND | 0.351 | 1.16 | 2.32 | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | |
| PFUnA | | ND | 0.412 | 1.16 | 2.32 | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | |
| EtFOSAA | | ND | 0.373 | 1.16 | 2.32 | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | |
| PFDoA | | ND | 0.321 | 1.16 | 2.32 | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | 1 |
| PFTrDA | | ND | 0.142 | 1.16 | 2.32 | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | |
| PFTeDA | | ND | 0.230 | 1.16 | 2.32 | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | |
| Labeled Standard | s Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 103 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | 1 |
| 13C2-PFHxA | IS | 77.0 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | 1 |
| 13C4-PFHpA | IS | 76.3 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | 1 |
| 18O2-PFHxS | IS | 80.6 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | 1 |
| 13C2-PFOA | IS | 82.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | 1 |
| 13C8-PFOS | IS | 83.7 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | 1 |
| 13C5-PFNA | IS | 85.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | 1 |
| 13C2-PFDA | IS | 75.0 | | 50, - 150 | | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | 1 |
| d3-MeFOSAA | IS | 66.3 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | |
| 13C2-PFUnA | 18 | 69.6 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | |
| d5-EtFOSAA | IS | 67.9 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | |
| 13C2-PFDoA | IS | 88.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | |
| 13C2-PFTeDA | IS | 95.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.01 g | 22-Feb-18 20:00 | 1 |
| DI Detuction Limit | LOD Limit of Datastian | | | limit - unner control limi | | 4.0 | | ALVEN V TO A MARKET OF | | ear and branched isomer | |

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight

The sample size is reported in wet weight Results reported to the DL

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

ا ۱۵۶ سر



| ple ID: WI-AF-SB6 | 007-1011-0118 | | | | | | | | | VAL | - PFAS |
|--|--------------------------|----------------------|----------------------|-------------------------|-------|--------------------------------------|-------------------------------|-----------|-------------------|---------------------------------------|----------|
| nt Data ne: CH2M Hil ect: NAS WI- / ation: SB607 | II AULT FIELD | Matrix: Date Coll | Soil ected: 12-Ja | ın-18 15:55 | Lab S | Gratory Data Sample: Received: Iids: | 1800268- 07-Feb-18 89.0 | | Column | ВЕН С18 | |
| lyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| | | ND | 0.324 | 0.892 | 1.78 | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| :A | | ND | 0.181 | 0.892 | 1.78 | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| A | | ND | 0.183 | 0.892 | 1.78 | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | |
| :S | | ND | 0.277 | 0.892 | 1.78 | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | |
| 1 | | ND | 0.211 | 0.892 | 1.78 | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| \$ | | ND | 0.754 | 0.892 | 1.78 | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| 1 | | ND | 0.159 | 0.892 | 1.78 | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| 1 | | ND | 0.228 | 0.892 | 1.78 | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| OSAA | | ND | 0.269 | 0.892 | 1.78 | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| A | | ND | 0.316 | 0.892 | 1.78 | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| SAA | | ND | 0.286 | 0.892 | 1.78 | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| A | | ND | 0.246 | 0.892 | 1.78 | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| DA | | ND | 0.109 | 0.892 | 1.78 | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| DA | | ND | 0.177 | 0.892 | 1.78 | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| led Standards | Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| -PFBS | IS | 99.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| -PFHxA | IS | 84.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| -PFHpA | IS | 85.7 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| -PFHxS | IS | 76.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| -PFOA | IS | 91.7 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| -PFOS | 18 | 77.9 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| -PFNA | IS | 103 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| -PFDA | IS | 80.4 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| eFOSAA | IS | 74.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| -PFUnA | IS | 93.7 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| FOSAA | IS | 77.0 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| -PFDoA | IS | 77.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| -PFTeDA | IS | 111 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.26 g | 22-Feb-18 20:11 | 1 |
| PF IeDA Detection Limit | LOD - Limit of Detection | LCL-UCL- | Lower control lim | it - upper control limi | | | oorted, PFHxS, | | include both line | 22-Feb-18 20: ear and branched iso | |

NW 5/29/18

The results are reported in dry weight.

Results reported to the DL

The sample size is reported in wet weight

Work Order 1800268

LOQ - Limit of quantitation

Only the linear isomer is reported for all other analytes



| Sample ID: WI- | AF-SB610-3940-0118 | | | | | | | | | VAL | - PFAS |
|----------------------|--|----------------------|----------------------|-------------------------|-------|--------------------------------------|-------------------------------|-----------|-----------|-------------------------|----------|
| Project: | CH2M Hill NAS WI- AULT FIELD SB610 | Matrix: Date Coll | Soil ected: 26-Ja | n-18 15:45 | Lab S | Fratory Data Sample: Received: lids: | 1800268- 07-Feb-18 82.3 | | Column | BEH C18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.401 | 1.10 | 2.21 | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | 1 |
| PFHxA | | ND | 0.224 | 1.10 | 2.21 | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | |
| PFHpA | | ND | 0.226 | 1.10 | 2.21 | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | |
| PFHxS | | ND | 0.342 | 1.10 | 2.21 | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | |
| PFOA | | ND | 0.261 | 1.10 | 2.21 | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | |
| PFOS | | ND | 0.934 | 1.10 | 2.21 | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | |
| PFNA | | ND | 0.197 | 1.10 | 2.21 | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | |
| PFDA | | ND | 0.283 | 1.10 | 2.21 | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | |
| MeFOSAA | | ND | 0.334 | 1.10 | 2.21 | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | |
| PFUnA | | ND | 0.391 | 1.10 | 2.21 | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | 1 |
| EtFOSAA | | ND | 0.355 | 1.10 | 2.21 | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | |
| PFDoA | | ND | 0.305 | 1.10 | 2.21 | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | |
| PFTrDA | | ND | 0.135 | 1.10 | 2.21 | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | |
| PFTeDA | | ND | 0.219 | 1.10 | 2.21 | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 111 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | 1 |
| 13C2-PFHxA | IS | 76.5 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | 1 |
| 13C4-PFHpA | IS | 102 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | 1 |
| 18O2-PFHxS | IS | 90.7 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | 1 |
| 13C2-PFOA | IS | 85.3 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | 1 |
| 13C8-PFOS | IS | 88.4 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | 1 |
| 13C5-PFNA | IS | 86.0 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | 1 |
| 13C2-PFDA | IS | 94.3 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | 1 |
| d3-MeFOSAA | IS | 82.6 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | 1 |
| 13C2-PFUnA | IS | 90.5 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | 1 |
| d5-EtFOSAA | IS | 89.7 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | 1 |
| 13C2-PFDoA | IS | 97.4 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | |
| 13C2-PFTeDA | IS | 87.4 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.10 g | 22-Feb-18 20:22 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | Lauria | | nit - upper control lim | | **** | | | | ear and branched isomer | |

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit

The results are reported in dry weight.

The sample size is reported in wet weight Results reported to the DL

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.

NW 5/29/18



| Sample ID: V | VI-AF-SB610P-3940-0118 | | | | | | | | 2. | VAL | - PFAS |
|--------------------------------------|--|----------------------|----------------------|-------------------------|-------|--------------------------------|--------------------------------|----------------|-------------------|-------------------------|----------|
| Client Data Name: Project: Location: | CH2M Hill NAS WI- AULT FIELD SB610 | Matrix: Date Coll | Soil ected: 26-Ja | an-18 15:50 | Lab S | Dratory Data Sample: Received: | 1800268-1 07-Feb-18 82.6 | | Column | ВЕН С18 | |
| Analyte | | Conc. (ng/g) | ÐL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.360 | 0.992 | 1.98 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | 1 |
| PFHxA | | ND | 0.201 | 0.992 | 1.98 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | 1 |
| PFHpA | | ND | 0.203 | 0.992 | 1.98 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | |
| PFHxS | | ND | 0.308 | 0.992 | 1.98 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | |
| PFOA | | ND | 0.234 | 0.992 | 1.98 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | |
| PFOS | | ND | 0.839 | 0.992 | 1.98 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | |
| PFNA | | ND | 0.177 | 0.992 | 1.98 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | 1 |
| PFDA | | ND | 0.254 | 0.992 | 1.98 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | |
| MeFOSAA | | ND | 0.300 | 0.992 | 1.98 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | |
| PFUnA | | ND | 0.351 | 0.992 | 1.98 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | |
| EtFOSAA | | ND | 0.319 | 0.992 | 1.98 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | |
| PFDoA | | ND | 0.274 | 0.992 | 1.98 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 20:34 | |
| PFTrDA | | ND | 0.121 | 0.992 | 1.98 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | |
| PFTeDA | | ND | 0.197 | 0.992 | 1.98 | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | |
| Labeled Standar | rds Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 95.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | 1 |
| 13C2-PFHxA | 18 | 95.3 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | 1 |
| 13C4-PFHpA | IS | 93.3 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | 1 |
| 18O2-PFHxS | IS | 89.6 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | 1 |
| 13C2-PFOA | IS | 88.5 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | 1 |
| 13C8-PFOS | 18 | 74.3 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | 1 |
| 13C5-PFNA | IS | 79.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | 1 |
| 13C2-PFDA | IS | 73.6 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | 1 |
| d3-MeFOSAA | IS | 62.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | 1 |
| 13C2-PFUnA | IS | 79.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | 1 |
| d5-EtFOSAA | IS | 65.8 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | 1 |
| 13C2-PFDoA | IS | 81.2 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | 1 |
| 13C2-PFTeDA | IS | 85.1 | | 50 - 150 | | | B8B0074 | 12-Feb-18 | 1.22 g | 22-Feb-18 04:52 | |
| DL - Detection Lim | ut LOD - Limit of Detection | 1.01.1101 | Laura aantal lie | nit - upper control lim | i. | When ret | vorted PEHvS | PEO A and PEOS | include both line | ear and branched isomer | - |

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit

The results are reported in dry weight.

The sample size is reported in wet weight

Results reported to the DL

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers

Only the linear isomer is reported for all other analytes

ms/29/18

Work Order 1800268 Page 26 of 33



DATA VALIDATION SUMMARY REPORT NAS WHIDBEY ISLAND, WASHINGTON

Client: CH2M HILL, Inc., Corvallis, Oregon

SDG: 1800269

Laboratory: Vista Analytical Laboratory, El Dorado Hills, California Site: Vista Analytical Laboratory, El Dorado Hills, California NAS Whidbey Island, Ault Field, CTO-4041, Washington

Date: May 29, 2018

| | | PFCs | |
|--------|--------------------|----------------------|--------|
| EDS ID | Client Sample ID | Laboratory Sample ID | Matrix |
| 1 | WI-AF-FB-010518 | 1800269-01 | Water |
| 2 | WI-AF-EB01-SO-0118 | 1800269-02 | Water |
| 3 | WI-AF-FB-010718 | 1800269-03 | Water |
| 4 | WI-AF-EB02-SO-0118 | 1800269-04 | Water |
| 5 | WI-AF-FB-011018 | 1800269-05 | Water |
| 6 | WI-AF-EB03-SO-0118 | 1800269-06 | Water |
| 7 | WI-AF-FB-011218 | 1800269-07 | Water |
| 8 | WI-AF-EB04-SO-0118 | 1800269-08 | Water |
| 9 | WI-AF-FB-012618 | 1800269-09 | Water |
| 10 | WI-AF-EB10-0118 | 1800269-10 | Water |

A full data validation was performed on the analytical data for five aqueous field blank samples and five aqueous equipment blank samples collected on January 5-26, 2018 by CH2M HILL at the NAS Whidbey Island Ault Field 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 Method References
PFCs USEPA Method 537 Modified

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, the Final Sampling and Analysis Plan Phase I Site Investigation for Per- and Polyfluoroalkyl Substances in Soil and Groundwater Ault Field, February 2018, and the USEPA National Functional Guidelines for Organic Data Review as follows:

- The USEPA "Contract Laboratories Program National Functional Guidelines for Organic Superfund Methods Data Review," January 2017;
- 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
- 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 (Level IV) data validation was performed with this review including a recalculation of 10% of the detected results in the samples.

Data Usability Assessment

There were no rejections of data.

Overall the data is 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 Compounds (PFCs)

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 outside of the 14-day holding time and were qualified as estimated (J/UJ).

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 samples were free of contamination.

| Blank ID | Compound | Conc. ng/L | Qualifier | Affected Samples |
|--------------------|-----------|---------------|-----------|---------------------------|
| WI-AF-FB-010518 | None - ND | | - | |
| WI-AF-EB01-SO-0118 | None - ND | The second | | - |
| WI-AF-FB-010718 | None - ND | THE PERSON | | _ |
| WI-AF-EB02-SO-0118 | PFHxS | 1.44 | None | Applies to Other Packages |
| WI-AF-FB-011018 | None - ND | | = | |
| WI-AF-EB03-SO-0118 | None - ND | | - | - |
| WI-AF-FB-011218 | None - ND | Ultrain Earth | 4 | - |
| WI-AF-EB04-SO-0118 | None - ND | T(100 (2 | 3 | 2 |
| WI-AF-FB-012618 | PFOA | 0.725 | None | Applies to Other Packages |
| WI-AF-EB10-0118 | None - ND | 4 - 4- | 1 - 0 | |

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

MS/MSD samples were not analyzed.

Laboratory Control Samples

• 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:

Mancy Weaver Dated: 6/1/18 Senior Chemist

| Data Qualifier | Definition |
|-------------------|--|
| U | The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit. |
| J | The analyte is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample. |
| NJ | The analysis has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the samples. |
| UJ | The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise. |
| R | The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the samples. |



| Sample ID: WI-AF-FB | B-010518 | | | | | | | | Mod | ified EPA Met | hod 537 |
|--|--------------------------|---|-------|-------------------------|-------|--------------------------------------|-------------------------------|--------------|-----------------|------------------------|----------|
| Client Data Name: CH2M H Project: NAS WI Location: Reagent | - AULT FIELD | Matrix: Aqueous Date Collected: 05-Jan-18 10:10 | | | Lab S | oratory Data Sample: Received: | 1800269-01 07-Feb-18 10:29 | | Column: BEH C18 | | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND UJ | 1.87 | 5.21 | 8.34 | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | 1 |
| PFHxA | | ND | 2.27 | 5.21 | 8.34 | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | |
| PFHpA | | ND | 0.616 | 5.21 | 8.34 | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | |
| PFHxS | | ND | 0.987 | 5.21 | 8.34 | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | |
| PFOA | | ND | 0.678 | 5.21 | 8.34 | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | |
| PFOS | | ND | 0.841 | 5.21 | 8.34 | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | |
| PFNA | | ND | 0.844 | 5.21 | 8.34 | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | |
| PFDA | | ND | 1.55 | 5.21 | 8.34 | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | |
| MeFOSAA | | ND | 1.72 | 5.21 | 8.34 | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | |
| PFUnA | | ND | 1.09 | 5.21 | 8.34 | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | - 1 |
| EtFOSAA | | ND | 1.43 | 5.21 | 8.34 | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | |
| PFDoA | | ND | 0.825 | 5.21 | 8.34 | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | 1 |
| PFTrDA | | ND | 0.515 | 5.21 | 8.34 | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | 1 |
| PFTeDA | | ND dr | 0.787 | 5.21 | 8.34 | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 107 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | 1 |
| 13C2-PFHxA | IS | 86.5 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | 1 |
| 13C4-PFHpA | IS | 95.2 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | 1 |
| 18O2-PFHxS | IS | 96.0 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | 1 |
| 13C2-PFOA | IS | 101 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | 1 |
| 13C8-PFOS | IS | 97.4 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | 1 |
| 13C5-PFNA | IS | 80.0 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | 1 |
| I3C2-PFDA | IS | 74.8 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | 1 |
| d3-MeFOSAA | IS | 74.5 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | 1 |
| 13C2-PFUnA | IS | 102 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | 1 |
| d5-EtFOSAA | IS | 94.5 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | 1 |
| 13C2-PFDoA | IS | 110 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | 1 |
| 13C2-PFTeDA | IS | 114 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.120 L | 21-Feb-18 21:25 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | 1.711 1.711 1 | | nit - upper control lim | | 1177 | . I DELL C. | DEC 4 LINEAU | 2 1 1 1 1 1 1 | ear and branched isome | |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.



| Sample ID: W | I-AF-EB01-SO-0118 | | | | | | | | Mod | ified EPA Met | hod 537 |
|--------------------------------------|--|------------------------|-------|---------------------------|-------|--------------------------------------|------------------------|-----------|-----------|-------------------------|----------|
| Client Data Name: Project: Location: | CH2M Hill NAS WI- AULT FIELD Equip Blank | Matrix: Date Collec | • | ueous Jan-18 12:30 | Lab S | oratory Data Sample: Received: | 1800269-0 07-Feb-18 | | Column | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND UJ | 1.97 | 5.53 | 8.83 | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | 1 |
| PFHxA | | ND | 2.40 | 5.53 | 8.83 | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | |
| PFHpA | | ND | 0.652 | 5.53 | 8.83 | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | |
| PFHxS | | ND | 1.04 | 5.53 | 8.83 | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | |
| PFOA | | ND | 0.718 | 5.53 | 8.83 | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | |
| PFOS | | ND | 0.890 | 5.53 | 8.83 | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | |
| PFNA | | ND | 0.894 | 5.53 | 8.83 | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | |
| PFDA | | ND | 1.64 | 5.53 | 8.83 | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | |
| MeFOSAA | | ND | 1.82 | 5.53 | 8.83 | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | |
| PFUnA | | ND | 1.16 | 5,53 | 8.83 | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | |
| EtFOSAA | | ND | 1.51 | 5.53 | 8.83 | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | |
| PFDoA | | ND | 0.874 | 5.53 | 8.83 | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | |
| PFTrDA | | ND | 0.545 | 5.53 | 8.83 | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | |
| PFTeDA | | ND 🕴 | 0.833 | 5.53 | 8.83 | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | |
| Labeled Standard | ls Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 132 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | 1 |
| 13C2-PFHxA | IS | 101 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | |
| 13C4-PFHpA | IS | 90.1 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | |
| 18O2-PFHxS | IS | 91.1 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | |
| 13C2-PFOA | IS | 83.7 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | |
| 13C8-PFOS | IS | 93.9 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | |
| 13C5-PFNA | IS | 103 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | |
| 13C2-PFDA | 18 | 79.9 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | |
| d3-MeFOSAA | IS | 76.6 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | |
| 13C2-PFUnA | IS | 78.5 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | |
| d5-EtFOSAA | IS | 93.1 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | |
| 13C2-PFDoA | IS | 96.7 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.113 1. | 21-Feb-18 21:36 | |
| I3C2-PFTeDA | IS | 111 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.113 L | 21-Feb-18 21:36 | |
| DL - Detection Limit | LOD - Limit of Detection | 1.00 11.00 1 | | imit - upper control limi | | | | | | ear and branched isomer | |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes



| Client Data Name: | Sample ID: WI-AF-FB-010718 Modified EPA Method 537 | | | | | | | | | | | | | |
|-----------------------|---|------|-----------------------|-------|-----------------------|-------|--------------------------------------|------------------------|-----------|-----------|-----------------|----------|--|--|
| Project: Location: | CH2M Hill NAS WI- AULT FIELD Reagent Blank | | Matrix: Date Colle | _ | ieous Jan-18 12:50 | Lab S | oratory Data Sample: Received: | 1800269-0 07-Feb-18 | | Column: | BEH C18 | | | |
| Analyte | | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution | | |
| PFBS | | | ND UJ | 1.88 | 5.25 | 8.42 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |
| PFHxA | | | ND | 2.30 | 5.25 | 8.42 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |
| PFHpA | | | ND | 0.622 | 5.25 | 8.42 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |
| PFHxS | | | ND | 0.997 | 5.25 | 8.42 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |
| PFOA | | | ND | 0.685 | 5.25 | 8.42 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |
| PFOS | | | ND | 0.850 | 5.25 | 8.42 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |
| PFNA | | | ND | 0.853 | 5.25 | 8.42 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |
| PFDA | | | ND | 1.57 | 5.25 | 8.42 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |
| MeFOSAA | | | ND | 1.74 | 5.25 | 8.42 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |
| PFUnA | | | ND | 1.11 | 5.25 | 8.42 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |
| EtFOSAA | | | ND | 1.44 | 5.25 | 8.42 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |
| PFDoA | | | ND | 0.834 | 5.25 | 8.42 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |
| PFTrDA | | | ND | 0.520 | 5.25 | 8.42 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |
| PFTeDA | | | ND 🗼 | 0.795 | 5.25 | 8.42 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |
| Labeled Standar | ds | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution | | |
| 13C3-PFBS | | IS | 123 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |
| 13C2-PFHxA | | IS | 93.0 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |
| 13C4-PFHpA | | IS | 99.8 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |
| 18O2-PFHxS | | IS | 95.3 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |
| 13C2-PFOA | | IS | 94.6 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |
| 13C8-PFOS | | IS | 95,3 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |
| 13C5-PFNA | | IS | 69.9 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |
| 13C2-PFDA | | IS | 83.7 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |
| d3-MeFOSAA | | IS | 91.6 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | -1 | | |
| 13C2-PFUnA | | IS | 108 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |
| d5-EtFOSAA | | IS | 74.1 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |
| 13C2-PFDoA | | IS | 78.6 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | I | | |
| 13C2-PFTeDA | | IS | 101 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 21:48 | 1 | | |

m 5/29/18

Results reported to the DL

Work Order 1800269

LOQ - Limit of quantitation

Only the linear isomer is reported for all other analytes



| Sample ID: WI-AF-E | EB02-SO-0118 | | | | | | | | Mod | ified EPA Met | hod 537 |
|---|--------------------------|-----------------------|-------|--------------------------|-------|----------------------|------------------------|-------------------------|-------------------|-----------------------|----------|
| Client Data Name: CH2M Project: NAS V Location: Equip | VI- AULT FIELD | Matrix: Date Colle | | neous Jan-18 13:05 | Lab S | Sample: Received: | 1800269-0 07-Feb-18 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND UJ | 2.43 | 6.80 | 10.9 | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | 1 |
| PFHxA | | ND | 2.97 | 6.80 | 10.9 | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | 1 |
| PFHpA | | ND | 0.804 | 6.80 | 10.9 | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | 1 |
| PFHxS | | 1.44 | 1.29 | 6.80 | 10.9 | 1 | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | |
| PFOA | | ND UJ | 0.886 | 6.80 | 10.9 | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | |
| PFOS | | ND | 1.10 | 6.80 | 10.9 | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | |
| PFNA | | ND | 1.10 | 6.80 | 10.9 | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | 1 |
| PFDA | | ND | 2.03 | 6.80 | 10.9 | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | |
| MeFOSAA | | ND | 2.24 | 6.80 | 10.9 | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | |
| PFUnA | | ND | 1.43 | 6.80 | 10.9 | | B8B0043 | 09-Feb-18 | 0,0919 L | 21-Feb-18 21:59 | 1 |
| EtFOSAA | | ND | 1.86 | 6.80 | 10.9 | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | |
| PFDoA | | ND | 1.08 | 6.80 | 10.9 | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | 1 |
| PFTrDA | | ND | 0.672 | 6.80 | 10.9 | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | 1 |
| PFTeDA | | ND 🕺 | 1.03 | 6.80 | 10.9 | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 118 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | 1 |
| 13C2-PFHxA | 18 | 104 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | |
| 13C4-PFHpA | IS | 108 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | 1 |
| 18O2-PFHxS | IS | 92.9 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | 1 |
| 13C2-PFOA | IS | 102 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | 1 |
| 13C8-PFOS | IS | 99.2 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | 1 |
| I3C5-PFNA | IS | 79.0 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | 1 |
| 13C2-PFDA | IS | 87.5 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | 1 |
| d3-MeFOSAA | IS | 65.8 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | 1 |
| 13C2-PFUnA | IS | 73.0 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | 1 |
| d5-EtFOSAA | IS | 84.8 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | 1 |
| 13C2-PFDoA | IS | 66.6 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | 1 |
| 13C2-PFTeDA | IS | 113 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.0919 L | 21-Feb-18 21:59 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | | | mit - upper control limi | | 11/1 | . I bert e | NEW YORK AND ASSESSMENT | STATE OF THE REST | ar and branched isome | |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes



| Sample ID: WI | I-AF-FB-011018 | | | | | | | | Mod | ified EPA Met | hod 537 |
|--------------------------------------|--|-----------------------|-------|----------------------|-------|--------------------------------------|------------------------|-----------|-----------|-----------------|----------|
| Client Data Name: Project: Location: | CH2M Hill NAS WI- AULT FIELD SB613 | Matrix: Date Colle | - | eous lan-18 13:10 | Lab S | oratory Data Sample: Received: | 1800269-0 07-Feb-18 | | Column | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND UJ | 1.89 | 5.30 | 8.46 | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | 1 |
| PFHxA | | ND | 2.31 | 5.30 | 8.46 | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | |
| PFHpA | | ND | 0.625 | 5.30 | 8.46 | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | |
| PFHxS | | ND | 1.00 | 5.30 | 8.46 | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | 1 |
| PFOA | | ND | 0.688 | 5.30 | 8.46 | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | 1 |
| PFOS | | ND | 0.853 | 5.30 | 8.46 | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | 1 |
| PFNA | | ND | 0.856 | 5.30 | 8.46 | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | |
| PFDA | | ND | 1.58 | 5.30 | 8.46 | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | 1 |
| MeFOSAA | | ND | 1.74 | 5.30 | 8.46 | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | |
| PFUnA | | ND | 1.11 | 5.30 | 8.46 | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | 1 |
| EtFOSAA | | ND | 1.45 | 5.30 | 8.46 | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | |
| PFDoA | | ND | 0.837 | 5.30 | 8.46 | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | 1 |
| PFTrDA | | ND | 0.522 | 5.30 | 8.46 | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | 1 |
| PFTeDA | | ND | 0.798 | 5.30 | 8.46 | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | 1 |
| Labeled Standard | s Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 117 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | 1 |
| 13C2-PFHxA | IS | 95.2 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | 1 |
| 13C4-PFHpA | IS | 101 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | 1 |
| 18O2-PFHxS | IS | 102 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | 1 |
| 13C2-PFOA | IS | 102 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | 1 |
| 13C8-PFOS | IS | 82.8 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | 1 |
| 13C5-PFNA | IS | 88.9 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | 1 |
| 13C2-PFDA | IS | 73.2 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | 1 |
| d3-MeFOSAA | IS | 78.5 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | 1 |
| 13C2-PFUnA | IS | 94.9 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | 1 |
| d5-EtFOSAA | IS | 75.4 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | 1 |
| 13C2-PFDoA | IS | 85.5 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | |
| 13C2-PFTeDA | IS | 140 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.118 L | 21-Feb-18 22:11 | |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.



| Sample ID: WI-AF-El | B03-SO-0118 | | | | | | | | Mod | ified EPA Metl | hod 537 |
|---|--------------------------|-----------------------|--------------|---------------------------|-------|--------------------------------------|------------------------|---------------|-------------------|------------------------|----------|
| Client Data Name: CH2M F Project: NAS W Location: SB613 | -iill I- AULT FIELD | Matrix: Date Colle | - | ueous Jan-18 13:15 | Lab S | Dratory Data Sample: Received: | 1800269-0 07-Feb-18 | | Column | ВЕН С18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND WJ | 1.88 | 5.25 | 8.40 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 1 |
| PFHxA | | ND | 2.29 | 5.25 | 8.40 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 1 |
| PFHpA | | ND | 0.621 | 5.25 | 8.40 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 1 |
| PFHxS | | ND | 0.995 | 5.25 | 8.40 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 1 |
| PFOA | | ND | 0.684 | 5.25 | 8.40 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 1 |
| PFOS | | ND | 0.848 | 5.25 | 8.40 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 1 |
| PFNA | | ND | 0.851 | 5.25 | 8.40 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 1 |
| PFDA | | ND | 1.57 | 5.25 | 8.40 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 1 |
| MeFOSAA | | ND | 1.73 | 5.25 | 8.40 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | |
| PFUnA | | ND | 1.10 | 5.25 | 8.40 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 1 |
| EtFOSAA | | ND | 1.44 | 5.25 | 8.40 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 1 |
| PFDoA | | ND | 0.832 | 5.25 | 8.40 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 1 |
| PFT _r DA | | ND | 0.519 | 5.25 | 8.40 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 1 |
| PFTeDA | | ND 9 | 0.793 | 5.25 | 8.40 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 1 |
| Labeled Standards | Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 107 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 1 |
| 13C2-PFHxA | IS | 93.2 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | I |
| I3C4-PFHpA | IS | 87.6 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 1 |
| 18O2-PFHxS | IS | 96.0 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 4 |
| 13C2-PFOA | IS | 104 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 1 |
| 13C8-PFOS | IS | 81.1 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 1 |
| 13C5-PFNA | IS | 86.7 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 1 |
| 13C2-PFDA | IS | 87.7 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 1 |
| d3-MeFOSAA | IS | 71.6 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 1 |
| 13C2-PFUnA | 1S | 77.5 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 1 |
| d5-EtFOSAA | IS | 74.6 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 1 |
| 13C2-PFDoA | IS | 75.3 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 1 |
| 13C2-PFTeDA | IS | 106 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:22 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | LCL-UCL- L | ower control | imit - upper control limi | t | When rep | ported, PFHxS; | PFOA and PFOS | include both line | ear and branched isome | rs. |

pur 5/29/1.8

Results reported to the DL

LOQ - Limit of quantitation

Only the linear isomer is reported for all other analytes

Work Order 1800269 Page 13 of 26



| Sample ID: WI-AF- | FB-011218 | | | | | | | | Mod | ified EPA Met | hod 537 |
|--|--------------------------|-----------------------|-----------------|-------------------------|-------|--------------------------------------|------------------------|---------------|-----------|------------------------|----------|
| Client Data Name: CH2N Project: NAS Location: SB60 | WI-AULT FIELD | Matrix: Date Colle | - | ueous Jan-18 16:00 | Lab S | oratory Data Sample: Received: | 1800269-0 07-Feb-18 | | Column | BEII C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND UJ | 1.88 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | 1 |
| PFHxA | | ND | 2.29 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | Ì |
| PFHpA | | ND | 0.622 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | |
| PFHxS | | ND | 0.996 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | 1 |
| PFOA | | ND | 0.685 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | 1 |
| PFOS | | ND | 0.849 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | 1 |
| PFNA | | ND | 0.852 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | |
| PFDA | | ND | 1.57 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | 1 |
| MeFOSAA | | ND | 1.74 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | |
| PFUnA | | ND | 1.10 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | |
| EtFOSAA | | ND | 1.44 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | |
| PFDoA | | NID | 0.833 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | |
| PFTrDA | | ND | 0.520 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | |
| PFTeDA | | ND 🦂 | 0.794 | 5,25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 117 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | 1 |
| 13C2-PFHxA | IS | 93.4 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | 1 |
| 13C4-PFHpA | IS | 103 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | |
| 18O2-PFHxS | IS | 102 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | 1 |
| 13C2-PFOA | IS | 95.4 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | 1 |
| 13C8-PFOS | IS | 109 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | 1 |
| 13C5-PFNA | IS | 82.7 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | |
| 13C2-PFDA | IS | 76.6 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | |
| d3-MeFOSAA | IS | 71.4 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | 1 |
| 13C2-PFUnA | 18 | 71.3 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | 1 |
| d5-EtFOSAA | IS | 80.9 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | . 1 |
| 13C2-PFDoA | IS | 79.8 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | 1 |
| 13C2-PFTeDA | IS | 92.8 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:34 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | LCL-UCL- 1 | ower control li | mit - upper control lim | it | | | PFOA and PFOS | | ear and branched isome | 318 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL

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

Work Order 1800269 Page 14 of 26



| Sample ID: W | I-AF-EB04-SO-0118 | | | | | | | | Mod | ified EPA Met | hod 537 |
|--------------------------------------|--|-----------------------|-------|-----------------------|-------|--------------------------------------|------------------------|-----------|-----------|-----------------|----------|
| Client Data Name: Project: Location: | CH2M Hill NAS WI- AULT FIELD SB607 | Matrix: Date Colle | • | ieous Jan-18 16:05 | Lab S | Oratory Data Sample: Received: | 1800269-(07-Feb-18 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND UJ | 2.00 | 5.58 | 8.92 | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| PFHxA | | ND | 2.43 | 5.58 | 8.92 | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| PFHpA | | ND | 0.659 | 5.58 | 8.92 | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| PFHxS | | ND | 1.06 | 5.58 | 8.92 | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| PFOA | | ND | 0.726 | 5.58 | 8.92 | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| PFOS | | ND | 0.900 | 5.58 | 8.92 | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| PFNA | | ND | 0.903 | 5.58 | 8.92 | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| PFDA | | ND | 1.66 | 5.58 | 8.92 | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| MeFOSAA | | ND | 1.84 | 5.58 | 8.92 | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| PFUnA | | ND | 1.17 | 5.58 | 8.92 | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| EtFOSAA | | ND | 1.53 | 5.58 | 8.92 | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| PFDoA | | ND | 0.883 | 5.58 | 8.92 | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| PFTrDA | | ND | 0.551 | 5.58 | 8.92 | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| PFTeDA | | ND 🧚 | 0.842 | 5.58 | 8.92 | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| Labeled Standar | ds Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 122 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| 13C2-PFHxA | IS | 102 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| 13C4-PFHpA | IS | 99.6 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| 18O2-PFHxS | IS | 99.4 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| 13C2-PFOA | IS | 92.2 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| 13C8-PFOS | IS | 88.2 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| 13C5-PFNA | IS | 86.3 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| 13C2-PFDA | IS | 74.3 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| d3-MeFOSAA | IS | 57.8 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| 13C2-PFUnA | IS | 65.0 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| d5-EtFOSAA | IS | 59.8 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |
| 13C2-PFDoA | IS | 65.8 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | |
| I3C2-PFTeDA | IS | 78.7 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.112 L | 21-Feb-18 22:45 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Work Order 1800269 Page 15 of 26



| Sample ID: WI-AF-FB-0 | 012618 | | | | | | | | Mod | ified EPA Metl | hod 537 |
|--|-----------------|-----------------------|---------------------|---------------------|-------|--------------------------------------|------------------------|-----------|-----------|-----------------|----------|
| Name: CH2M Hill Project: NAS WI- A Location: SB610 | I AULT FIELD | Matrix: Date Colle | Aque cted: 26-Ja | eous an-18 15:40 | Lab S | oratory Data Sample: Received: | 1800269-0 07-Feb-18 | | Column | ВЕН С18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND UJ | 1.88 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | 1 |
| PFHxA | | ND | 2.29 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | |
| PFHpA | | ND | 0.621 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | |
| PFHxS | | ND 🔻 | 0.996 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | |
| PFOA | | 0.725 | 0.684 | 5.25 | 8.41 | 1 | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | 1 |
| PFOS | | ND UJ | 0.848 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | 1 |
| PFNA | | ND | 0.851 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | 1 |
| PFDA | | ND | 1.57 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | 1 |
| MeFOSAA | | ND | 1.73 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | 1 |
| PFUnA | | ND | 1.10 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | 1 |
| EtFOSAA | | ND | 1.44 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | 1 |
| PFDoA | | ND | 0.833 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | 1 |
| PFTrDA | | ND | 0.519 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | 1 |
| PFTeDA | | ND 1 | 0.794 | 5.25 | 8.41 | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 123 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | 1 |
| 13C2-PFHxA | IS | 99.3 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | 1 |
| 13C4-PFHpA | IS | 97.1 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | 1 |
| 18O2-PFHxS | IS | 113 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | 1 |
| 13C2-PFOA | IS | 96.6 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | 1 |
| 13C8-PFOS | IS | 97.6 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | 1 |
| 13C5-PFNA | IS | 93.8 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | 1 |
| 13C2-PFDA | IS | 74.2 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | 1 |
| d3-MeFOSAA | IS | 70.2 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | 1 |
| 13C2-PFUnA | IS | 63.4 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | 1 |
| d5-EtFOSAA | IS | 68.9 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | 1 |
| 13C2-PFDoA | IS | 73.2 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | 1 |
| 13C2-PFTeDA | IS | 105 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.119 L | 21-Feb-18 22:57 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.



| Sample ID: W | I-AF-EB10-0118 | | | | | | | | Mod | ified EPA Met | hod 537 |
|--------------------------------------|--|-----------------------|--------------------|---------------------|-------|--------------------------------------|-----------------------|-----------|-----------|-----------------|----------|
| Client Data Name: Project: Location: | CH2M Hill NAS WI- AULT FIELD SB610 | Matrix: Date Colle | Aque cted: 26-J | eous an-18 15:55 | Lab S | oratory Data Sample: Received: | 1800269- 07-Feb-18 | | Column | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | NP UJ | 1.85 | 5.17 | 8.26 | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | 1 |
| PFHxA | | ND | 2.25 | 5.17 | 8.26 | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | |
| PFHpA | | ND | 0.610 | 5.17 | 8.26 | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | |
| PFHxS | | ND | 0.978 | 5.17 | 8.26 | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | |
| PFOA | | ND | 0.672 | 5.17 | 8.26 | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | |
| PFOS | | ND | 0.833 | 5.17 | 8.26 | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | |
| PFNA | | ND | 0.836 | 5.17 | 8.26 | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | 1 |
| PFDA | | ND | 1.54 | 5.17 | 8.26 | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | |
| MeFOSAA | | ND | 1.70 | 5.17 | 8.26 | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | |
| PFUnA | | ND | 1.08 | 5.17 | 8.26 | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | |
| EtFOSAA | | ND | 1.41 | 5.17 | 8.26 | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | 1 |
| PFDoA | | ND | 0.818 | 5.17 | 8.26 | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | 1 |
| PFTrDA | | ND | 0.510 | 5.17 | 8.26 | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | 1 |
| PFTeDA | | ND 🕴 | 0.780 | 5.17 | 8.26 | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | 1 |
| Labeled Standard | ls Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 112 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | 1 |
| 13C2-PFHxA | IS | 90.9 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | 1 |
| 13C4-PFHpA | IS | 98.8 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | 1 |
| 18O2-PFHxS | IS | 86.8 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | 4 |
| 13C2-PFOA | IS | 107 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | 1 |
| 13C8-PFOS | IS | 84.3 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | 1 |
| 13C5-PFNA | IS | 98.5 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | 1 |
| 13C2-PFDA | IS | 77.4 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | 1 |
| d3-MeFOSAA | IS | 68.8 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | 1 |
| 13C2-PFUnA | IS | 74.8 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | 1 |
| d5-EtFOSAA | IS | 80.2 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | 1 |
| 13C2-PFDoA | IS | 69.2 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | 1 |
| 13C2-PFTeDA | IS | 88.1 | | 50 - 150 | | | B8B0043 | 09-Feb-18 | 0.121 L | 21-Feb-18 23:08 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS 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: 1800340

Laboratory: Vista Analytical Laboratory, El Dorado Hills, California Site: NAS Whidbey Island, Ault Field, CTO-4041, Washington

Date: May 29, 2018

| | | PFCs | |
|--------|----------------------|----------------------|--------|
| EDS ID | Client Sample ID | Laboratory Sample ID | Matrix |
| 1 | WI-AF-MW-614-0218 | 1800340-01 | Water |
| 2 | WI-AF-MW-613-0218 | 1800340-02 | Water |
| 3 | WI-AF-FB02-021418 | 1800340-03 | Water |
| 4 | WI-AF-EB02-021418 | 1800340-04 | Water |
| 5 | WI-AF-MW-612-0218 | 1800340-05 | Water |
| 5MS | WI-AF-MW-612-0218MS | 1800340-05MS | Water |
| 5MSD | WI-AF-MW-612-0218MSD | 1800340-05MSD | Water |
| 6 | WI-AF-EB02-021518 | 1800340-06 | Water |
| 7 | WI-AF-MW-608-0218 | 1800340-07 | Water |
| 8 | WI-AF-MW-606-0218 | 1800340-08 | Water |
| 9 | WI-AF-MW-606P-0218 | 1800340-09 | Water |
| 10 | WI-AF-FB02-021618 | 1800340-10 | Water |
| 11 | WI-AF-MW-607-0218 | 1800340-11 | Water |
| 12 | WI-AF-MW-605-0218 | 1800340-12 | Water |
| 13 | WI-AF-MW-609-0218 | 1800340-13 | Water |

A full data validation was performed on the analytical data for nine water samples, two aqueous field blank samples, and two aqueous equipment blank samples collected on February 14-17, 2018 by CH2M HILL at the NAS Whidbey Island Ault Field 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 Method References
PFCs USEPA Method 537 Modified

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, the Final Sampling and Analysis Plan Phase I Site Investigation for Per- and Polyfluoroalkyl Substances in Soil and Groundwater Ault Field, February 2018, and the USEPA National Functional Guidelines for Organic Data Review as follows:

- The USEPA "Contract Laboratories Program National Functional Guidelines for Organic Superfund Methods Data Review," January 2017;
- 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
- 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 (Level IV) data validation was performed with this review including a recalculation of 10% of the detected results in the samples.

Data Usability Assessment

There were no rejections of data.

Overall the data is 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 Compounds (PFCs)

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 samples were free of contamination.

| Blank ID | Compound | Conc. ng/L | Qualifier | Affected Samples |
|-------------------|-----------|------------|-----------|-------------------|
| WI-AF-FB02-021418 | None - ND | - | - | |
| WI-AF-EB02-021418 | None - ND | | - | |
| WI-AF-EB02-021518 | None - ND | - | | + |
| WI-AF-FB02-021618 | None - ND | | | .=1 |
| WI-AF-FB01-021518 | None - ND | | | 4 |
| WI-AF-FB01-021718 | PFOS | 2.23 | None | All Associated ND |
| WI-AF-EB01-021718 | PFOS | 1.95 | None | All Associated ND |

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

• The MS/MSD samples exhibited acceptable percent recoveries (%R) and RPD values except for the following.

| MS/MSD Sample | Compound | MS %R/MSD %R/RPD | Qualifier |
|---------------|----------|------------------|------------------|
| 5 | PFOS | OK/158%/32.9 | None - Sample ND |

Laboratory Control Samples

• The LCS samples exhibited acceptable percent recoveries (%R)

Internal Standard (IS) Area Performance

• All internal standards met response and retention time (RT) criteria except for the following.

| EDS Sample ID | Compound | %R | Qualifier |
|---------------|------------|-------|----------------------|
| 13 | 13C2-PFDoA | 44.8% | UI - Associated Cmpd |

Target Compound Identification

• All mass spectra and quantitation criteria were met.

Compound Quantitation

• All criteria were met.

Field Duplicate Sample Precision

• Field duplicate results are summarized below. The precision was acceptable.

| Compound | WI-AF-MW-606-0218 ng/L | WI-AF-MW-606P-0218 ng/L | RPD | Qualifier |
|----------|---------------------------|----------------------------|------|-----------|
| None | ND | ND | De 1 | |

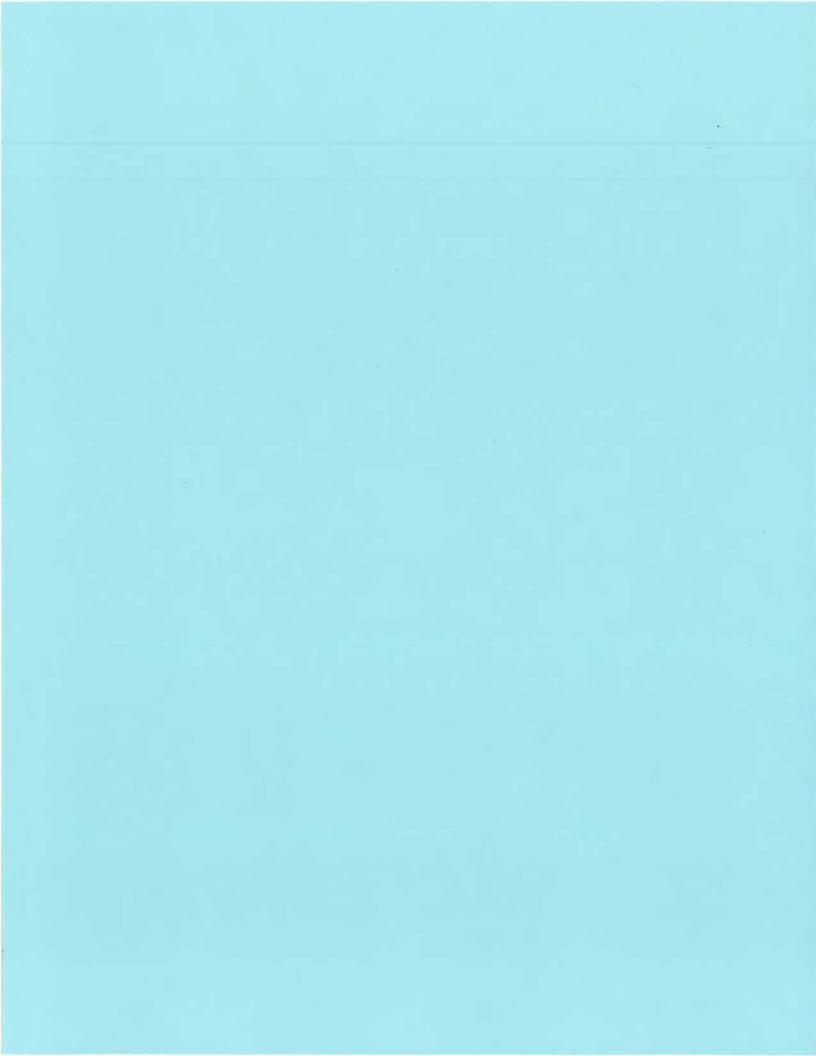
Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed:

Nancy Weaver Senior Chemist

langelleurer Dated: 6/1/8

| Data Qualifier | Definition |
|-------------------|--|
| U | The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit. |
| Ј | The analyte is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample. |
| NJ | The analysis has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the samples. |
| UJ | The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise. |
| R | The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the samples. |





| Sample ID: W | 'I-AF-MW-614-02 | 218 | | | | | | | | Mod | ified EPA Metl | 10d 537 |
|--------------------------------------|--|-------------------------|----------------------|--------------|--------------------------------|-------|--------------------------------------|------------------------|---------------|-------------------|------------------------|----------|
| Client Data Name: Project: Location: | CH2M Hill 695610.04.FI.FS MW-614 | | Matrix: Date Coll | | Aqueous 4-Feb-18 11:45 | Lab : | oratory Data Sample: Received: | 1800340-(20-Feb-18 | | Column: | ВЕН С18 | |
| Analyte | | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | | ND | 1.90 | 5.30 | 8.47 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | 1 |
| PFHxA | | | ND | 2.31 | 5.30 | 8.47 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | |
| PFHpA | | | ND | 0.626 | 5.30 | 8.47 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | |
| PFHxS | | | ND | 1.00 | 5.30 | 8.47 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | 1 |
| PFOA | | | ND | 0.689 | 5.30 | 8.47 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | |
| PFOS | | | ND | 0.855 | 5.30 | 8.47 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | |
| PFNA | | | ND | 0.858 | 5.30 | 8.47 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | 1 |
| PFDA | | | ND | 1.58 | 5.30 | 8.47 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | 1 |
| MeFOSAA | | | ND | 1.75 | 5.30 | 8.47 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | 1 |
| PFUnA | | | ND | 1.11 | 5.30 | 8.47 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | |
| EtFOSAA | | | ND | 1.45 | 5.30 | 8.47 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | |
| PFDoA | | | ND | 0.839 | 5.30 | 8.47 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | 1 |
| PFTrDA | | | ND | 0.523 | 5.30 | 8.47 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | 1 |
| PFTeDA | | | ND | 0.800 | 5.30 | 8.47 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | 1 |
| Labeled Standard | ds | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | | IS | 99.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | 1 |
| 13C2-PFHxA | | IS | 81.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | 1 |
| 13C4-PFHpA | | IS | 81.0 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | 1 |
| 18O2-PFHxS | | IS | 87.9 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | 1 |
| 13C2-PFOA | | IS | 66.0 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | 1 |
| 13C8-PFOS | | IS | 89.0 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | 1 |
| 13C5-PFNA | | IS | 86.6 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | 1 |
| 13C2-PFDA | | IS | 70.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | 1 |
| d3-MeFOSAA | | IS | 85.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | 1 |
| 13C2-PFUnA | | IS | 67.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | 1 |
| d5-EtFOSAA | | IS | 77.4 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | 1 |
| 13C2-PFDoA | | 18 | 78.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | 1 |
| 13C2-PFTeDA | | IS | 91.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 07:33 | 1 |
| DL - Detection Limit | 10 | DD - Limit of Detection | LCL-UCL- | .ower contri | ol limit - upper control limit | | When ren | orted, PFHxS, I | PFOA and PFOS | include both line | ar and branched isomer | rs |

m 5/29/18

Results reported to the DL

LOQ - Limit of quantitation

Work Order 1800340 Page 9 of 27

Only the linear isomer is reported for all other analytes



| Sample ID: WI-AF- | MW-613-0218 | | | | | | | | | Mod | ified EPA Metl | hod 537 |
|--|-------------|------|----------------------|-------|------------------------|-------|----------------------|------------------------|-----------|-----------|-----------------|----------|
| Client Data Name: CH2M Project: 69561 Location: MW-6 | 0.04.F1.FS | | Matrix: Date Coll | | ueous -Feb-18 16:55 | Lab S | Sample: Received: | 1800340-0 20-Feb-18 | | Column: | BEH C18 | |
| Analyte | | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | | ND | 1.97 | 5.53 | 8.82 | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | 1 |
| PFHxA | | | ND | 2.40 | 5.53 | 8.82 | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | 1 |
| PFHpA | | | ND | 0.652 | 5.53 | 8.82 | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | |
| PFHxS | | | ND | 1.04 | 5.53 | 8.82 | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | |
| PFOA | | | ND | 0.718 | 5.53 | 8.82 | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | 1 |
| PFOS | | | ND | 0.890 | 5.53 | 8.82 | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | 1 |
| PFNA | | | ND | 0.893 | 5.53 | 8.82 | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | 1 |
| PFDA | | | ND | 1.64 | 5.53 | 8.82 | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | 1 |
| MeFOSAA | | | ND | 1.82 | 5.53 | 8.82 | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | 1 |
| PFUnA | | | ND | 1.16 | 5.53 | 8.82 | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | 1 |
| EtFOSAA | | | ND | 1.51 | 5.53 | 8.82 | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | 1 |
| PFDoA | | | ND | 0.874 | 5.53 | 8.82 | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | 1 |
| PFTrDA | | | ND | 0.545 | 5.53 | 8.82 | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | 1 |
| PFTeDA | | | ND | 0.833 | 5.53 | 8.82 | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | Ī |
| Labeled Standards | , | Гуре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | | IS | 91.7 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | 1 |
| 13C2-PFHxA | | 1S | 89.6 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | 1 |
| 13C4-PFHpA | | IS | 82.0 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | 1 |
| 18O2-PFHxS | | IS | 88.0 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | 1 |
| 13C2-PFOA | | IS | 60.0 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | 1 |
| 13C8-PFOS | | IS | 85.1 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | 1 |
| 13C5-PFNA | | IS | 83.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | 1 |
| 13C2-PFDA | | 1S | 65.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | 1 |
| d3-MeFOSAA | | IS | 71.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | 1 |
| 13C2-PFUnA | | IS | 63.4 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | 1 |
| d5-EtFOSAA | | IS | 63.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | 1 |
| 13C2-PFDoA | | IS | 53.4 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | 1 |
| 13C2-PFTeDA | | IS | 71.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.113 L | 28-Feb-18 07:44 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.



| Sample ID: WI-AF- | FB02-021418 | | | | | | | | Mod | ified EPA Metl | hod 537 |
|---|--------------------------|----------------------|-------|-------------------------|-------|----------------------|------------------------|----------------|-------------------|------------------------|----------|
| Client Data Name: CH2M Project: 69561 Location: Field | 0.04.FI.FS | Matrix: Date Coll | | eous Feb-18 17:55 | Lab S | Sample: Received: | 1800340-0 20-Feb-18 | | Column: | ВЕН С18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 1.86 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | 1 |
| PFHxA | | ND | 2.27 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | |
| PFHpA | | ND | 0.615 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | |
| PFHxS | | ND | 0.986 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | |
| PFOA | | ND | 0.678 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | |
| PFOS | | ND | 0.840 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | |
| PFNA | | ND | 0.843 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | 1 |
| PFDA | | ND | 1.55 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | |
| MeFOSAA | | ND | 1.72 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | |
| PFUnA | | ND | 1.09 | 5,21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | -1 |
| EtFOSAA | | ND | 1.43 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | 1 |
| PFDoA | | ND | 0.824 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | 1 |
| PFTrDA | | ND | 0.514 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | 1 |
| PFTeDA | | ND | 0.786 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 120 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | 1 |
| 13C2-PFHxA | IS | 94.4 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | 1 |
| 13C4-PFHpA | IS | 88.1 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | 1 |
| 18O2-PFHxS | IS | 88.9 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | 1 |
| 13C2-PFOA | IS | 70.4 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | 1 |
| 13C8-PFOS | IS | 84.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | 1 |
| 13C5-PFNA | IS | 81.7 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | 1 |
| 13C2-PFDA | IS | 73.9 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | 1 |
| d3-MeFOSAA | IS | 73.9 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | 1 |
| 13C2-PFUnA | IS | 65.1 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | 1 |
| d5-EtFOSAA | IS | 66.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | 1 |
| 13C2-PFDoA | IS | 64.0 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | 1 |
| 13C2-PFTeDA | IS | 65.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:30 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | 101 101 | 1 1 E | mit - upper control lin | .:. | Whana | DELL.C | DECLY and DECK | test de la defici | ar and branched isomer | |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.

Work Order 1800340 Page 11 of 27



| Sample ID: WI-AF-EB | 302-021418 | | | | | | | | Mod | ified EPA Meth | 10d 537 |
|--|--------------------------|----------------------|------------------|--------------------------|-------|----------------------|------------------------|---------------|-------------------|------------------------|----------|
| Client Data Name: CH2M H: Project: 695610.0 Location: Equipmen | 4.F1.FS | Matrix: Date Coll | - | neous Feb-18 18:20 | Lab S | Sample: Received: | 1800340-0 20-Feb-18 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 1.86 | 5.21 | 8.31 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| PFHxA | | ND | 2.26 | 5.21 | 8.31 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| PFHpA | | ND | 0.614 | 5.21 | 8.31 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| PFHxS | | ND | 0.984 | 5.21 | 8.31 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| PFOA | | ND | 0.676 | 5.21 | 8.31 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| PFOS | | ND | 0.838 | 5,21 | 8,31 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| PFNA | | ND | 0.842 | 5.21 | 8.31 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| PFDA | | ND | 1.55 | 5.21 | 8.31 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| MeFOSAA | | ND | 1.71 | 5.21 | 8.31 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| PFUnA | | ND | 1.09 | 5.21 | 8.31 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | |
| EtFOSAA | | ND | 1.42 | 5.21 | 8.31 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| PFDoA | | ND | 0.823 | 5.21 | 8.31 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| PFTrDA | | ND | 0.513 | 5.21 | 8.31 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| PFTeDA | | ND | 0.784 | 5.21 | 8.31 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 93.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| 13C2-PFHxA | IS | 74.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| 13C4-PFHpA | IS | 71.7 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| 18O2-PFHxS | IS | 89.0 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| 13C2-PFOA | IS | 57.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| 13C8-PFOS | IS | 77.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| 13C5-PFNA | IS | 83.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| 13C2-PFDA | IS | 80.6 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| d3-MeFOSAA | IS | 69.0 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| 13C2-PFUnA | IS | 52.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| d5-EtFOSAA | IS | 62.7 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| 13C2-PFDoA | IS | 54.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| 13C2-PFTeDA | IS | 68.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:42 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | LCL-UCL- | Lower control li | mit - upper control limi | | When rep | sorted, PFHxS, I | PFOA and PFOS | include both line | ar and branched isomer | S |

rm 2/29/18

Results reported to the DL

LOQ - Limit of quantitation

Only the linear isomer is reported for all other analytes

Work Order 1800340 Page 12 of 27



| Sample ID: Wi | I-AF-MW-612-0 | 218 | | | | | | | | Mod | ified EPA Metl | hod 537 |
|--------------------------------------|--|-------------------------|----------------------|----------------|--------------------------|-------|--------------------------------------|------------------------|----------------|------------------|------------------------|----------|
| Client Data Name: Project: Location: | CH2M Hill 695610.04.F1.FS MW-612 | | Matrix: Date Coll | | ieous Feb-18 11:20 | Lab S | oratory Data Sample: Received: | 1800340-(20-Feb-18 | | Column | BEH C18 | |
| Analyte | | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | | ND | 1.86 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | 1 |
| PFHxA | | | ND | 2.27 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | 1 |
| PFHpA | | | ND | 0.616 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | 1 |
| PFHxS | | | ND | 0.986 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | 1 |
| PFOA | | | ND | 0.678 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | 1 |
| PFOS | | | ND | 0.841 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | 1 |
| PFNA | | | ND | 0.844 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | 1 |
| PFDA | | | ND | 1.55 | 5,21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | 1 |
| MeFOSAA | | | ND | 1.72 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | 1 |
| PFUnA | | | ND | 1.09 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | 1 |
| EtFOSAA | | | ND | 1.43 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | 1 |
| PFDoA | | | ND | 0.825 | 5,21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | 1 |
| PFTrDA | | | ND | 0.515 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | 1 |
| PFTeDA | | | ND | 0.786 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | 1 |
| Labeled Standard | ls | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | | IS | 93.6 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | 1 |
| 13C2-PFHxA | | IS | 74.4 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | I |
| 13C4-PFHpA | | IS | 79.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | 1 |
| 18O2-PFHxS | | IS | 77.7 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | 1 |
| 13C2-PFOA | | IS | 51.6 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | 1 |
| 13C8-PFOS | | IS | 79.6 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | 1 |
| 13C5-PFNA | | IS | 70.1 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | 1 |
| 13C2-PFDA | | IS | 88.4 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | 1 |
| d3-MeFOSAA | | 21 | 79.4 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | |
| 13C2-PFUnA | | IS | 70.6 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | |
| d5-EtFOSAA | | IS | 72.4 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | |
| 13C2-PFDoA | | IS | 60.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | |
| I3C2-PFTeDA | | IS | 64.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 08:53 | 1 |
| DL - Detection Limit | | OD - Limit of Detection | 101-001- | Louvan control | ımit - upper control lim | it | When re | norted PFHyS | PEO A and PEOS | include both lin | ear and branched isome | re |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Work Order 1800340 Page 13 of 27



| Sample ID: WI-AF- | EB02-021518 | | | | | | | | | Mod | ified EPA Metl | nod 537 |
|----------------------|-------------------------------------|----------------------|--|-------|----------------------------|-------|--------------------------------------|------------------------|---------------|-------------------|------------------------|----------|
| , | 4 Hill 10.04.F1.FS ment Blank | | Matrix: Date Colle | | Aqueous 15-Feb-18 12:45 | Lab S | oratory Data Sample: Received: | 1800340-0 20-Feb-18 | | Column: | ВЕН С18 | |
| Analyte | | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | | ND | 1.85 | 5.17 | 8.26 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| PFHxA | | | ND | 2.25 | 5.17 | 8.26 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| PFHpA | | | ND | 0.610 | 5.17 | 8.26 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| PFHxS | | | ND | 0.978 | 5.17 | 8.26 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| PFOA | | | ND | 0.672 | 5.17 | 8.26 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| PFOS | | | ND | 0.833 | 5.17 | 8.26 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| PFNA | | | ND | 0.837 | 5.17 | 8.26 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| PFDA | | | ND | 1.54 | 5.17 | 8.26 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| MeFOSAA | | | ND | 1.70 | 5.17 | 8.26 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| PFUnA | | | ND | 1.08 | 5.17 | 8.26 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| EtFOSAA | | | ND | 1.41 | 5.17 | 8.26 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| PFDoA | | | ND | 0.818 | 5.17 | 8.26 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| PFTrDA | | | ND | 0.510 | 5.17 | 8.26 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| PFTeDA | | | ND | 0.780 | 5.17 | 8.26 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| Labeled Standards | | Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | | IS | 87.9 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| 13C2-PFHxA | | IS | 84.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| 13C4-PFHpA | | IS | 69.7 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| 18O2-PFHxS | | IS | 98.7 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| 13C2-PFOA | | IS | 62.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| 13C8-PFOS | | IS | 71.0 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| 13C5-PFNA | | IS | 88.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| 13C2-PFDA | | IS | 81.0 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| d3-MeFOSAA | | IS | 64.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| 13C2-PFUnA | | IS | 55.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| d5-EtFOSAA | | IS | 68.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| 13C2-PFDoA | | IS | 51.9 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| 13C2-PFTeDA | | IS | 60.1 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 09:05 | 1 |
| DL - Detection Limit | LOD | - Limit of Detection | LCL-UCL- Lower control limit - upper control limit | | | | When rep | oorted, PFHxS, | PFOA and PFOS | include both line | ear and branched isome | TS 2 |

per SIzalia

Only the linear isomer is reported for all other analytes

Work Order 1800340 Page 15 of 27

Results reported to the DL

LOQ - Limit of quantitation



| Sample ID: WI-AF-MW-6 | 08-0218 | | | | | | | | Mod | ified EPA Meth | and 537 |
|---|--------------------------|--|----------------------|----------------------|-------|--------------------------------------|------------------------|---------------|-------------------|------------------------|----------|
| Client Data Name: CH2M Hill Project: 695610.04.FI. Location: MW-608 | FS | Matrix: Date Col | Aqui lected: 15-F | eous Feb-18 15:55 | Lab S | oratory Data Sample: Received: | 1800340-(20-Feb-18 | | Column | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | 4.57 | 1.87 | 5.21 | 8.36 | J | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | 1 |
| PFHxA | | 9.86 | 2.28 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | 1 |
| PFHpA | | 3.58 | 0.617 | 5.21 | 8.36 | J | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | |
| PFHxS | | 9.26 | 0.989 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | 1 |
| PFOA | | 8.75 | 0.680 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | 1 |
| PFOS | | ND | 0.843 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | |
| PFNA | | ND | 0.846 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | |
| PFDA | | ND | 1.56 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | 1 |
| MeFOSAA | | ND | 1.72 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | |
| PFUnA | | ND | 1.10 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | |
| EtFOSAA | | ND | 1.43 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | |
| PFDoA | | ND | 0.827 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | |
| PFTrDA | | ND | 0.516 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | |
| PFTeDA | | ND | 0.789 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 91.7 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | 1 |
| 13C2-PFHxA | IS | 83.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | 1 |
| I3C4-PFHpA | IS | 74.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | 1 |
| 18O2-PFHxS | IS | 79.1 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | |
| 13C2-PFOA | IS | 68.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | |
| 13C8-PFOS | IS | 78.9 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | |
| 13C5-PFNA | IS | 81.9 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | |
| 13C2-PFDA | IS | 72.1 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | |
| d3-MeFOSAA | IS | 80.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | |
| 13C2-PFUnA | IS | 63.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | 1 |
| d5-EtFOSAA | IS | 79.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | |
| 13C2-PFDoA | IS | 80.6 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | |
| 13C2-PFTeDA | IS | 66.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:16 | |
| DL - Detection Limit | LOD - Limit of Detection | LCL-UCL- Lower control limit - upper control limit | | | | When rep | orted, PFHxS, | PFOA and PFOS | include both line | ar and branched isomer | I S |

re 5/29/18

Results reported to the DL

Work Order 1800340

LOQ - Limit of quantitation

Only the linear isomer is reported for all other analytes



| Sample ID: WI-AF- | VIW-606-0218 | | | | | | | Mod | ified EPA Metl | hod 537 | |
|--|--------------|---------------------|-------|-------------------------|-------|----------------------|------------------------|-----------|----------------|-----------------|----------|
| Client Data Name: CH2M Project: 69561 Location: MW-6 | 0.04.FI.FS | Matrix: Date Col | | jueous -Feb-18 14:50 | Lab S | Sample: Received: | 1800340-(20-Feb-18 | | Column: | ВЕН С18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 1.87 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | 1 |
| PFHxA | | ND | 2.28 | 5.21 | 8.35 | | B8B0130 | | 0.120 L | 28-Feb-18 09:28 | |
| PFHpA | | ND | 0.617 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | 1 |
| PFHxS | | ND | 0.989 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | |
| PFOA | | ND | 0.680 | 5.21 | 8.35 | | B8B0130 | | 0.120 L | 28-Feb-18 09:28 | |
| PFOS | | ND | 0.843 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | 1 |
| PFNA | | ND | 0.846 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | |
| PFDA | | ND | 1.56 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | |
| MeFOSAA | | ND | 1.72 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | |
| PFUnA | | ND | 1.10 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | |
| EtFOSAA | | ND | 1.43 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | |
| PFDoA | | ND | 0.827 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | |
| PFTrDA | | ND | 0.516 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | |
| PFTeDA | | ND | 0.788 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 96.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | 1 |
| 13C2-PFHxA | IS | 89.6 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | 1 |
| I3C4-PFHpA | IS | 72.7 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | 1 |
| 18O2-PFHxS | IS | 89.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | 1 |
| 13C2-PFOA | IS | 63.6 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | 1 |
| 13C8-PFOS | IS | 82.7 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | |
| I3C5-PFNA | IS | 77.4 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | 1 |
| 13C2-PFDA | IS | 73.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | |
| d3-MeFOSAA | IS | 65.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | 1 |
| 13C2-PFUnA | IS | 70.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | 1 |
| d5-EtFOSAA | IS | 67.7 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | |
| 13C2-PFDoA | IS | 56.4 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | |
| 13C2-PFTeDA | IS | 68.9 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 09:28 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.



| Sample ID: WI-AF-N | MW-606P-0218 | | | | | | | | Mod | ified EPA Metl | hod 537 |
|--|--------------------------|----------------------|---------------------|--------------------------|-------|----------------------|------------------------|---------------|-------------------|-------------------------|----------|
| Client Data Name: CH2M Project: 695610 Location: MW-66 | 0.04.F1.FS | Matrix: Date Coll | Aque ected: 16-F | eous eb-18 14:50 | Lab S | Sample: Received: | 1800340-0 20-Feb-18 | | Column | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 1.89 | 5.30 | 8.45 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | 1 |
| PFHxA | | ND | 2.30 | 5.30 | 8.45 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | 1 |
| PFHpA | | ND | 0.624 | 5.30 | 8.45 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | 1 |
| PFHxS | | ND | 1.00 | 5.30 | 8.45 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | 1 |
| PFOA | | ND | 0.687 | 5.30 | 8.45 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | 1 |
| PFOS | | ND | 0.852 | 5.30 | 8.45 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | 1 |
| PFNA | | ND | 0.855 | 5.30 | 8.45 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | 1 |
| PFDA | | ND | 1.57 | 5.30 | 8.45 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | 1 |
| MeFOSAA | | ND | 1.74 | 5.30 | 8.45 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | |
| PFUnA | | ND | 1.11 | 5.30 | 8.45 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | |
| EtFOSAA | | ND | 1.45 | 5.30 | 8.45 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | 1 |
| PFDoA | | ND | 0.836 | 5.30 | 8.45 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | 1 |
| PFTrDA | | ND | 0.522 | 5.30 | 8.45 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | |
| PFTeDA | | ND | 0.797 | 5.30 | 8.45 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 104 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | 1 |
| 13C2-PFHxA | IS | 102 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | 1 |
| 13C4-PFHpA | IS | 87.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | 1 |
| 18O2-PFHxS | IS | 72.6 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | 1 |
| 13C2-PFOA | IS | 60.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | 1 |
| 13C8-PFOS | IS | 86.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | 1 |
| 13C5-PFNA | IS | 89.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | 1 |
| 13C2-PFDA | IS | 71.6 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | 1 |
| d3-MeFOSAA | IS | 83.7 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | 1 |
| 13C2-PFUnA | IS | 70.1 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | 1 |
| d5-EtFOSAA | IS | 82.0 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | 1 |
| 13C2-PFDoA | IS | 84.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | 1 |
| 13C2-PFTeDA | IS | 87.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 09:39 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | LCL-UCL- | Lower control lin | mit - upper control limi | t | When rep | orted, PFHxS, | PFOA and PFOS | include both line | ear and branched isomer | TS . |

New 5/29/18

Only the linear isomer is reported for all other analytes

Work Order 1800340 Page 18 of 27

Results reported to the DL

LOQ - Limit of quantitation



| PFHpA PFHxS PFOA PFOS PFNA PFDA MeFOSAA PFUnA EtFOSAA PFTrDA PFTeDA Labeled Standards 13C3-PFBS 13C2-PFHxA 13C4-PFHpA 18O2-PFHxS 13C2-PFOA | | Matrix: Date Coll Conc. (ng/L) ND ND ND ND ND ND ND ND ND N | DL 1.82 2.22 0.602 0.965 0.663 0.822 0.825 1.52 | 5.08 5.08 5.08 5.08 5.08 5.08 5.08 5.08 | Lab S Date LOQ 8.15 8.15 8.15 8.15 8.15 8.15 | ratory Data sample: Received: Qualifiers | 1800340-1 20-Feb-18 Batch B8B0130 B8B0130 B8B0130 B8B0130 | 09:04 Extracted 22-Feb-18 22-Feb-18 22-Feb-18 | Column: Samp Size 0.123 L 0.123 L 0.123 L | Analyzed 28-Feb-18 09:51 28-Feb-18 09:51 | Dilution |
|--|------|--|---|--|--|--|--|---|---|---|------------|
| PFBS PFHxA PFHpA PFHpA PFHxS PFOA PFOS PFNA PFDA MeFOSAA PFUnA EtFOSAA PFTDA PFTeDA Labeled Standards 13C3-PFBS 13C2-PFHxA 13C4-PFHpA 18O2-PFHxS 13C2-PFOA | | ND ND ND ND ND ND ND ND | 1.82 2.22 0.602 0.965 0.663 0.822 0.825 1.52 | 5.08 5.08 5.08 5.08 5.08 5.08 | 8.15 8.15 8.15 8.15 8.15 8.15 | Qualifiers | B8B0130 B8B0130 B8B0130 B8B0130 | 22-Feb-18 22-Feb-18 22-Feb-18 | 0.123 L 0.123 L | 28-Feb-18 09:51 28-Feb-18 09:51 | Dilution 1 |
| PFHxA PFHpA PFHpA PFHxS PFOA PFOS PFNA PFDA MeFOSAA PFUnA EtFOSAA PFTDA PFTeDA Labeled Standards 13C3-PFBS 13C2-PFHxA 13C4-PFHpA 18O2-PFHxS 13C2-PFOA | | ND ND ND ND ND ND ND | 2.22 0.602 0.965 0.663 0.822 0.825 1.52 | 5.08 5.08 5.08 5.08 5.08 | 8.15 8.15 8.15 8.15 8.15 | | B8B0130 B8B0130 B8B0130 | 22-Feb-18 22-Feb-18 | 0.123 L | 28-Feb-18 09:51 | 1 |
| | | ND ND ND ND ND ND | 0.602 0.965 0.663 0.822 0.825 1.52 | 5.08 5.08 5.08 5.08 | 8.15 8.15 8.15 8.15 | | B8B0130 B8B0130 | 22-Feb-18 | | | 1 |
| PFHxS PFOA PFOS PFNA PFDA MeFOSAA PFUnA EtFOSAA PFTrDA PFTeDA Labeled Standards 13C3-PFBS 13C2-PFHxA 13C4-PFHpA 18O2-PFHxS 13C2-PFOA | | ND ND ND ND ND ND | 0.965 0.663 0.822 0.825 1.52 | 5.08 5.08 5.08 | 8.15 8.15 8.15 | | B8B0130 | | 0.123 L | | |
| PFOA PFOS PFNA PFDA MeFOSAA PFUnA EtFOSAA PFDoA PFTrDA PFTeDA Labeled Standards 13C3-PFBS 13C2-PFHxA 13C4-PFHpA 18O2-PFHxS 13C2-PFOA | | ND ND ND ND ND | 0.663 0.822 0.825 1.52 | 5.08 5.08 | 8.15 8.15 | | | 22 E L 10 | | 28-Feb-18 09:51 | 1 |
| PFOS PFNA PFDA MeFOSAA PFUnA EtFOSAA PFDoA PFTrDA PFTeDA Labeled Standards 13C3-PFBS 13C2-PFHxA 13C4-PFHpA 18O2-PFHxS 13C2-PFOA | | ND ND ND ND | 0.822 0.825 1.52 | 5.08 | 8.15 | | | 22-Feb-18 | 0,123 L | 28-Feb-18 09:51 | 1 |
| PFNA PFDA MeFOSAA PFUnA EtFOSAA PFDoA PFTrDA PFTeDA Labeled Standards 13C3-PFBS 13C2-PFHxA 13C4-PFHpA 18O2-PFHxS 13C2-PFOA | | ND ND ND | 0. 825 1.52 | | | | B8B0130 | 22-Feb-18 | 0.123 L | 28-Feb-18 09:51 | 1 |
| PFDA MeFOSAA PFUnA EtFOSAA PFDoA PFTrDA PFTrDA Labeled Standards 13C3-PFBS 13C2-PFHxA 13C4-PFHpA 18O2-PFHxS 13C2-PFOA | | ND ND | 1.52 | 5.08 | | | B8B0130 | 22-Feb-18 | 0.123 L | 28-Feb-18 09:51 | 1 |
| MeFOSAA PFUnA EtFOSAA PFDoA PFTrDA PFTrDA Labeled Standards 13C3-PFBS 13C2-PFHxA 13C4-PFHpA 18O2-PFHxS 13C2-PFOA | | ND | | | 8.15 | | B8B0130 | 22-Feb-18 | 0.123 L | 28-Feb-18 09:51 | 1 |
| PFUnA EtFOSAA PFDoA PFTrDA PFTeDA Labeled Standards 13C3-PFBS 13C2-PFHxA 13C4-PFHpA 18O2-PFHxS 13C2-PFOA | | | | 5.08 | 8.15 | | B8B0130 | 22-Feb-18 | 0.123 L | 28-Feb-18 09:51 | 1 |
| EtFOSAA PFDoA PFTrDA PFTeDA Labeled Standards 13C3-PFBS 13C2-PFHxA 13C4-PFHpA 18O2-PFHxS 13C2-PFOA | | | 1.68 | 5.08 | 8.15 | | B8B0130 | 22-Feb-18 | 0.123 L | 28-Feb-18 09:51 | 1 |
| PFDoA PFTrDA PFTeDA Labeled Standards 13C3-PFBS 13C2-PFHxA 13C4-PFHpA 18O2-PFHxS 13C2-PFOA | | ND | 1.07 | 5.08 | 8.15 | | B8B0130 | 22-Feb-18 | 0.123 L | 28-Feb-18 09:51 | 1 |
| PFTrDA PFTeDA Labeled Standards 13C3-PFBS 13C2-PFHxA 13C4-PFHpA 18O2-PFHxS 13C2-PFOA | | ND | 1.40 | 5.08 | 8.15 | | B8B0130 | 22-Feb-18 | 0.123 L | 28-Feb-18 09:51 | 1 |
| PFTeDA Labeled Standards 13C3-PFBS 13C2-PFHxA 13C4-PFHpA 18O2-PFHxS 13C2-PFOA | | ND | 0.807 | 5.08 | 8.15 | | B8B0130 | 22-Feb-18 | 0.123 L | 28-Feb-18 09:51 | 1 |
| Labeled Standards 13C3-PFBS 13C2-PFHxA 13C4-PFHpA 18O2-PFHxS 13C2-PFOA | | ND | 0.503 | 5.08 | 8.15 | | B8B0130 | 22-Feb-18 | 0.123 L | 28-Feb-18 09:51 | 1 |
| 13C3-PFBS 13C2-PFHxA 13C4-PFHpA 18O2-PFHxS 13C2-PFOA | | ND | 0.769 | 5.08 | 8.15 | | B8B0130 | 22-Feb-18 | 0.123 L | 28-Feb-18 09:51 | 1 |
| 13C2-PFHxA 13C4-PFHpA 18O2-PFHxS 13C2-PFOA | Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| I3C4-PFHpA I8O2-PFHxS I3C2-PFOA | IS | 98.6 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.123 L | 28-Feb-18 09:51 | 1 |
| 18O2-PFHxS 13C2-PFOA | IS | 83.0 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.123 L | 28-Feb-18 09:51 | 1 |
| 13C2-PFOA | IS | 85.1 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.123 L | 28-Feb-18 09:51 | 1 |
| | IS | 91.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.123 L | 28-Feb-18 09:51 | 1 |
| 12CO DEOC | IS | 65.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.123 L | 28-Feb-18 09:51 | 1 |
| 1300-1103 | IS | 85.4 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.123 L | 28-Feb-18 09:51 | 1 |
| 13C5-PFNA | IS | 81.1 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.123 L | 28-Feb-18 09:51 | 1 |
| 13C2-PFDA | 18 | 66.9 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.123 L | 28-Feb-18 09:51 | 1 |
| d3-MeFOSAA | IS | 71.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.123 L | 28-Feb-18 09:51 | 1 |
| 13C2-PFUnA | IS | 64.7 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.123 L | 28-Feb-18 09:51 | 1 |
| d5-EtFOSAA | IS | 72.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.123 L | 28-Feb-18 09:51 | 1 |
| 13C2-PFDoA | IS | 50.9 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.123 L | 28-Feb-18 09:51 | 1 |
| 13C2-PFTeDA | | 58.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.123 L | 28-Feb-18 09:51 | 1 |

Nu SIZ9/18

Only the linear isomer is reported for all other analytes

Work Order 1800340 Page 19 of 27

Results reported to the DL.

LOQ - Limit of quantitation



| PFBS | Sample ID: W | I-AF-MW-607-02 | 18 | | | | | | | | Mod | ified EPA Metl | hod 537 |
|--|-------------------|-----------------|------|--------------|-------|----------|-------|------------|---------|-----------|-----------|-----------------|----------|
| PFBS | Name: Project: | 695610.04,FI.FS | | | | | Lab S | Sample: | | | Column | ВЕН С18 | |
| PFHNA | Analyte | | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFHAA | PFBS | | | ND | 1.97 | 5.48 | 8.80 | | B8B0130 | 22-Feb-18 | 0.114 L | 28-Feb-18 10:02 | 1 |
| PFHpA | PFHxA | | | ND | 2.40 | 5.48 | 8.80 | | | | | | |
| PFINS | PFHpA | | | ND | 0.650 | 5.48 | 8.80 | | B8B0130 | 22-Feb-18 | | 28-Feb-18 10:02 | 1 |
| PFOS | PFHxS | | | ND | 1.04 | 5.48 | 8.80 | | B8B0130 | 22-Feb-18 | | | |
| PFOS | PFOA | | | ND | 0.716 | 5.48 | 8.80 | | B8B0130 | 22-Feb-18 | 0.114 L | 28-Feb-18 10:02 | 1 |
| PFDA | | | | ND | 0.887 | 5.48 | 8.80 | | B8B0130 | 22-Feb-18 | 0.114 L | | |
| MeFOSAA ND 1.81 5.48 8.80 BBB0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFUnA ND 1.15 5.48 8.80 BBB0130 22-Feb-18 0.114 L 28-Feb-18 10:02 EtFOSAA ND 1.51 5.48 8.80 BBB0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTDA ND 0.871 5.48 8.80 BBB0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTDA ND 0.543 5.48 8.80 BBB0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTeDA ND 0.543 5.48 8.80 BBB0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTeDA ND 0.830 5.48 8.80 BBB0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTeDA ND 0.830 5.48 8.80 BBB0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFBA 1S 94.7 50 - 150 BBB0130 <td>PFNA</td> <td></td> <td></td> <td>ND</td> <td>0.891</td> <td>5.48</td> <td>8.80</td> <td></td> <td>B8B0130</td> <td>22-Feb-18</td> <td></td> <td></td> <td></td> | PFNA | | | ND | 0.891 | 5.48 | 8.80 | | B8B0130 | 22-Feb-18 | | | |
| MeFOSAA ND 1.81 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFUnA ND 1.15 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFUDA ND 1.51 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFDOA ND 0.871 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTDA ND 0.871 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTDA ND 0.830 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTDA ND 0.830 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTDA ND 0.830 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTDA ND 0.830 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTDA ND 0.830 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTDA ND 0.830 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTDA ND 0.830 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTDA ND 0.830 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTDA ND 0.830 8.80 8. | PFDA | | | ND | 1.64 | 5.48 | 8.80 | | B8B0130 | 22-Feb-18 | 0.114 L | 28-Feb-18 10:02 | 1 |
| PFUnA | MeFOSAA | | | ND | 1.81 | 5.48 | 8.80 | | B8B0130 | 22-Feb-18 | | | |
| EFFOSAA ND 1.51 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFDOA ND 0.871 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTrDA ND 0.543 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTrDA ND 0.543 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTrDA ND 0.830 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTrDA ND 0.830 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTrDA ND 0.830 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTrDA ND 0.830 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTrDA ND 0.830 PFUnA | | | ND | 1.15 | 5.48 | 8.80 | | B8B0130 | | 0.114 L | | - |
| PFDoA ND 0.871 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTDA PFTDA ND 0.543 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTDA ND 0.830 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTDA ND 0.830 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTDA ND 0.830 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 ND 0.114 L | EtFOSAA | | | ND | 1.51 | 5.48 | 8.80 | | B8B0130 | 22-Feb-18 | 0.114 L | | |
| PFTrDA ND 0.543 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PFTeDA PFTeDA ND 0.830 5.48 8.80 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 PETEDA Limits Qualifiers Batch Extracted Samp Size Analyzed Dilu 13C3-PFBS 1S 94.7 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFHxA 1S 95.1 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFHxA 1S 95.1 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFHxA 1S 95.1 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFHxA 1S 77.0 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFDA 1S 71.9 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFDA 1S 89.1 50 - 150 B8B0130 | PFDoA | | | ND | 0.871 | 5.48 | 8.80 | | B8B0130 | 22-Feb-18 | 0.114 L | | |
| Labeled Standards Type % Recovery Limits Qualifiers Batch Extracted Samp Size Analyzed Ditu 13C3-PFBS 1S 94.7 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFHxA 1S 95.1 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C4-PFHpA 1S 77.0 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 18O2-PFHxS 1S 71.9 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFOA 1S 59.6 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C3-PFOA 1S 89.1 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C3-PFOA 1S 70.8 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFDA 1S 75.6 50 - 150 B8B0130 22-Feb-18 0.114 L <td< td=""><td>PFTrDA</td><td></td><td></td><td>ND</td><td>0.543</td><td>5.48</td><td>8.80</td><td></td><td>B8B0130</td><td></td><td></td><td></td><td></td></td<> | PFTrDA | | | ND | 0.543 | 5.48 | 8.80 | | B8B0130 | | | | |
| Labeled Standards Type % Recovery Limits Qualifiers Batch Extracted Samp Size Analyzed Dilu 13C3-PFBS 1S 94.7 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 12 13C2-PFHxA 1S 95.1 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFHxA 1S 77.0 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 18C2-PFHxS 1S 77.0 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 18C2-PFHxS 1S 77.9 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 18C2-PFDA 1S 59.6 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 18C2-PFDA 1S 70.8 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 18C2-PFDA 1S 75.6 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 28-Feb-18 10:02 18C2-PFDA 1S <t< td=""><td>PFTeDA</td><td></td><td></td><td>ND</td><td>0.830</td><td>5.48</td><td>8.80</td><td></td><td>B8B0130</td><td>22-Feb-18</td><td>0.114 L</td><td>28-Feb-18 10:02</td><td>1</td></t<> | PFTeDA | | | ND | 0.830 | 5.48 | 8.80 | | B8B0130 | 22-Feb-18 | 0.114 L | 28-Feb-18 10:02 | 1 |
| 13C2-PFHxA IS 95.1 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C4-PFHpA IS 77.0 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 18O2-PFHxS IS 71.9 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFOA IS 59.6 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C8-PFOS IS 89.1 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C5-PFNA IS 70.8 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFDA IS 75.6 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 d3-MeFOSAA IS 68.2 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFUnA IS 54.4 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 d5-EtFOSAA IS 64.2 50 - 150 B8B0130 22-Feb-18 0. | Labeled Standard | is | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C4-PFHpA IS 77.0 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 18O2-PFHxS IS 71.9 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFOA IS 59.6 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C8-PFOS IS 89.1 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C5-PFNA IS 70.8 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFDA IS 75.6 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 d3-MeFOSAA IS 68.2 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFUnA IS 54.4 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 d5-EtFOSAA IS 64.2 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFDoA IS 58.0 50 - 150 B8B0130 22-Feb-18 0. | 13C3-PFBS | | IS | 94.7 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.114 L | 28-Feb-18 10:02 | 1 |
| 18O2-PFHxS 1S 71.9 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFOA 1S 59.6 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C8-PFOS 1S 89.1 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C5-PFNA 1S 70.8 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFDA 1S 75.6 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 d3-MeFOSAA 1S 68.2 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFUnA 1S 54.4 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 d5-EtFOSAA 1S 64.2 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFDoA 1S 58.0 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 | 13C2-PFHxA | | IS | 95.1 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.114 L | 28-Feb-18 10:02 | 1 |
| 13C2-PFOA IS 59.6 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C8-PFOS IS 89.1 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C5-PFNA IS 70.8 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFDA IS 75.6 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 d3-MeFOSAA IS 68.2 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFUnA IS 54.4 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 d5-EtFOSAA IS 64.2 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFDoA IS 58.0 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 | 13C4-PFHpA | | IS | 77.0 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.114 L | 28-Feb-18 10:02 | 1 |
| 13C8-PFOS 1S 89.1 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C5-PFNA 1S 70.8 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFDA 1S 75.6 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 d3-MeFOSAA 1S 68.2 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFUnA 1S 54.4 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 d5-EtFOSAA 1S 64.2 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFDoA 1S 58.0 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 | | | IS | 71.9 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.114 L | 28-Feb-18 10:02 | 1 |
| 13C5-PFNA IS 70.8 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFDA IS 75.6 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 d3-MeFOSAA IS 68.2 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFUnA IS 54.4 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 d5-EtFOSAA IS 64.2 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFDoA IS 58.0 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 | 13C2-PFOA | | IS | 59.6 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.114 L | 28-Feb-18 10:02 | 1 |
| 13C2-PFDA 1S 75.6 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 d3-MeFOSAA 1S 68.2 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFUnA 1S 54.4 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 d5-EtFOSAA 1S 64.2 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFDoA 1S 58.0 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 | 13C8-PFOS | | IS | 89.1 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.114 L | 28-Feb-18 10:02 | 1 |
| 13C2-PFDA IS 75.6 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 0.00 </td <td>13C5-PFNA</td> <td></td> <td>IS</td> <td>70.8</td> <td></td> <td>50 - 150</td> <td></td> <td></td> <td>B8B0130</td> <td>22-Feb-18</td> <td>0.114 L</td> <td></td> <td></td> | 13C5-PFNA | | IS | 70.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.114 L | | |
| 13C2-PFUnA IS 54.4 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 d5-EtFOSAA IS 64.2 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFDoA IS 58.0 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 | 13C2-PFDA | | IS | 75.6 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.114 L | 28-Feb-18 10:02 | 1 |
| 13C2-PFUnA IS 54.4 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 d5-EtFOSAA IS 64.2 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 13C2-PFDoA IS 58.0 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 | d3-MeFOSAA | | IS | 68.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.114 L | 28-Feb-18 10:02 | 1 |
| 13C2-PFDoA IS 58.0 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 | 13C2-PFUnA | | IS | 54.4 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.114 L | | |
| 13C2-PFDoA IS 58.0 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 | d5-EtFOSAA | | IS | 64.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.114 L | 28-Feb-18 10:02 | 1 |
| 13C2-PFTeDA IS 59.4 50 - 150 B8B0130 22-Feb-18 0.114 L 28-Feb-18 10:02 | 13C2-PFDoA | | IS | 58.0 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.114 L | | |
| | 13C2-PFTeDA | | IS | 59.4 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.114 L | 28-Feb-18 10:02 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes



| Sample ID: WI-AF-MV | W-605-0218 | | | | | | | | Mod | ified EPA Metl | hod 537 |
|---|------------|---------------------|----------------------|--------------------|-------|--------------------------------|------------------------|-----------|-----------|-----------------|----------|
| Client Data Name: CH2M H Project: 695610.0 Location: MW-605 | | Matrix: Date Col | Aque lected: 17-F | ous eb-18 13:00 | Lab S | Gratory Data Gample: Received: | 1800340-1 20-Feb-18 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/L) | DŁ | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 1.87 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | 1 |
| PFHxA | | ND | 2.28 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | |
| PFHpA | | ND | 0.617 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | |
| PFHxS | | ND | 0.989 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | |
| PFOA | | ND | 0.680 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | |
| PFOS | | ND | 0.842 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | 1 |
| PFNA | | ND | 0.846 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | 1 |
| PFDA | | ND | 1.56 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | 19 |
| MeFOSAA | | ND | 1.72 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | |
| PFUnA | | ND | 1.10 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | |
| EtFOSAA | | ND | 1.43 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | |
| PFDoA | | ND | 0.827 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | |
| PFTrDA | | ND | 0.516 | 5.21 | 8.35 | | B8B0130 | | 0.120 L | 28-Feb-18 10:14 | |
| PFTeDA | | ND | 0.788 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 88.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | 1 |
| 13C2-PFHxA | IS | 83.0 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | 1 |
| 13C4-PFHpA | IS | 77.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | 1 |
| 18O2-PFHxS | IS | 75.0 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | 1 |
| 13C2-PFOA | IS | 61.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | 1 |
| 13C8-PFOS | IS | 86.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | 1 |
| 13C5-PFNA | IS | 89.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | 1 |
| 13C2-PFDA | IS | 79.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | 1 |
| d3-MeFOSAA | IS | 81.1 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | 1 |
| I3C2-PFUnA | IS | 54.6 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | 1 |
| d5-EtFOSAA | IS | 72.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | 1 |
| 13C2-PFDoA | IS | 53.4 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | 1 |
| 13C2-PFTeDA | IS | 65.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:14 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation

Results reported to the DL

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

Work Order 1800340 Page 21 of 27



| Sample ID: WI-AF-MW-6 | 609-0218 | | | | | | | | Mod | ified EPA Metl | hod 537 |
|--|----------|---------------------|----------------------|--------------------|-------|--------------------------------------|-----------------------|-----------|-----------|-----------------|----------|
| Client Data Name: CH2M Hill Project: 695610.04.FI Location: MW-609 | .FS | Matrix: Date Col | Aque lected: 17-F | ous eb-18 15:55 | Lab S | oratory Data Sample: Received: | 1800340- 20-Feb-18 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 1.87 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |
| PFHxA | | ND | 2.28 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |
| PFHpA | | ND | 0.618 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |
| PFHxS | | ND | 0.990 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1. |
| PFOA | | ND | 0.681 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |
| PFOS | | ND | 0.844 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |
| PFNA | | ND | 0.847 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |
| PFDA | | ND | 1.56 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |
| MeFOSAA | | ND | 1.73 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |
| PFUnA | | ND | 1.10 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |
| EtFOSAA | | ND | 1.43 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |
| PFDoA | | NJ NO | 0.828 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |
| PFTrDA | | ND | 0.516 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |
| PFTeDA | | ND | 0.789 | 5.21 | 8.36 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |
| Labeled Standards | Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 86.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |
| 13C2-PFHxA | IS | 89.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |
| 13C4-PFHpA | IS | 75.4 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |
| 18O2-PFHxS | IS | 96.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |
| 13C2-PFOA | IS | 64.0 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |
| 13C8-PFOS | IS | 77.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |
| 13C5-PFNA | IS | 86.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |
| 13C2-PFDA | IS | 84.9 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |
| d3-MeFOSAA | IS | 69.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |
| 13C2-PFUnA | IS | 62.1 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |
| d5-EtFOSAA | IS | 62.0 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |
| 13C2-PFDoA | IS | 44.8 | | 50 - 150 | | Н | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | |
| 13C2-PFTeDA | IS | 61.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 10:25 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

res 5/29/18

Work Order 1800340 Page 22 of 27

ISL



DATA VALIDATION SUMMARY REPORT NAS WHIDBEY ISLAND, WASHINGTON

Client: CH2M HILL, Inc., Corvallis, Oregon

SDG: 1800341

Laboratory: Vista Analytical Laboratory, El Dorado Hills, California Site: NAS Whidbey Island, Ault Field, CTO-4041, Washington

Date: May 29, 2018

| | | PFCs | |
|--------|----------------------|----------------------|--------|
| EDS ID | Client Sample ID | Laboratory Sample ID | Matrix |
| 1 | WI-AF-MW-N13-12-0218 | 1800341-01 | Water |
| 2 | WI-AF-3-MW-2-0218 | 1800341-02 | Water |
| 3 | WI-AF-N29-22D-0218 | 1800341-03 | Water |
| 4 | WI-AF-FB01-021918 | 1800341-04 | Water |
| 5 | WI-AF-EB01-021918 | 1800341-05 | Water |

A full data validation was performed on the analytical data for three water samples, one aqueous field blank sample, and one aqueous equipment blank sample collected on February 18-19, 2018 by CH2M HILL at the NAS Whidbey Island Ault Field 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 Method References

PFCs USEPA Method 537 Modified

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, the Final Sampling and Analysis Plan Phase I Site Investigation for Per- and Polyfluoroalkyl Substances in Soil and Groundwater Ault Field, February 2018, and the USEPA National Functional Guidelines for Organic Data Review as follows:

- The USEPA "Contract Laboratories Program National Functional Guidelines for Organic Superfund Methods Data Review," January 2017;
- · 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
- 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 (Level IV) data validation was performed with this review including a recalculation of 10% of the detected results in the samples.

Data Usability Assessment

There were no rejections of data.

Overall the data is 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 Compounds (PFCs)

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 samples were free of contamination.

| Blank ID | Compound | Conc. ng/L | Qualifier | Affected Samples | |
|-------------------|----------------------------|------------|-----------|------------------|--|
| WI-AF-FB01-021918 | F-FB01-021918 None - ND | | 14.2 | | |
| WI-AF-EB01-021918 | None - ND | 11 11 12 | | | |
| WI-AF-EB01-021818 | I-AF-EB01-021818 None - ND | | - 1 - 1 | - | |
| WI-AF-FB01-021818 | None - ND | | -2-2-4 | | |

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

• The MS/MSD samples were not analyzed.

Laboratory Control Samples

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

Internal Standard (IS) Area Performance

• All internal standards met response and retention time (RT) criteria except for the following.

| EDS Sample ID | Compound | %R | Qualifier |
|---------------|------------|-------|----------------------|
| 3 | 13C2-PFDoA | 43.0% | UJ - Associated Cmpd |
| 4 | 13C2-PFUnA | 38.4% | UJ - Associated Cmpd |
| | 13C2-PFDoA | 48.8% | UI - Associated Cmpd |

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.

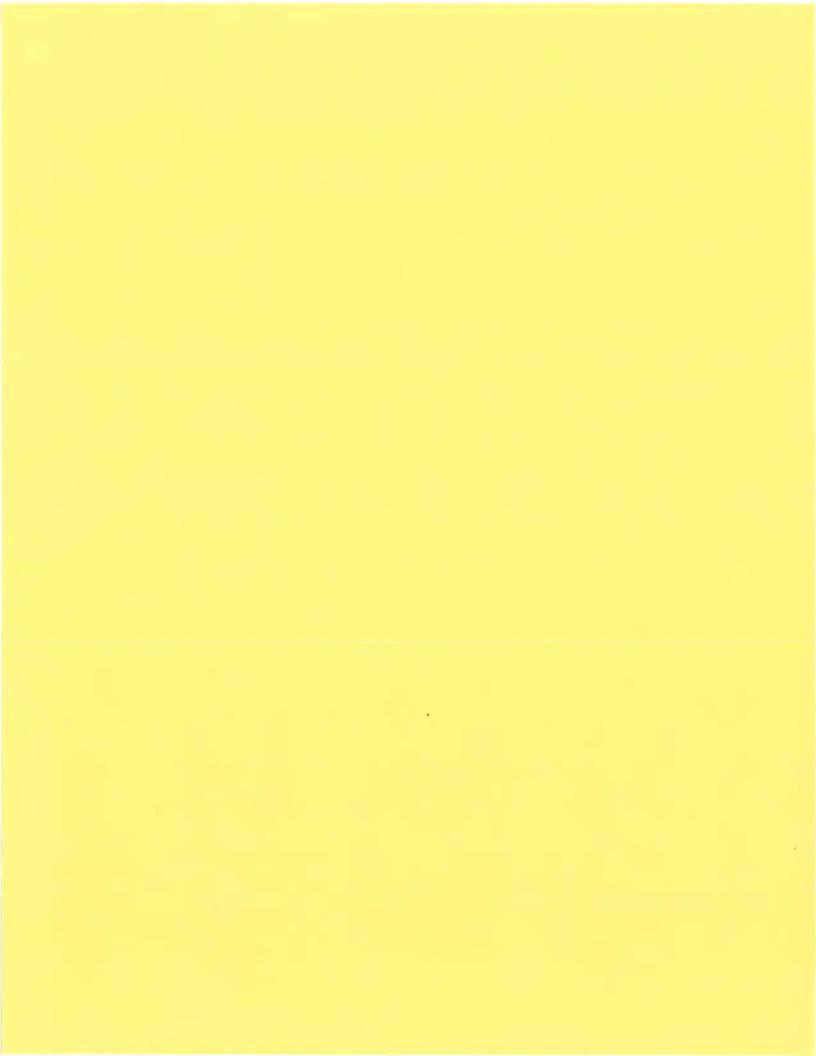
Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed:

Senior Chemist

Mancy Weaver Dated: 61,118

| Data Qualifier | Definition |
|-------------------|--|
| U | The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit. |
| J | The analyte is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample. |
| NJ | The analysis has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the samples. |
| UJ | The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise. |
| R | The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the samples. |





| Sample ID: WI-AF-M | IW-N3-12-0218 | | | | | | | | Mod | ified EPA Meth | 10d 537 |
|---|--------------------------|----------------------|------------------|-------------------------|-------|----------------------|------------------------|-----------|-------------------|-------------------------|----------|
| Client Data Name: CH2M F Project: NASWI | Hill I - Ault Field | Matrix: Date Coll | _ | eous Feb-18 11:10 | Lab S | Sample: Received: | 1800341-0 20-Feb-18 | - | Column | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | 71.4 | 1.90 | 5.30 | 8.48 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| PFHxA | | 228 | 2.31 | 5.30 | 8.48 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| PFHpA | | 104 | 0.626 | 5.30 | 8.48 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| PFHxS | | 913 | 1.00 | 5.30 | 8.48 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| PFOA | | 175 | 0.690 | 5.30 | 8.48 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| PFOS | | 1620 | 0.855 | 5.30 | 8.48 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| PFNA | | 31.0 | 0.858 | 5.30 | 8.48 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| PFDA | | ND | 1.58 | 5.30 | 8.48 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| MeFOSAA | | ND | 1.75 | 5.30 | 8.48 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| PFUnA | | ND | 1.11 | 5.30 | 8.48 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| EtFOSAA | | ND | 1.45 | 5.30 | 8.48 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| PFDoA | | ND | 0.839 | 5.30 | 8.48 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| PFTrDA | | ND | 0.524 | 5.30 | 8.48 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| PFTeDA | | ND | 0.800 | 5.30 | 8.48 | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| Labeled Standards | Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 103 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| 13C2-PFHxA | IS | 88.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| 13C4-PFHpA | IS | 74.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| 18O2-PFHxS | IS | 82.9 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| 13C2-PFOA | IS | 57.4 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| 13C8-PFOS | IS | 77.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| 13C5-PFNA | IS | 72.1 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| 13C2-PFDA | IS | 70.1 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| d3-MeFOSAA | IS | 82.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| 13C2-PFUnA | IS | 73.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| d5-EtFOSAA | IS | 69.9 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| 13C2-PFDoA | IS | 71.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| 13C2-PFTeDA | IS | 69.7 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.118 L | 28-Feb-18 10:37 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | LCL-UCL- | Lower control li | mit - upper control lim | t | | | | include both line | ear and branched isomer | rs |

pm 5/29/18

Results reported to the DL

LOQ - Limit of quantitation

Work Order 1800341 Page 8 of 16

Only the linear isomer is reported for all other analytes



| PFHxS PFOA PFOS PFNA PFDA MeFOSAA PFUnA EtFOSAA PFDoA PFTrDA | Matrix: Date Col Conc. (ng/L) ND ND ND ND ND ND ND ND ND N | DL 1.85 2.25 0.611 0.979 0.673 0.834 0.837 | 5.17 5.17 5.17 5.17 5.17 5.17 5.17 | Lab S | Gratory Data Gample: Received: Qualifiers | 1800341-0 20-Feb-18 Batch B8B0130 B8B0130 | _ | Column: Samp Size 0.121 L | BEH C18 Analyzed 28-Feb-18 10:48 | Dilution |
|---|---|---|--|----------------------|--|---|------------|---------------------------|------------------------------------|----------|
| PFBS PFHxA PFHpA PFHpA PFOA PFOS PFNA PFDA MeFOSAA PFUnA EtFOSAA PFTrDA PFTeDA Labeled Standards IS | ND ND ND ND ND ND ND | 1.85 2.25 0.611 0.979 0.673 0.834 0.837 | 5.17 5.17 5.17 5.17 5.17 | 8.27 8.27 8.27 | Qualifiers | B8B0130 B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | _ |
| PFHxA PFHpA PFHxS PFOA PFOS PFNA PFDA MeFOSAA PFUnA EtFOSAA PFDoA PFTrDA PFTeDA Labeled Standards IS | ND ND ND ND ND ND ND ND ND | 2.25 0.611 0.979 0.673 0.834 0.837 | 5.17 5.17 5.17 5.17 | 8.27 8.27 | | B8B0130 | | | | 1 |
| PFHpA PFHxS PFOA PFOS PFNA PFDA MeFOSAA PFUnA EtFOSAA PFUnA EtFOSAA PFDoA PFTrDA PFTeDA Labeled Standards IS | ND ND ND ND ND ND | 0.611 0.979 0.673 0.834 0.837 | 5.17 5.17 5.17 | 8.27 | | | 22_Feb_18 | | | |
| PFHxS PFOA PFOS PFNA PFDA MeFOSAA PFUnA EtFOSAA PFTrDA PFTrDA PFTrDA PFTeDA Labeled Standards IS | ND ND ND ND ND | 0.611 0.979 0.673 0.834 0.837 | 5.17 5.17 5.17 | 8.27 | | | ZZ-1 CD-10 | 0.121 L | 28-Feb-18 10:48 | |
| PFHxS PFOA PFOS PFNA PFDA MeFOSAA PFUnA EtFOSAA PFDoA PFTrDA PFTrDA PFTeDA Labeled Standards IS | ND ND ND ND | 0.673 0.834 0.83 7 | 5.17 | 8.27 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | |
| PFOS PFNA PFDA MeFOSAA PFUnA EtFOSAA PFDoA PFTrDA PFTeDA Labeled Standards IS | ND ND ND | 0.834 0.837 | | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | |
| PFNA PFDA MeFOSAA PFUnA EtFOSAA PFDoA PFTrDA PFTeDA Labeled Standards IS | ND ND | 0.837 | 5.17 | 8.27 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | |
| PFDA MeFOSAA PFUnA EtFOSAA PFDoA PFTrDA PFTeDA Labeled Standards IS | ND | | J. 1 / | 8.27 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | |
| MeFOSAA PFUnA EtFOSAA PFDoA PFTrDA PFTeDA Labeled Standards IS | | | 5.17 | 8.27 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | |
| PFUnA EtFOSAA PFDoA PFTrDA PFTeDA Labeled Standards IS | ND | 1.54 | 5.17 | 8.27 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | 1 |
| EtFOSAA PFDoA PFTrDA PFTeDA Labeled Standards Type 13C3-PFBS IS | | 1.70 | 5.17 | 8.27 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | |
| PFDoA PFTrDA PFTeDA Labeled Standards Type 13C3-PFBS IS | ND | 1.08 | 5.17 | 8.27 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | |
| PFTrDA PFTeDA Labeled Standards Type 13C3-PFBS IS | ND | 1.42 | 5.17 | 8.27 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | 1 |
| PFTeDA Labeled Standards Type 13C3-PFBS IS | ND | 0.818 | 5.17 | 8.27 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | |
| Labeled Standards Type 13C3-PFBS IS | ND | 0.510 | 5.17 | 8.27 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | 1 |
| 13C3-PFBS IS | ND | 0.780 | 5.17 | 8.27 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | |
| | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| | 112 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | 1 |
| 1502-1111// | 88.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | |
| 13C4-PFHpA IS | 76.4 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | |
| 18O2-PFHxS IS | 86.7 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | |
| 13C2-PFOA IS | 56.7 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | |
| 13C8-PFOS IS | 72.0 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | 1 |
| 13C5-PFNA IS | 77.7 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | 1 |
| 13C2-PFDA IS | 82.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | |
| d3-MeFOSAA IS | 81.1 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | 1 |
| 13C2-PFUnA IS | 64.0 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | 1 |
| d5-EtFOSAA IS | 72.9 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | 1 |
| 13C2-PFDoA fS | 73.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | 1 |
| I3C2-PFTeDA IS | 57.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 10:48 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.



| 7 | nod 537 | ified EPA Meth | Modi | | | | | | | | | VI-AF-N29-22D-0218 | Sample ID: W |
|---|----------|-----------------|-----------|-----------|-----------|-------------|--------|-----------|--------------|--------------|------|--------------------|-----------------|
| | | | | | | ratory Data | Labor | | | | | | Client Data |
| | | BEH C18 | Column: | 3 | 1800341-0 | • | Lab Sa | us | Aqueo | Matrix: | | CH2M Hill | Name: |
| | | | | 09:04 | 20-Feb-18 | Received: | Date F | -18 09:40 | cted: 19-Fel | Date Colle | | NASWI - Ault Field | Project: |
| n | Dilution | Analyzed | Samp Size | Extracted | Batch | Qualifiers | LOQ | LOD | DL | Conc. (ng/L) | | | Analyte |
| | 1 | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | | 8.34 | 5.21 | 1.87 | ND | | | PFBS |
| | | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | | 8.34 | 5.21 | 2.27 | ND | | | PFHxA |
| | 1 | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | | 8.34 | 5.21 | 0.616 | ND | | | PFHpA |
| | 1 | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | J | 8.34 | 5.21 | 0.987 | 1.11 | | | PFHxS |
| | 1 | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | J | 8.34 | 5.21 | 0.678 | 0.702 | | | PFOA |
| | | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | J | 8.34 | 5.21 | 0.841 | 2.80 | | | PFOS |
| | | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | | 8.34 | 5.21 | 0.844 | ND | | | PFNA |
| | | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | | 8.34 | 5.21 | 1.55 | ND | | | PFDA |
| | | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | | 8.34 | 5.21 | 1.72 | ND | | | MeFOSAA |
| | 1 | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | | 8.34 | 5.21 | 1.09 | ND | | | PFUnA |
| | 1 | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | | 8.34 | 5.21 | 1.43 | ND | | | EtFOSAA |
| | 1 | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | | 8.34 | 5.21 | 0.825 | DI UIJ | | | PFDoA |
| | 1 | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | | 8.34 | 5.21 | 0.515 | ND | | | PFTrDA |
| | 1 | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | | 8.34 | 5.21 | 0.787 | ND | | | PFTeDA |
| n | Dilution | Analyzed | Samp Size | Extracted | Batch | Qualifiers | | Limits | | % Recovery | Type | rds | Labeled Standar |
| | 1 | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | | | 50 - 150 | | 85.7 | 18 | | 3C3-PFBS |
| | 1 | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | | | 50 - 150 | | 87.6 | IS | | 13C2-PFHxA |
| | 1 | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | | | 50 - 150 | | 77.5 | IS | | 13C4-PFHpA |
| | 1 | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | | | 50 - 150 | | 101 | IS | | 18O2-PFHxS |
| | 1 | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | | | 50 - 150 | | 60.6 | IS | | 13C2-PFOA |
| | 1 | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | | | 50 - 150 | | 69.3 | IS | | 13C8-PFOS |
| | 1 | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | | | 50 - 150 | | 82.1 | IS | | I3C5-PFNA |
| | 1 | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | | | 50 - 150 | | 63.2 | IS | | 13C2-PFDA |
| | 1 | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | | | 50 - 150 | | 67.9 | IS | | i3-MeFOSAA |
| | 1 | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | | | 50 - 150 | | 54.0 | IS | | 13C2-PFUnA |
| | 1 | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | | | 50 - 150 | | 65.9 | IS | | 15-EtFOSAA |
| | 1 | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | Н | | 50 - 150 | | 43.0 | IS | | 13C2-PFDoA |
| | 1 | 28-Feb-18 11:00 | 0.120 L | 22-Feb-18 | B8B0130 | | | 50 - 150 | | 64.0 | IS | | 13C2-PFTeDA |

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW S/29/18

Work Order 1800341



| Clicat Data | | | | | 1 | . 5.4 | | | | | |
|--------------------------------|----------------------|-----------------------|-------|----------------------------|------|--------------------------------|------------------------|-----------|-----------|-------------------|----------|
| Name: CH2M H Project: NASWI | lill - Ault Field | Matrix: Date Colle | | Aqueous 19-Feb-18 09:50 | Lab | oratory Data Sample: Received: | 1800341-(20-Feb-18 | | Column: | ВЕН С18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 1.92 | 5.34 | 8.57 | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| PFHxA | | ND | 2.34 | 5.34 | 8.57 | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| PFHpA | | ND | 0.633 | 5.34 | 8.57 | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| PFHxS | | ND | 1.01 | 5.34 | 8.57 | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| PFOA | | ND | 0.697 | 5.34 | 8.57 | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| PFOS | | ND | 0.865 | 5.34 | 8.57 | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| PFNA | | ND | 0.868 | 5.34 | 8.57 | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| PFDA | | ND | 1.60 | 5.34 | 8.57 | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| MeFOSAA | | ND | 1.77 | 5.34 | 8.57 | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| PFUnA | | ND UJ | 1.12 | 5.34 | 8.57 | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| EtFOSAA | | ŃD | 1.47 | 5.34 | 8.57 | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| PFDoA | | NO WJ | 0.848 | 5.34 | 8.57 | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| PFTrDA | | ND | 0.529 | 5.34 | 8.57 | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| PFTeDA | | ND | 0.809 | 5.34 | 8.57 | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 84.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| I3C2-PFHxA | IS | 81.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| 13C4-PFHpA | IS | 65.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| 18O2-PFHxS | IS | 74.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| 13C2-PFOA | IS | 57.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| 13C8-PFOS | IS | 89.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| 13C5-PFNA | IS | 75.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| I3C2-PFDA | IS | 72.1 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| l3-MeFOSAA | IS | 59.6 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| 13C2-PFUnA | 18 | 38.4 | | 50 - 150 | | Н | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| d5-EtFOSAA | IS | 57.1 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| 13C2-PFDoA | IS | 48.8 | | 50 - 150 | | Н | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |
| 13C2-PFTeDA | IS | 55.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.117 L | 28-Feb-18 11:11 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL

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



| Sample ID: WI-AF-E | B01-021918 | | | | | | | | Mod | ified EPA Met | hod 537 |
|----------------------|--------------------------|--------------|------------------|-------------------------|-------|--------------|--------------|---------------|-------------------|------------------------|----------|
| Client Data | | | | | Labo | oratory Data | | | | | |
| Name: CH2M I | Hill | Matrix: | Aqu | ieous | Lab S | Sample: | 1800341-0 |)5 | Column: | BEH C18 | |
| Project: NASWI | I - Ault Field | Date Col | lected: 19-1 | Feb-18 11:30 | Date | Received: | 20-Feb-18 | 09:04 | | | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 1.84 | 5.17 | 8.24 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | 1 |
| PFHxA | | ND | 2.24 | 5.17 | 8.24 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | |
| PFHpA | | ND | 0.608 | 5.17 | 8.24 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | |
| PFHxS | | ND | 0.975 | 5.17 | 8.24 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | |
| PFOA | | ND | 0.670 | 5.17 | 8.24 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | |
| PFOS | | ND | 0.831 | 5.17 | 8.24 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | 1.30 |
| PFNA | | ND | 0.834 | 5.17 | 8.24 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | 1 |
| PFDA | | ND | 1.53 | 5.17 | 8.24 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | |
| MeFOSAA | | ND | 1.70 | 5.17 | 8.24 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | |
| PFUnA | | ND | 1.08 | 5.17 | 8.24 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | 1 |
| EtFOSAA | | ND | 1.41 | 5.17 | 8.24 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | 1 |
| PFDoA | | ND | 0.815 | 5.17 | 8.24 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | 1 |
| PFTrDA | | ND | 0.509 | 5.17 | 8.24 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | 1 |
| PFTeDA | | ND | 0.777 | 5.17 | 8.24 | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 123 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | 1 |
| 13C2-PFHxA | 18 | 89.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | |
| 13C4-PFHpA | IS | 85.6 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | 1 |
| 18O2-PFHxS | IS | 83.4 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | 1 |
| 13C2-PFOA | IS | 55.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | 1 |
| 13C8-PFOS | IS | 98.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | 1 |
| 13C5-PFNA | IS | 82.6 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | 1 |
| 13C2-PFDA | IS | 84.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | 1 |
| d3-MeFOSAA | IS | 75.1 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | 1 |
| 13C2-PFUnA | IS | 68.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | 1 |
| d5-EtFOSAA | IS | 57.6 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | 1 |
| 13C2-PFDoA | IS | 66.0 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | 1 |
| 13C2-PFTeDA | IS | 64.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.121 L | 28-Feb-18 11:23 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | LCL-UCL- | Lower control li | mit - upper control lin | nit | When ret | ported PFHxS | PFOA and PFOS | include both line | ear and branched isome | re |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers Only the linear isomer is reported for all other analytes

Work Order 1800341 Page 12 of 16



DATA VALIDATION SUMMARY REPORT NAS WHIDBEY ISLAND, WASHINGTON

Client: CH2M HILL, Inc., Corvallis, Oregon

SDG: 1800342

Laboratory: Vista Analytical Laboratory, El Dorado Hills, California Site: NAS Whidbey Island, Ault Field, CTO-4041, Washington

Date: May 30, 2018

| | | PFCs | |
|--------|-----------------------|----------------------|--------|
| EDS ID | Client Sample ID | Laboratory Sample ID | Matrix |
| 1 | WI-AF-29-MW-4-0218 | 1800342-01 | Water |
| 2 | WI-AF-29-MW-4P-0218 | 1800342-02 | Water |
| 3 | WI-AF-FB01-021318 | 1800342-03 | Water |
| 4 | WI-AF-EB01-021318 | 1800342-04 | Water |
| 5 | WI-AF-EB03-021318 | 1800342-05 | Water |
| 6 | WI-AF-EB04-021318 | 1800342-06 | Water |
| 7 | WI-AF-MW-N2-9-0218 | 1800342-07 | Water |
| 7MS | WI-AF-MW-N2-9-0218MS | 1800342-07MS | Water |
| 7MSD | WI-AF-MW-N2-9-0218MSD | 1800342-07MSD | Water |
| 8 | WI-AF-MW-N2-9P-0218 | 1800342-08 | Water |
| 9 | WI-AF-FB01-021518 | 1800342-09 | Water |
| 10 | WI-AF-MW-N2-7S-0218 | 1800342-10 | Water |
| 11 | WI-AF-MW-N2-3-0218 | 1800342-11 | Water |
| 12 | WI-AF-EB01-021618 | 1800342-12 | Water |
| 13 | WI-AF-MW-N2-8-0218 | 1800342-13 | Water |
| 14 | WI-AF-MW-201-0218 | 1800342-14 | Water |
| 15 | WI-AF-FB01-021718 | 1800342-15 | Water |
| 16 | WI-AF-4-MW-3-0218 | 1800342-16 | Water |
| 17 | WI-AF-EB01-021718 | 1800342-17 | Water |
| 18 | WI-AF-N2-6C-0218 | 1800342-18 | Water |
| 19 | WI-AF-FB01-021818 | 1800342-19 | Water |
| 20 | WI-AF-MW-200-0218 | 1800342-20 | Water |
| 21 | WI-AF-EB01-021818 | 1800342-21 | Water |

A full data validation was performed on the analytical data for eleven water samples, four aqueous field blank samples, and six aqueous equipment blank samples collected on February 13-18, 2018 by CH2M HILL at the NAS Whidbey Island Ault Field 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:

<u>Analysis</u> <u>Method References</u>

PFCs USEPA Method 537 Modified

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, the Final Sampling and Analysis Plan Phase I Site Investigation for Per- and Polyfluoroalkyl Substances in Soil and Groundwater Ault Field, February 2018, and the USEPA National Functional Guidelines for Organic Data Review as follows:

- The USEPA "Contract Laboratories Program National Functional Guidelines for Organic Superfund Methods Data Review," January 2017;
- 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
- 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 (Level IV) data validation was performed with this review including a recalculation of 10% of the detected results in the samples.

Data Usability Assessment

There were no rejections of data.

Overall the data is 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 Compounds (PFCs)

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 except for the following.

| CCAL Date | Compound | %D | Qualifier | Affected Samples |
|-----------|----------|------|-----------|------------------|
| 2/24/18 | PFTeDA | 150% | None | All ND |
| 2/26/18 | PFTrDA | 152% | None | All ND |
| 2/28/18 | PFTeDA | 138% | None | All ND |

Method Blank

• The method blanks exhibited the following contamination.

| Blank ID | Compound | Conc. ng/L | Qualifier | Affected Samples |
|--------------|----------|------------|-----------|-------------------------|
| B8B0132-BLK2 | PFOA | 0.848 | U | 2, 4, 8, 11, 16, 17, 19 |

Field QC Blank

Field QC samples were free of contamination.

| Blank ID | Compound | Conc. ng/L | Qualifier | Affected Samples |
|-------------------|-----------|------------|-----------|------------------|
| WI-AF-FB01-021318 | None - ND | 24-3-1 | 2.0 | |
| WI-AF-EB01-021318 | None - ND | A | 8 | H |

| Blank ID | Compound | Conc. ng/L | Qualifier | Affected Samples |
|-------------------|-----------|----------------|-----------|---------------------------|
| WI-AF-EB03-021318 | None - ND | 1/ 1 - 1.2 1.1 | - | 17 |
| WI-AF-EB04-021318 | None - ND | | 4.2 | |
| WI-AF-FB01-021518 | None - ND | 1411 12 | | |
| WI-AF-EB01-021618 | None - ND | | 4.4 | _ |
| WI-AF-FB01-021718 | PFOS | 2.23 | None | All Associated ND or >10X |
| WI-AF-EB01-021718 | PFOS | 1.95 | None | All Associated ND or >10X |
| WI-AF-FB01-021818 | None - ND | | 34 | - |
| WI-AF-EB01-021818 | None - ND | March 1981 | | - |

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

• The MS/MSD samples exhibited acceptable percent recoveries (%R) and RPD values except for the following.

| MS/MSD Sample | Compound | MS %R/MSD %R/RPD | Qualifier |
|---------------|----------|------------------|---------------|
| 7 | PFOS | OK/225%/89.4 | None - All ND |
| | PFNA | OK/132%/OK | None - All ND |

Laboratory Control Samples

• The LCS samples exhibited acceptable percent recoveries (%R) except for the following.

| LCS ID | Compound | %R | Qualifier |
|-------------|----------|------|---------------|
| B8B0132-BS1 | PFTrDA | 136% | None - All ND |

Internal Standard (IS) Area Performance

• All internal standards met response and retention time (RT) criteria except for the following.

| EDS Sample ID | Compound | %R | Qualifier | |
|---------------|-------------|-------|----------------------|--|
| 3 | 13C2-PFDoA | 44.4% | UI - Associated Cmpo | |
| 12 | 13C2-PFUnA | 48.5% | UJ - Associated Cmpd | |
| 13 | 13C2-PFDoA | 44.5% | UI - Associated Cmpd | |
| 14 | 13C2-PFDoA | 49.1% | UJ - Associated Cmpd | |
| 16 | 13C2-PFDoA | 49.8% | UJ - Associated Cmpd | |
| | 13C2-PFTeDA | 46.6% | UJ - Associated Cmpd | |
| 17 | 13C2-PFTeDA | 46.0% | UI - Associated Cmpd | |

Target Compound Identification

• All mass spectra and quantitation criteria were met.

Compound Quantitation

Several samples were analyzed at a dilution for various compounds due to high concentrations. The reporting limits were adjusted accordingly. No action was required.

Field Duplicate Sample Precision

Field duplicate results are summarized below. The precision was acceptable.

| Compound | WI-AF-29-MW-4-0218 ng/L | WI-AF-29-MW-4P-0218 ng/L | RPD | Qualifier |
|----------|----------------------------|-----------------------------|-----|-----------|
| None | ND | ND | 1.2 | - |

| Compound | WI-AF-MW-N2-9-0218 ng/L | WI-AF-MW-N2-9P-0218 ng/L | RPD Qualifier | |
|----------|----------------------------|-----------------------------|---------------|--|
| None | ND | ND | 4 | |

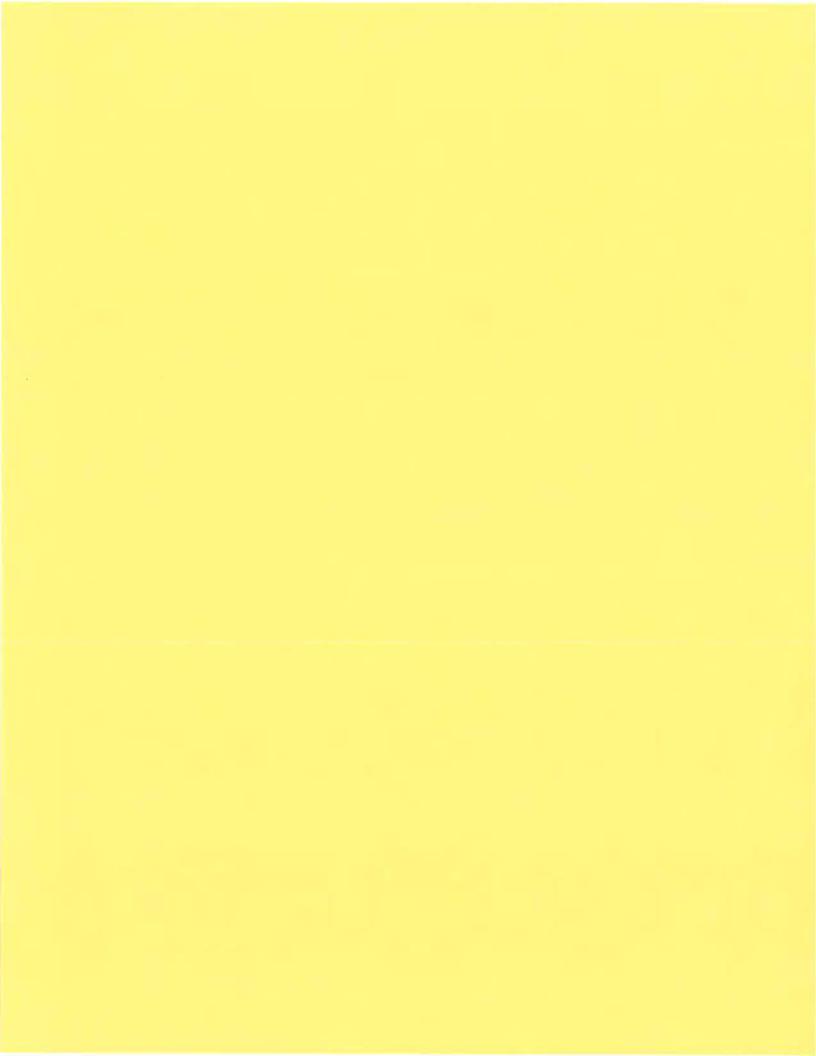
Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed:

Senior Chemist

Dated: 61118

| Data Qualifier | Definition |
|-------------------|--|
| U | The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit. |
| J | The analyte is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample. |
| NJ | The analysis has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the samples. |
| UJ | The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise. |
| R | The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the samples. |





| Sample ID: WI-AF- | 29-MW-4-0218 | | | | | | | | Mod | ified EPA Metl | hod 537 |
|---------------------------------------|----------------------|---------------------|--|----------|-------|------------|---------|-------------------------------|-----------|-----------------|----------|
| Client Data Name: CH2M Project: 69561 | / Hill 10.04.FLFS | Matrix: Date Col | k: Aqueous Collected: 13-Feb-18 13:50 | | Lab S | 1 ' | | 1800342-01 20-Feb-18 09:04 | | ВЕН С18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 1.82 | 5.08 | 8.15 | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |
| PFHxA | | ND | 2.22 | 5.08 | 8.15 | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | |
| PFHpA | | ND | 0.602 | 5.08 | 8.15 | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |
| PFHxS | | ND | 0.965 | 5.08 | 8.15 | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |
| PFOA | | ND | 0.663 | 5.08 | 8.15 | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |
| PFOS | | ND | 0.822 | 5.08 | 8.15 | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | |
| PFNA | | ND | 0.825 | 5.08 | 8.15 | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |
| PFDA | | ND | 1.52 | 5.08 | 8.15 | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |
| MeFOSAA | | ND | 1.68 | 5.08 | 8.15 | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |
| PFUnA | | ND | 1.07 | 5.08 | 8.15 | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |
| EtFOSAA | | ND | 1.40 | 5.08 | 8.15 | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |
| PFDoA | | ND | 0.807 | 5.08 | 8.15 | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |
| PFTrDA | | ND | 0.503 | 5.08 | 8.15 | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |
| PFTeDA | | ND | 0.769 | 5.08 | 8.15 | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 99.1 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |
| 13C2-PFHxA | IS | 84.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |
| 13C4-PFHpA | IS | 77.5 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |
| 18O2-PFHxS | IS | 83.2 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |
| 13C2-PFOA | IS | 85.3 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |
| 13C8-PFOS | IS | 78.4 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |
| 13C5-PFNA | IS | 84.1 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |
| 13C2-PFDA | IS | 81.3 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |
| d3-MeFOSAA | IS | 70.8 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |
| 13C2-PFUnA | IS | 64.1 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |
| d5-EtFOSAA | IS | 87.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |
| 13C2-PFDoA | IS | 67.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |
| 13C2-PFTeDA | IS | 71.2 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.123 L | 24-Feb-18 15:51 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes

Work Order 1800342 Page 12 of 39



| | hod 537 | ified EPA Meth | Modi | | | | | | | | 218 | VI-AF-29-MW-4P-0 | Sample ID: V |
|---|----------|-----------------|-----------|-----------|------------------------|------------------------------------|-------|-------------------|-----------|-----------------------|------|------------------------------|----------------------------|
| Ī | | BEH C18 | Column; | | 1800342-0 20-Feb-18 | ratory Data ample: Received: | Lab S | ous b-18 13:55 | - | Matrix: Date Colle | | CH2M Hill 695610.04.FI.FS | Client Data Name: Project: |
| | | | | 07.04 | 20-1-00-18 | Received. | Date | 0-16 13.33 | reted. 15 | Dute Cone | | 073010.04.11.13 | 1 Toject. |
| T | Dilution | Analyzed | Samp Size | Extracted | Batch | Qualifiers | LOQ | LOD | DL | Conc. (ng/L) | | | Analyte |
| 7 | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | 8.56 | 5.34 | 1.91 | ND | | | PFBS |
| | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | 8.56 | 5.34 | 2.33 | ND | | | PFHxA |
| | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | 8.56 | 5.34 | 0.632 | ND | | | PFHpA |
| | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | 8.56 | 5.34 | 1.01 | ND | | | PFHxS |
| P | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | TB | 8.56 | 5.34 | 0.696 | 5.34 HOT V | | | PFOA |
| | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | 8.56 | 5.34 | 0.863 | ND | | | PFOS |
| | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | 8.56 | 5.34 | 0.866 | ND | | | PFNA |
| | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | 8.56 | 5.34 | 1.59 | ND | | | PFDA |
| | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | 8.56 | 5.34 | 1.76 | ND | | | MeFOSAA |
| | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | 8.56 | 5.34 | 1.12 | ND | | | PFUnA |
| | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | 8.56 | 5.34 | 1.47 | ND | | | EtFOSAA |
| П | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | 8.56 | 5.34 | 0.847 | ND | | | PFDoA |
| | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | 8.56 | 5.34 | 0.528 | ND | | | PFTrDA |
| | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | 8.56 | 5.34 | 0.808 | ND | | | PFTeDA |
| T | Dilution | Analyzed | Samp Size | Extracted | Batch | Qualifiers | | Limits | | % Recovery | Type | rds | Labeled Standa |
| | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 109 | IS | | 13C3-PFBS |
| Ш | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 79.2 | IS | | 13C2-PFHxA |
| | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 87.9 | IS | | 13C4-PFHpA |
| 1 | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 81.6 | IS | | 18O2-PFHxS |
| | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 63.2 | IS | | 13C2-PFOA |
| | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 88.1 | IS | | 13C8-PFOS |
| | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 71.4 | IS | | 13C5-PFNA |
| | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 81.3 | IS | | 13C2-PFDA |
| | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 103 | IS | | d3-MeFOSAA |
| | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 76.3 | IS | | 13C2-PFUnA |
| | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 102 | IS | | d5-EtFOSAA |
| | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 59.4 | IS | | 13C2-PFDoA |
| | 1 | 24-Feb-18 16:02 | 0.117 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 75.9 | IS | | 13C2-PFTeDA |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes

res130/18

Work Order 1800342 Page 13 of 39



| 7 | hod 537 | ified EPA Meth | Modi | | | | | | | | 8 | VI-AF-FB01-02131 | Sample ID: W |
|-----|----------|-----------------|-----------|-----------|------------------------|----------------------------------|--------|------------------|------------|-------------------------|------|-----------------------------|----------------------------|
| | | BEH C18 | Column: | | 1800342-0 20-Feb-18 | ntory Data mple: ecceived: | Lab Sa | us o-18 14:00 | A ed: 1 | Matrix: Date Collect | | CH2M Hill 695610.04.FLFS | Client Data Name: Project: |
| on | Dilution | Analyzed | Samp Size | Extracted | Batch | Qualifiers | OQ | LOD | DL | Conc. (ng/L) | | | Analyte |
| | 1 | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | | .90 | 4.92 | 1.77 | ND | | | PFBS |
| | 1 | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | | .90 | | 2.15 | ND | | | PFHxA |
| | 1 | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | | .90 | 4.92 | 0.584 | ND | | | PFHpA |
| | | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | | .90 | 4.92 | 0.935 | ND | | | PFHxS |
| | | 24-Feb-18 16:14 | 0.127 L | | | | .90 | | 0.643 | ND | | | PFOA |
| | | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | | .90 | | 0.797 | ND | | | PFOS |
| | | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | | | .90 | | 0.800 | ND | | | PFNA |
| | | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | | .90 | 4.92 | 1.47 | ND | | | PFDA |
| | | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | | .90 | 4.92 | 1.63 | ND | | | MeFOSAA |
| | | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | | .90 | 4.92 | 1.04 | ND | | | PFUnA |
| | 1 | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | | .90 | 4.92 | 1.35 | ND | | | EtFOSAA |
| | 1 | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | | .90 | 4.92 | 0.782 | WH WJ | | | PFDoA |
| - 1 | | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | | .90 | 4.92 | 0.488 | ND | | | PFTrDA |
| | 1 | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | | .90 | 4.92 | 0.746 | ND | | | PFTeDA |
| n | Dilution | | Samp Size | Extracted | Batch | Qualifiers | | Limits | | % Recovery | Type | ds | Labeled Standar |
| | 1 | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 111 | IS | | 3C3-PFBS |
| - 1 | 1 | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 89.7 | IS | | 13C2-PFHxA |
| | 1 | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 72.7 | IS | | 13C4-PFHpA |
| | 1 | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 87.2 | IS | | 18O2-PFHxS |
| | 1 | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 69.2 | IS | | 13C2-PFOA |
| | 1 | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 72.6 | 18 | | 13C8-PFOS |
| | 1 | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 58.4 | IS | | 13C5-PFNA |
| | 1 | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 55.8 | IS | | 13C2-PFDA |
| | 1 | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 72.3 | IS | | 3-MeFOSAA |
| | 1 | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 60.4 | IS | | 13C2-PFUnA |
| | 1 | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 73.4 | IS | | 15-EtFOSAA |
| | 1 | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | Н | | 50 - 150 | | 44.4 | IS | | 13C2-PFDoA |
| | 1 | 24-Feb-18 16:14 | 0.127 L | 21-Feb-18 | B8B0132 | | | 50 - 150 | | 65.1 | IS | | 13C2-PFTeDA |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes



Work Order 1800342

Page 14 of 39



| Sample ID: WI-AF-EF | 301-021318 | | | | | | | | Mod | ified EPA Met | hod 537 |
|--|--------------------------|-----------------------|------------------|--------------------------|-------|--------------------------------|------------------------|---------------|-------------------|-----------------------|----------|
| Client Data Name: CH2M H Project: 695610.0 | | Matrix: Date Colle | Aque | eous eb-18 14:15 | Lab S | Pratory Data Sample: Received: | 1800342-0 20-Feb-18 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 1.81 | 5.04 | 8.09 | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| PFHxA | | ND | 2.20 | 5.04 | 8.09 | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| PFHpA | | ND | 0.597 | 5.04 | 8.09 | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| PFHxS | | ND | 0.957 | 5.04 | 8.09 | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| PFOA | | 5.04 1.45 W | 0.658 | 5.04 | 8.09 | JB | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| PFOS | | ND | 0.816 | 5.04 | 8.09 | - | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| PFNA | | ND | 0.819 | 5.04 | 8.09 | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| PFDA | | ND | 1.51 | 5.04 | 8.09 | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| MeFOSAA | | ND | 1.67 | 5.04 | 8.09 | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| PFUnA | | ND | 1.06 | 5.04 | 8.09 | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| EtFOSAA | | ND | 1.38 | 5.04 | 8.09 | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| PFDoA | | ND | 0.801 | 5.04 | 8.09 | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| PFTrDA | | ND | 0.499 | 5.04 | 8.09 | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| PFTeDA | | ND | 0.763 | 5.04 | 8.09 | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 101 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| 13C2-PFHxA | 1S | 96.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | - 1 |
| 13C4-PFHpA | IS | 80.1 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| 18O2-PFHxS | IS | 78.8 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| 13C2-PFOA | IS | 89.2 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| 13C8-PFOS | IS | 82.6 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| 13C5-PFNA | IS | 76.0 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| 13C2-PFDA | IS | 67.4 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| d3-MeFOSAA | IS | 87.6 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| I3C2-PFUnA | IS | 59.0 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| d5-EtFOSAA | IS | 82.8 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| 13C2-PFDoA | IS | 58.6 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| 13C2-PFTeDA | IS | 86.4 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 16:25 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | 1.CL-UCL-1 | ower control lim | nit - upper control limi | | When ren | orted, PFHxS. | PFOA and PFOS | include both line | ar and branched isome | ers |

res 5/30/18

Only the linear isomer is reported for all other analytes

Work Order 1800342 Page 15 of 39

Results reported to the DL

LOQ - Limit of quantitation



| Sample ID: WI-AF-EB | 03-021318 | | | | | | | | Mod | ified EPA Metl | hod 537 |
|----------------------------------|--------------------------|---------------------|-------|-------------------------|-------|----------------------|------------------------|-----------------|----------------|------------------------|----------|
| Name: CH2M Hi Project: 695610.04 | | Matrix: Date Col | | eous Feb-18 14:20 | Lab S | Sample: Received: | 1800342-0 20-Feb-18 | | Column | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 1.76 | 4.92 | 7.88 | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| PFHxA | | ND | 2.15 | 4.92 | 7.88 | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| PFHpA | | ND | 0.582 | 4.92 | 7.88 | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| PFHxS | | ND | 0.932 | 4.92 | 7.88 | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| PFOA | | ND | 0.641 | 4.92 | 7.88 | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| PFOS | | ND | 0.795 | 4.92 | 7.88 | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| PFNA | | ND | 0.798 | 4.92 | 7.88 | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| PFDA | | ND | 1.47 | 4.92 | 7.88 | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| MeFOSAA | | ND | 1.62 | 4.92 | 7.88 | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| PFUnA | | ND | 1.03 | 4.92 | 7.88 | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| EtFOSAA | | ND | 1.35 | 4.92 | 7.88 | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| PFDoA | | ND | 0.780 | 4.92 | 7.88 | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| PFTrDA | | ND | 0.486 | 4.92 | 7.88 | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| PFTeDA | | ND | 0.743 | 4.92 | 7.88 | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 121 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| 13C2-PFHxA | IS | 88.3 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| 13C4-PFHpA | IS | 76.9 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| 18O2-PFHxS | IS | 85.0 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| 13C2-PFOA | IS | 68.8 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| 13C8-PFOS | IS | 69.5 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| I3C5-PFNA | IS | 59.0 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| 13C2-PFDA | IS | 52.3 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| d3-MeFOSAA | IS | 83.1 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| 13C2-PFUnA | 18 | 67.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| d5-EtFOSAA | IS | 70.9 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| 13C2-PFDoA | IS | 68.8 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| 13C2-PFTeDA | IS | 64.6 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.127 L | 24-Feb-18 16:37 | 1 |
| DL - Datastion Limit | LOD - Limit of Detection | 1.01.1.01 | | mit - upper control lir | | 1177 | . I DELL O | DEO 4 I DECCE | 2 1 1 1 1 4 12 | ear and branched isome | |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Work Order 1800342 Page 16 of 39



| Sample ID: WI-AF-EB | 04-021318 | | | | | | | | Mod | ified EPA Metl | hod 537 |
|---|--------------------------|---------------------|-----------------------|-------------------------|-------|--------------------------------|------------------------|---------------|-------------------|------------------------|----------|
| Client Data Name: CH2M Hi Project: 695610.0 | | Matrix: Date Col | Aque lected: 13-Fe | ous eb-18 14:25 | Lab S | Pratory Data Sample: Received: | 1800342-0 20-Feb-18 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 1.80 | 5.00 | 8.02 | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| PFHxA | | ND | 2.19 | 5.00 | 8.02 | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| PFHpA | | ND | 0.593 | 5.00 | 8.02 | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| PFHxS | | ND | 0.950 | 5.00 | 8.02 | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| PFOA | | ND | 0.653 | 5.00 | 8.02 | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| PFOS | | ND | 0.809 | 5.00 | 8.02 | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | I |
| PFNA | | ND | 0.812 | 5.00 | 8.02 | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| PFDA | | ND | 1.49 | 5.00 | 8.02 | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| MeFOSAA | | ND | 1.65 | 5.00 | 8.02 | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| PFUnA | | ND | 1.05 | 5.00 | 8.02 | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| EtFOSAA | | ND | 1.37 | 5.00 | 8.02 | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| PFDoA | | ND | 0.794 | 5.00 | 8.02 | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| PFTrDA | | ND | 0.495 | 5.00 | 8.02 | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| PFTeDA | | ND | 0.757 | 5.00 | 8.02 | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 104 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| 13C2-PFHxA | IS | 82.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| 13C4-PFHpA | IS | 88.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| 18O2-PFHxS | IS | 97.1 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| 13C2-PFOA | IS | 76.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| 13C8-PFOS | 18 | 79.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| 13C5-PFNA | IS | 68.5 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| 13C2-PFDA | IS | 76.8 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| d3-MeFOSAA | IS | 75.9 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| 13C2-PFUnA | 1S | 60.4 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| d5-EtFOSAA | IS | 78.6 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| 13C2-PFDoA | IS | 68.6 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| 13C2-PFTeDA | IS | 62.4 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.125 L | 26-Feb-18 10:01 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | LCL-UCL- | Lower control lim | nit - upper control lim | t | When rep | orted, PFHxS. | PFOA and PFOS | include both line | ar and branched isomer | rs. |

2010 Slasli8

Only the linear isomer is reported for all other analytes

Work Order 1800342 Page 17 of 39

Results reported to the DL

LOQ - Limit of quantitation



| Sample ID: WI-AF-N | MW-N2-9-0218 | | | | | | | | Mod | ified EPA Meth | 10d 537 |
|--|--------------------------|---------------------|----------------------|--------------------------|-------|----------------------|------------------------|---------------|-------------------|------------------------|----------|
| Client Data Name: CH2M Project: 695610 | Hill 0.04.Fl.FS | Matrix: Date Col | Aque lected: 15-F | eous eb-18 13:05 | Lab S | Sample: Received: | 1800342-0 20-Feb-18 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 1.88 | 5.25 | 8.42 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | 1 |
| PFHxA | | ND | 2.29 | 5.25 | 8.42 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | 1 |
| PFHpA | | ND | 0.622 | 5.25 | 8.42 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | 1 |
| PFHxS | | ND | 0.996 | 5.25 | 8.42 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | |
| PFOA | | ND | 0.685 | 5.25 | 8.42 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | 1 |
| PFOS | | ND | 0.849 | 5.25 | 8.42 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | |
| PFNA | | ND | 0.852 | 5.25 | 8.42 | | B8B0132 | | 0.119 L | 24-Feb-18 17:34 | |
| PFDA | | ND | 1.57 | 5.25 | 8.42 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | |
| MeFOSAA | | ND | 1.74 | 5.25 | 8.42 | | B8B0132 | | 0.119 L | 24-Feb-18 17:34 | |
| PFUnA | | ND | 1.10 | 5.25 | 8.42 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | |
| EtFOSAA | | ND | 1.44 | 5.25 | 8.42 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | |
| PFDoA | | ND | 0.833 | 5.25 | 8.42 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | |
| PFTrDA | | ND | 0.520 | 5.25 | 8.42 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | |
| PFTeDA | | ND | 0.794 | 5.25 | 8.42 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 97.6 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | 1 |
| 13C2-PFHxA | IS | 81.5 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | 1 |
| 13C4-PFHpA | IS | 86.5 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | 1 |
| 18O2-PFHxS | IS | 77.0 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | 1 |
| 13C2-PFOA | IS | 78.2 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | 1 |
| 13C8-PFOS | IS | 68.9 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | 1 |
| 13C5-PFNA | IS | 66.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | 1 |
| 13C2-PFDA | IS | 98.4 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | 1 |
| d3-MeFOSAA | IS | 107 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | 1 |
| 13C2-PFUnA | IS | 67.0 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | 1 |
| d5-EtFOSAA | IS | 94.2 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | 1 |
| 13C2-PFDoA | IS | 68.6 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | 1 |
| 13C2-PFTeDA | IS | 68.2 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:34 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | LCL-UCL- | Lower control lin | nit - upper control limi | : | When rep | oorted, PFHxS, | PFOA and PFOS | include both line | ar and branched isomer | rs. |

rus 1301.8

Results reported to the DL

LOQ - Limit of quantitation

Only the linear isomer is reported for all other analytes



| Sample ID: WI-AF-MW-N | N2-9P-0218 | | | | | | | | Mod | ified EPA Met | hod 537 |
|-----------------------------|------------|--------------|-----------|----------------|------|-------------------------|-----------|-----------|-----------|-----------------|----------|
| Client Data Name: CH2M Hill | | Matrix: | Ac | queous | | oratory Data Sample: | 1800342-0 | 08 | Column | BEH C18 | |
| Project: 695610.04.FI | .FS | Date Colle | ected: 15 | 5-Feb-18 13:10 | Date | e Received: | 20-Feb-18 | 09:04 | | | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 1.88 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | 1 |
| PFHxA | | ND | 2.29 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | 1 |
| PFHpA | | ND | 0.621 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | 1 |
| PFHxS | | ND | 0.995 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | 1 |
| PFOA | | 5.25 HO W | 0.684 | 5.25 | 8.41 | J. B | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | 1 |
| PFOS | | ND | 0.848 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | 1 |
| PFNA | | ND | 0.851 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | 1 |
| PFDA | | ND | 1.57 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | 1 |
| MeFOSAA | | ND | 1.73 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | 1 |
| PFUnA | | ND | 1.10 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | 1 |
| EtFOSAA | | ND | 1.44 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | 1 |
| PFDoA | | ND | 0.832 | 5.25 | 8.41 | | | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | |
| PFTrDA | | ND | 0.519 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | 1 |
| PFTeDA | | ND | 0.794 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| I3C3-PFBS | IS | 88.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | 1 |
| 13C2-PFHxA | IS | 84.6 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | 1 |
| 13C4-PFHpA | IS | 82.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | 1 |
| 18O2-PFHxS | IS | 81.3 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | 1 |
| 13C2-PFOA | IS | 85.6 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | |
| 13C8-PFOS | 18 | 90.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | 1 |
| 13C5-PFNA | IS | 89.8 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | 1 |
| 13C2-PFDA | IS | 65.6 | | 50 - 150 | | | | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | |
| 13-MeFOSAA | IS | 75.2 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | 1 |
| 13C2-PFUnA | IS | 71.8 | | 50 - 150 | | | | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | 1 |
| i5-EtFOSAA | IS | 82.9 | | 50 - 150 | | | | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | 1 |
| I3C2-PFDoA | 1S | 68.5 | | 50 - 150 | | | | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | 1 |
| I3C2-PFTeDA | IS | 63.5 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 17:46 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

NW S/30/18

Work Order 1800342 Page 20 of 39



| Sample ID: WI-AF-FB | 801-021518 | | | | | | | | Mod | ified EPA Metl | hod 537 |
|--|--------------------------|---------------------|----------------------|--------------------------|-------|--------------------------------|------------------------|---------------|-------------------|------------------------|----------|
| Client Data Name: CH2M H Project: 695610.0 | | Matrix: Date Col | Aque lected: 15-F | ous eb-18 13:15 | Lab : | Pratory Data Sample: Received: | 1800342-0 20-Feb-18 | | Column | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 1.94 | 5.43 | 8.66 | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| PFHxA | | ND | 2.36 | 5.43 | 8.66 | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| PFHpA | | ND | 0.640 | 5.43 | 8.66 | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| PFHxS | | ND | 1.03 | 5.43 | 8.66 | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| PFOA | | ND | 0.705 | 5.43 | 8.66 | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| PFOS | | ND | 0.874 | 5.43 | 8.66 | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| PFNA | | ND | 0.877 | 5.43 | 8.66 | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| PFDA | | ND | 1.61 | 5.43 | 8.66 | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| MeFOSAA | | ND | 1.79 | 5.43 | 8.66 | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| PFUnA | | ND | 1.14 | 5.43 | 8.66 | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| EtFOSAA | | ND | 1.48 | 5.43 | 8.66 | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| PFDoA | | ND | 0.857 | 5.43 | 8.66 | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| PFTrDA | | ND | 0.535 | 5.43 | 8.66 | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| PFTeDA | | ND | 0.817 | 5.43 | 8.66 | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 109 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| 13C2-PFHxA | IS | 93.6 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| 13C4-PFHpA | IS | 90.4 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| 18O2-PFHxS | IS | 86.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| 13C2-PFOA | IS | 84.3 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| 13C8-PFOS | IS | 80.0 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| 13C5-PFNA | IS | 66.6 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| 13C2-PFDA | IS | 74.2 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| d3-MeFOSAA | IS | 81.2 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| 13C2-PFUnA | 18 | 63.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| d5-EtFOSAA | IS | 82.0 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| 13C2-PFDoA | IS | 76.5 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| 13C2-PFTeDA | IS | 91.3 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.115 L | 24-Feb-18 17:57 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | LCL-UCL- | Lower control lin | nit - upper control limi | t | When rep | orted, PFHxS, | PFOA and PFOS | include both line | ear and branched isome | 18 |

NW 5130 1.8

Only the linear isomer is reported for all other analytes

Work Order 1800342 Page 21 of 39

Results reported to the DL

LOQ - Limit of quantitation



| Sample ID: WI-AF-I | MW-N2-/S-U218 | | | | | | | | Wod | ified EPA Metl | hod 53 |
|----------------------|--------------------------|--------------|-----------------|---------------------------|-------|--------------|----------------|---------------|-------------------|-------------------------|----------|
| Client Data | | | | | Labo | oratory Data | | | | | |
| Name: CH2M | 1 Hill | Matrix: | Aqı | ieous | Lab S | Sample: | 1800342- | 10 | Column: | BEH C18 | |
| Project: 69561 | 0.04.FI.FS | Date Coll | lected: 15- | Feb-18 16:00 | Date | Received: | 20-Feb-18 | 09:04 | | | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | 182 | 1.80 | 5.04 | 8.06 | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | 1 |
| PFHxA | | 172 | 2.20 | 5.04 | 8.06 | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | 1 |
| PFHpA | | 38.4 | 0.596 | 5.04 | 8.06 | | B8B0132 | | 0.124 L | 24-Feb-18 18:09 | 1 |
| PFHxS | | 1700 | 0.955 | 5.04 | 8.06 | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | 1 |
| PFOA | | 117 | 0.656 | 5.04 | 8.06 | B / | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | 1 |
| PFOS | | 568 | 0.814 | 5.04 | 8.06 | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | 1 |
| PFNA | | 1.69 | 0.817 | 5.04 | 8.06 | J | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | 1 |
| PFDA | | ND | 1.50 | 5.04 | 8.06 | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | |
| MeFOSAA | | ND | 1.66 | 5.04 | 8.06 | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | |
| PFUnA | | ND | 1.06 | 5.04 | 8.06 | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | |
| EtFOSAA | | ND | 1.38 | 5.04 | 8.06 | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | 1 |
| PFDoA | | ND | 0.798 | 5.04 | 8.06 | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | 1 |
| PFTrDA | | ND | 0.498 | 5.04 | 8.06 | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | 1 |
| PFTeDA | | ND | 0.761 | 5.04 | 8.06 | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 93.8 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | 1 |
| 13C2-PFHxA | IS | 85.9 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | 1 |
| 13C4-PFHpA | IS | 87.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | 1 |
| 18O2-PFHxS | IS | 89.8 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | 1 |
| 13C2-PFOA | IS | 87.8 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | 1 |
| 13C8-PFOS | IS | 103 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | 1 |
| 13C5-PFNA | IS | 70.6 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | 1 |
| 13C2-PFDA | IS | 71.1 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | 1 |
| d3-MeFOSAA | IS | 89.5 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | 1 |
| 13C2-PFUnA | IS | 75.9 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | 1 |
| d5-EtFOSAA | IS | 90.3 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | 1 |
| 13C2-PFDoA | IS | 77.6 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | 1 |
| 13C2-PFTeDA | IS | 82.8 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.124 L | 24-Feb-18 18:09 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | LCL-UCL- | Lower control l | imit - upper control limi | t | When rep | oorted, PFHxS, | PFOA and PFOS | include both line | ear and branched isomer | rs |

rus 1301-8

Results reported to the DL

LOQ - Limit of quantitation

Work Order 1800342 Page 22 of 39

Only the linear isomer is reported for all other analytes



| Sample ID: WI- | AF-MW-N2-3-02 | 218 | | | | | | | | Mod | ified EPA Met | hod 537 |
|-------------------|------------------------------|------|----------------------|-------|--------------------------|-------|--------------------------------|------------------------|-----------|-----------|-----------------|----------|
| | CH2M Hill 595610.04.FI.FS | | Matrix: Date Coll | | queous 5-Feb-18 12:40 | Lab S | Fratory Data Sample: Received: | 1800342-1 20-Feb-18 | | Column: | BEH C18 | |
| Analyte | | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | | ND | 1.89 | 5.30 | 8.46 | | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1 |
| PFHxA | | | ND | 2.31 | 5.30 | 8.46 | | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | |
| PFHpA | | | ND | 0.625 | 5.30 | 8.46 | | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1 |
| PFHxS | | | 1.30 | 1.00 | 5.30 | 8.46 | J | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1 |
| PFOA | | | 5.30 1.95 W | 0.689 | 5.30 | 8.46 | LB | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1 |
| PFOS | | | ND | 0.854 | 5.30 | 8.46 | | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1 |
| FNA | | | ND | 0.857 | 5.30 | 8.46 | | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1 |
| FDA | | | ND | 1.58 | 5.30 | 8.46 | | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1 |
| /leFOSAA | | | ND | 1.75 | 5.30 | 8.46 | | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1 |
| FUnA | | | ND | 1.11 | 5.30 | 8.46 | | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1 |
| EtFOSAA | | | ND | 1.45 | 5.30 | 8.46 | | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1 |
| FDoA | | | ND | 0.838 | 5.30 | 8.46 | | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1 |
| FTrDA | | | ND | 0.523 | 5.30 | 8.46 | | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1 |
| FTeDA | | | ND | 0.799 | 5.30 | 8.46 | | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1 |
| Labeled Standards | | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 3C3-PFBS | | IS | 108 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1 |
| 3C2-PFHxA | | IS | 82.1 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1. |
| 3C4-PFHpA | | IS | 79.2 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1 |
| 8O2-PFHxS | | IS | 82.3 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1 |
| 3C2-PFOA | | IS | 89.6 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1 |
| 3C8-PFOS | | IS | 87.5 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1 |
| 3C5-PFNA | | IS | 74.5 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1 |
| 3C2-PFDA | | IS | 70.3 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1 |
| 3-MeFOSAA | | IS | 104 | | 50 - 150 | | | | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1 |
| 3C2-PFUnA | | IS | 79.1 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1 |
| 5-EtFOSAA | | IS | 105 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1 |
| 3C2-PFDoA | | IS | 67.5 | | 50 - 150 | | | B8B0132 | | 0.118 L | 24-Feb-18 18:20 | 1 |
| 3C2-PFTeDA | | IS | 77.5 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.118 L | 24-Feb-18 18:20 | 1 |

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes

m 5/30/18

Work Order 1800342 Page 23 of 39



| Sample ID: WI-AF-EB01-0 | 21618 | | | | | | | | Mod | ified EPA Met | hod 537 |
|---|-------|-----------------------|-------|--------------------------|------|---|------------------------|-----------|-----------|-----------------|----------|
| Client Data Name: CH2M Hill Project: 695610.04.FL | FS | Matrix: Date Colle | | queous 6-Feb-18 14:55 | La | aboratory Data ab Sample: ate Received: | 1800342-1 20-Feb-18 | | Column: | ВЕН С18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 1.88 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| PFHxA | | ND | 2.29 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| PFHpA | | ND | 0.622 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| PFHxS | | ND | 0.996 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| PFOA | | ND | 0.685 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| PFOS | | ND | 0.849 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| PFNA | | ND | 0.852 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| PFDA | | ND | 1.57 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| MeFOSAA | | ND | 1.74 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| PFUnA | | NO UJ | 1.10 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| EtFOSAA | | ND | 1.44 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| PFDoA | | ND | 0.833 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| PFTrDA | | ND | 0.520 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| PFTeDA | | ND | 0.794 | 5.25 | 8.41 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 102 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| 13C2-PFHxA | 18 | 84.9 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| 13C4-PFHpA | IS | 85.9 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| 18O2-PFHxS | IS | 80.1 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| 13C2-PFOA | IS | 75.1 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| 13C8-PFOS | IS | 99.9 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| I3C5-PFNA | IS | 64.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| 13C2-PFDA | IS | 75.4 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| d3-MeFOSAA | IS | 77.6 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| I3C2-PFUnA | 18 | 48.5 | | 50 - 150 | | Н | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| d5-EtFOSAA | IS | 78.9 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| 13C2-PFDoA | IS | 57.3 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |
| 13C2-PFTeDA | IS | 55.0 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:31 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers Only the linear isomer is reported for all other analytes

nu s130/18

Work Order 1800342

Page 24 of 39



| Sample ID: WI-AF-MW-I | N2-8-0218 | | | | | | | | Mod | ified EPA Met | hod 537 |
|--|-----------|-----------------------|----------------|----------------------|-------|--------------------------------|------------------------|-----------|-----------|-----------------|----------|
| Client Data Name: CH2M Hill Project: 695610.04.F | l.FS | Matrix: Date Colle | Aquected: 16-F | eous Seb-18 17:40 | Lab S | Pratory Data Sample: Received: | 1800342-1 20-Feb-18 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 1.86 | 5.21 | 8.30 | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |
| PFHxA | | ND | 2.26 | 5.21 | 8.30 | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |
| PFHpA | | ND | 0.614 | 5.21 | 8.30 | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | |
| PFHxS | | ND | 0.983 | 5.21 | 8.30 | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |
| PFOA | | ND | 0.676 | 5.21 | 8.30 | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |
| PFOS | | ND | 0.838 | 5.21 | 8.30 | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |
| PFNA | | ND | 0.841 | 5.21 | 8.30 | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |
| PFDA | | ND | 1.55 | 5.21 | 8.30 | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |
| MeFOSAA | | ND | 1.71 | 5.21 | 8.30 | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |
| PFUnA | | ND | 1.09 | 5.21 | 8.30 | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |
| EtFOSAA | | ND | 1.42 | 5.21 | 8.30 | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |
| PFDoA | | ND UJ | 0.822 | 5.21 | 8.30 | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |
| PFTrDA | | ND | 0.513 | 5.21 | 8.30 | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |
| PFTeDA | | ND | 0.784 | 5.21 | 8.30 | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 97.6 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |
| I3C2-PFHxA | IS | 87.2 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | T |
| 13C4-PFHpA | IS | 92.0 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |
| 18O2-PFHxS | IS | 83.1 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |
| 13C2-PFOA | IS | 65.3 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |
| 13C8-PFOS | IS | 98.4 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |
| 13C5-PFNA | IS | 69.3 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |
| 13C2-PFDA | IS | 79.3 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |
| d3-MeFOSAA | IS | 70.4 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |
| 13C2-PFUnA | IS | 70.1 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |
| d5-EtFOSAA | IS | 79.0 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |
| 13C2-PFDoA | IS | 44.5 | | 50 - 150 | | Н | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |
| 13C2-PFTeDA | IS | 61.8 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.120 L | 24-Feb-18 18:43 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes

rw 5/30/18

Work Order 1800342 Page 25 of 39



| Sample ID: WI-AF-MW-2 | 01-0218 | | | | | | | | Mod | ified EPA Met | hod 537 |
|--|---------|-----------------------|-------|----------------------------|------|--|------------------------|-----------|-----------|-----------------|----------|
| Name: CH2M Hill Project: 695610.04.FI. | FS | Matrix: Date Colle | | Aqueous 17-Feb-18 14:50 | Lab | oratory Data Sample: e Received: | 1800342-1 20-Feb-18 | | Column: | ВЕН С18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | 2090 | 1.88 | 5.25 | 8.40 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:54 | 1 |
| PFHxA | | 8670 | 22.9 | 52.5 | 84.0 | Ð | B8B0132 | 21-Feb-18 | 0.119 L | 28-Feb-18 23:25 | 10 |
| PFHpA | | 2400 | 0.620 | | 8.40 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:54 | |
| PFHxS | | 17000 | 9.94 | 52.5 | 84.0 | Ø | B8B0132 | 21-Feb-18 | 0.119 L | 28-Feb-18 23:25 | |
| PFOA | | 3010 | 0.683 | 5.25 | 8.40 | B' | B8B0132 | | 0.119 L | 24-Feb-18 18:54 | |
| PFOS | | 23500 | 8.47 | 52.5 | 84.0 | Ø | B8B0132 | 21-Feb-18 | 0.119 L | 28-Feb-18 23:25 | |
| PFNA | | 69.0 | 0.850 | 5.25 | 8.40 | | B8B0132 | | 0.119 L | 24-Feb-18 18:54 | 1 |
| PFDA | | 4.41 | 1.56 | 5.25 | 8.40 | J | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:54 | 1 |
| MeFOSAA | | ND | 1.73 | 5.25 | 8.40 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:54 | |
| PFUnA | | ND | 1.10 | 5.25 | 8.40 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:54 | |
| EtFOSAA | | ND | 1.44 | 5.25 | 8.40 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:54 | |
| PFDoA | | NOUJ | 0.831 | 5.25 | 8.40 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:54 | |
| PFTrDA | | ND | 0.518 | 5.25 | 8.40 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:54 | |
| PFTeDA | | ND | 0.792 | 5.25 | 8.40 | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:54 | 1_ |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 3C3-PFBS | IS | 122 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:54 | 1 |
| I3C2-PFHxA | IS | 98.5 | | 50 - 150 | | 9 | B8B0132 | 21-Feb-18 | 0.119 L | 28-Feb-18 23:25 | 10 |
| 3C4-PFHpA | IS | 92.4 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:54 | 1 |
| 8O2-PFHxS | IS | 142 | | 50 - 150 | | Ιø | B8B0132 | 21-Feb-18 | 0.119 L | 28-Feb-18 23:25 | 10 |
| 3C2-PFOA | IS | 80.7 | | 50 - 150 | | , | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:54 | 1 |
| 3C8-PFOS | IS | 82.6 | | 50 - 150 | | ΙØ | B8B0132 | 21-Feb-18 | 0.119 L | 28-Feb-18 23:25 | 10 |
| 3C5-PFNA | IS | 71.1 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:54 | 1 |
| 3C2-PFDA | IS | 71.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:54 | 1 |
| I3-MeFOSAA | IS | 62.6 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:54 | 1 |
| 3C2-PFUnA | 18 | 55.4 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:54 | 1 |
| 15-EtFOSAA | IS | 69.3 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:54 | 1 |
| 3C2-PFDoA | IS | 49.1 | | 50 - 150 | | Н | B8B0132 | 21-Feb-18 | 0.119 L | 24-Feb-18 18:54 | 1 |
| 3C2-PFTeDA | IS | 54.4 | | 50 - 150 | | | B8B0132 | | 0.119 L | 24-Feb-18 18:54 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes

pur 5/30/18



| Sample ID: WI-AF-FB0 | 01-021718 | | | | | | | | Mod | ified EPA Metl | hod 537 |
|----------------------------------|--------------------------|---------------------|-----------------------|------------------------|------|----------------------|-----------------------|----------------|------------------|------------------------|----------|
| Name: CH2M Hi Project: 695610.04 | | Matrix: Date Col | Aque lected: 17-Fe | ous eb-18 14:55 | Lab | Sample: Received: | 1800342- 20-Feb-18 | | Column | ВЕН С18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 2.01 | 5.63 | 8.97 | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | 1 |
| PFHxA | | ND | 2.45 | 5.63 | 8.97 | | B8B0132 | | 0.111 L | 07-Mar-18 19:27 | |
| PFHpA | | ND | 0.663 | 5.63 | 8.97 | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | |
| PFHxS | | ND | 1.06 | 5.63 | 8.97 | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | |
| PFOA | | ND | 0.730 | 5.63 | 8.97 | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | |
| PFOS | | 2.23 | 0.905 | 5.63 | 8.97 | J | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | 1 |
| PFNA | | ND | 0.908 | 5.63 | 8.97 | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | 1 |
| PFDA | | ND | 1.67 | 5.63 | 8.97 | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | 1 |
| MeFOSAA | | ND | 1.85 | 5.63 | 8.97 | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | 1 |
| PFUnA | | ND | 1.18 | 5.63 | 8.97 | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | 1 |
| EtFOSAA | | ND | 1.54 | 5.63 | 8.97 | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | 1 |
| PFDoA | | ND | 0.888 | 5.63 | 8.97 | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | |
| PFTrDA | | ND | 0.554 | 5.63 | 8.97 | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | 1 |
| PFTeDA | | ND | 0.847 | 5.63 | 8.97 | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | |
| Labeled Standards | Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 114 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | 1 |
| 13C2-PFHxA | IS | 93.3 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | 1 |
| 13C4-PFHpA | IS | 89.8 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | 1 |
| 18O2-PFHxS | IS | 89.5 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | 1 |
| 13C2-PFOA | IS | 88.1 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | 1 |
| 13C8-PFOS | IS | 105 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | 1 |
| 13C5-PFNA | IS | 85.5 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | 1 |
| 13C2-PFDA | IS | 75.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | 1 |
| d3-MeFOSAA | IS | 53.1 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | 1 |
| 13C2-PFUnA | IS | 62.9 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | 1 |
| d5-EtFOSAA | IS | 66.9 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | 1 |
| 13C2-PFDoA | IS | 72.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | 1 |
| 13C2-PFTeDA | IS | 62.5 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.111 L | 07-Mar-18 19:27 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | 101 101 | Laura ameral lim | it - upper control lim | .fa | When ret | vorted DELIES | DECLA and DECK | Inches both line | ar and branched isomer | at-v |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes

Work Order 1800342 Page 27 of 39



| Sample ID: WI-AF-4- | MW-3-0218 | | | | | | | | Mod | ified EPA Metl | nod 537 |
|----------------------------------|--------------------------|-----------------------|-----------------|----------------------------|------|----------------------|-----------------------|---------------|-------------------|------------------------|----------|
| Name: CH2M F Project: 695610. | Hill 04.F1.FS | Matrix: Date Colle | | leous Feb-18 13:35 | Lab | Sample: Received: | 1800342- 20-Feb-18 | | Column: | ВЕН С18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 2.02 | 5.63 | 9.04 | | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| PFHxA | | ND | 2.46 | 5.63 | 9.04 | | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| PFHpA | | ND | 0.667 | 5.63 | 9.04 | | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| PFHxS | | ND | 1.07 | 5.63 | 9.04 | | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| PFOA | | 5.63 0.903 U | 0.735 | 5.63 | 9.04 | LB- | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| PFOS | | ND | 0.911 | 5.63 | 9.04 | | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| PFNA | | ND | 0.915 | 5.63 | 9.04 | | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| PFDA | | ND | 1.68 | 5.63 | 9.04 | | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| MeFOSAA | | ND | 1.86 | 5.63 | 9.04 | | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| PFUnA | | ND | 1.19 | 5.63 | 9.04 | | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| EtFOSAA | | ND | 1.55 | 5.63 | 9.04 | | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| PFDoA | | NO UJ | 0.894 | 5.63 | 9.04 | | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| PFTrDA | | ND | 0.558 | 5.63 | 9.04 | | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| PFTeDA | | CN CHA | 0.853 | 5.63 | 9.04 | | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 94.0 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| 13C2-PFHxA | IS | 88.6 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| 13C4-PFHpA | IS | 78.0 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| 18O2-PFHxS | IS | 100 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| 13C2-PFOA | IS | 91.4 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| 13C8-PFOS | IS | 78.3 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| 13C5-PFNA | IS | 94.6 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| 13C2-PFDA | IS | 74.1 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| d3-MeFOSAA | IS | 66.9 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| 13C2-PFUnA | 18 | 61.2 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| d5-EtFOSAA | IS | 75.2 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| 13C'2-PFDoA | IS | 49.8 | | 50 - 150 | | Н | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| 13C2-PFTeDA | IS | 46.6 | | 50 - 150 | | Н | B8B0132 | 21-Feb-18 | 0.111 L | 24-Feb-18 19:17 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | LCL-UCL-1 | ower control li | imit - upper control limit | | When rep | oorted, PFHxS, | PFOA and PFOS | include both line | ar and branched isomer | rs |

pu/5/30/18

Results reported to the DL

LOQ - Limit of quantitation

Only the linear isomer is reported for all other analytes



| Sample ID: WI-AF-EB01-021718 | | | | | | | | Mod | ified EPA Met | hod 537 | |
|--|------------------------|-----------|----------------------------------|------|---|------------------------|---------------|-------------------|------------------------|----------|----|
| Client Data Name: CH2M Hill Project: 695610.04.FI.FS | Matrix: Date Collec | | Aqueous 17-Feb-18 16:45 | La | aboratory Data ab Sample: ate Received: | 1800342-1 20-Feb-18 | | Column | : BEH C18 | | |
| Analyte | Conc. (ng/L) | DL | LOD | LOC | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution | + |
| PFBS | ND | 1.78 | 4.96 | 7.95 | | B8B0132 | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | _ | 1 |
| PFHxA | ND | 2.17 | | 7.95 | | | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | | 1 |
| PFHpA | ND | 0.587 | | 7.95 | | | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | | 1 |
| PFHxS | ND | 0.941 | | 7.95 | | | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | | |
| PFOA | 4.96 0.814 U | 0.647 | | 7.95 | | | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | | 1 |
| PFOS | 1.95 | 0.802 | | 7.95 | | | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | | 1. |
| PFNA | ND | 0.805 | | 7.95 | | | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | | 1 |
| PFDA | ND | 1.48 | | 7.95 | | | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | | Т |
| MeFOSAA | ND | 1.64 | | 7.95 | | B8B0132 | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | 1 | |
| PFUnA | ND | 1.04 | | 7.95 | | | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | 1 | 1 |
| EtFOSAA | ND | 1.36 | | 7.95 | | | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | 1 | |
| PFDoA | ND | 0.787 | 4.96 | 7.95 | | B8B0132 | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | 1 | 1 |
| PFTrDA | ND | 0.491 | 4.96 | 7.95 | | B8B0132 | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | 1 | 1 |
| PFTeDA | LV ON | 0.750 | 4.96 | 7.95 | | B8B0132 | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | 1 | 1 |
| Labeled Standards Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution | I |
| 13C3-PFBS IS | 99.6 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | 1 | 1 |
| 13C2-PFHxA IS | 75.9 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | 1 | 1 |
| I3C4-PFHpA IS | 83.5 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | 1 | 1 |
| 18O2-PFHxS IS | 105 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | 1 | |
| 13C2-PFOA IS | 81.6 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | 1 | |
| 13C8-PFOS IS | 81.4 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | 1 | |
| 13C5-PFNA IS | 71.1 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | 1 | |
| 13C2-PFDA IS | 62.9 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | 1 | |
| d3-MeFOSAA IS | 77.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | 1 | |
| 13C2-PFUnA IS | 67.9 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | 1 | |
| d5-EtFOSAA IS | 85.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | 1 | |
| 13C2-PFDoA IS | 52.9 | | 50 - 150 | | | | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | 1 | |
| 13C2-PFTeDA IS | 46.0 | | 50 - 150 | | Н | B8B0132 | 21-Feb-18 | 0.126 L | 24-Feb-18 19:29 | 1 | |
| DL - Detection Limit LOD - Limit of Detect | ion LCL-UCL- Lo | ower cont | trol limit - upper control limit | | When rep | orted, PFHxS, | PFOA and PFOS | include both line | ear and branched isome | rs. | 4 |

nul 5/30/18

Results reported to the DL

LOQ - Limit of quantitation

Only the linear isomer is reported for all other analytes

Work Order 1800342 Page 29 of 39



| Sample ID: WI-AF-N2 | 2-6C-0218 | | | | | | | | Mod | ified EPA Metl | hod 537 |
|--|--------------------------|----------------------|---------------------|-------------------------|-------|--------------------------------|------------------------|---------------|-------------------|------------------------|----------|
| Client Data Name: CH2M H Project: 695610.0 | | Matrix: Date Coll | Aque ected: 18-F | ous eb-18 11:40 | Lab S | Pratory Data Sample: Received: | 1800342-1 20-Feb-18 | | Column | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | 98.7 | 1.92 | 5.39 | 8.60 | | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | 1 |
| PFHxA | | 762 | 2.34 | 5.39 | 8.60 | | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | 1 |
| PFHpA | | 726 | 0.636 | 5.39 | 8.60 | | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | 1 |
| PFHxS | | 2570 | 1.02 | 5.39 | 8.60 | | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | 1 |
| PFOA | | 671 | 0.700 | 5.39 | 8.60 | B | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | 1 |
| PFOS | | 9450 | 4.34 | 26.9 | 43.0 | D | B8B0132 | 21-Feb-18 | 0.116 L | 28-Feb-18 23:36 | 5 |
| PFNA | | 139 | 0.871 | 5.39 | 8.60 | | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | I |
| PFDA | | 27.7 | 1.60 | 5.39 | 8.60 | | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | Ť |
| MeFOSAA | | ND | 1.77 | 5.39 | 8.60 | | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | |
| PFUnA | | ND | 1.13 | 5.39 | 8.60 | | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | 1 |
| EtFOSAA | | ND | 1.47 | 5.39 | 8.60 | | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | 1 |
| PFDoA | | ND | 0.852 | 5.39 | 8.60 | | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | 1 |
| PFTrDA | | ND | 0.531 | 5.39 | 8.60 | | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | 1 |
| PFTeDA | | ND | 0.812 | 5.39 | 8.60 | | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 109 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | 1 |
| 13C2-PFHxA | IS | 83.3 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | 1 |
| 13C4-PFHpA | IS | 88.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | 1 |
| 18O2-PFHxS | IS | 78.8 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | 1 |
| 13C2-PFOA | IS | 75.8 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | 1 |
| 13C8-PFOS | 18 | 82.9 | | 50 - 150 | | Ø | B8B0132 | 21-Feb-18 | 0.116 L | 28-Feb-18 23:36 | 5 |
| I3C5-PFNA | IS | 61.8 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | 1 |
| 13C2-PFDA | IS | 63.9 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | 1 |
| d3-MeFOSAA | IS | 90.6 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | 1 |
| 13C2-PFUnA | 18 | 59.8 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | 1 |
| d5-EtFOSAA | IS | 92.4 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | 1 |
| 13C2-PFDoA | IS | 63.2 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | 1 |
| I3C2-PFTeDA | IS | 58.3 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.116 L | 24-Feb-18 19:40 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | LCL-UCL- | Lower control lin | nit - upper control lim | t | When rep | orted, PFHxS, | PFOA and PFOS | include both line | ear and branched isome | rs. |

mu 5/30/18

Results reported to the DL

LOQ - Limit of quantitation

Only the linear isomer is reported for all other analytes

Work Order 1800342 Page 30 of 39



| Sample ID: WI-AF-FB01-0 | 021818 | | | | | | | | Mod | ified EPA Met | nod 537 |
|--|--------|----------------------|-------|---------------------------|------|--|------------------------|-----------|-----------|-----------------|----------|
| Client Data Name: CH2M Hill Project: 695610.04.F1. | FS | Matrix: Date Coll | | .queous 8-Feb-18 11:45 | Lab | oratory Data Sample: e Received: | 1800342-1 20-Feb-18 | | Column | ВЕН С18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 1.97 | 5.48 | 8.78 | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | 1 |
| PFHxA | | ND | 2.39 | 5,48 | 8.78 | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | i |
| PFHpA | | ND | 0.649 | 5.48 | 8.78 | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | 1 |
| PFHxS | | ND | 1.04 | 5.48 | 8.78 | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | i |
| PFOA | | 5.48 LOT U. | 0.715 | 5.48 | 8.78 | LB | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | 1 |
| PFOS | | ND | 0.886 | 5.48 | 8.78 | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | 1 |
| PFNA | | ND | 0.889 | 5.48 | 8.78 | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | 1 |
| PFDA | | ND | 1.64 | 5.48 | 8.78 | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | 1 |
| MeFOSAA | | ND | 1.81 | 5.48 | 8.78 | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | 1 |
| PFUnA | | ND | 1.15 | 5.48 | 8.78 | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | 1 |
| EtFOSAA | | ND | 1.50 | 5.48 | 8.78 | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | 1 |
| PFDoA | | ND | 0.869 | 5.48 | 8.78 | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | 1 |
| PFTrDA | | ND | 0.542 | 5.48 | 8.78 | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | 1 |
| PFTeDA | | ND | 0.829 | 5.48 | 8.78 | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 3C3-PFBS | IS | 99.2 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | 1 |
| 3C2-PFHxA | IS | 83.2 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | Ī |
| 3C4-PFHpA | IS | 84.0 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | 1 |
| 8O2-PFHxS | IS | 80.3 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | 1 |
| 3C2-PFOA | IS | 63.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | 1 |
| 3C8-PFOS | IS | 84.2 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | 1 |
| 3C5-PFNA | IS | 62.7 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | 1 |
| 3C2-PFDA | IS | 68.0 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | 1 |
| 3-MeFOSAA | IS | 88.3 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | 1 |
| 3C2-PFUnA | 1S | 62.5 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | 1 |
| I5-EtFOSAA | IS | 84.8 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | 1 |
| 3C2-PFDoA | IS | 64.2 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | 1 |
| 3C2-PFTeDA | IS | 69.9 | | 50 - 150 | | | B8B0132 | 21-Feb-18 | 0.114 L | 24-Feb-18 19:52 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

pw 51301.8

Work Order 1800342 Page 31 of 39



| Sample ID: WI-AF-M | IW-200-0218 | | | | | | | | Mod | ified EPA Met | hod 537 |
|----------------------------------|--------------------------|----------------------|---------------------|-------------------------|-------|--------------------------------|------------------------|---------------|---------------------|------------------------|----------|
| Name: CH2M I Project: 695610. | Hill .04.FI.FS | Matrix: Date Coll | Aque ected: 18-F | eous eb-18 11:50 | Lab S | Dratory Data Sample: Received: | 1800342-2 20-Feb-18 | | Column | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | 879 | 1.87 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| PFHxA | | 2550 | 2.28 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| PFHpA | | 334 | 0.617 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| PFHxS | | 1810 | 9.88 | 52.1 | 83.5 | 16 | B8B0130 | 22-Feb-18 | 0.120 L | 06-Mar-18 18:14 | 10 |
| PFOA | | 436 | 0.679 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| PFOS | | 96.5 | 0.842 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| PFNA | | ND | 0.845 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| PFDA | | ND | 1.56 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| MeFOSAA | | ND | 1.72 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| PFUnA | | ND | 1.10 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| EtFOSAA | | ND | 1.43 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| PFDoA | | ND | 0.827 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| PFTrDA | | ND | 0.516 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| PFTeDA | | ND | 0.788 | 5.21 | 8.35 | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 101 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| 13C2-PFHxA | IS | 89.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| 13C4-PFHpA | IS | 89.4 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| 18O2-PFHxS | IS | 88.6 | | 50 - 150 | | V | B8B0130 | 22-Feb-18 | 0.120 L | 06-Mar-18 18:14 | 10 |
| 13C2-PFOA | IS | 85.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| 13C8-PFOS | IS | 86.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| 13C5-PFNA | IS | 71.1 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| 13C2-PFDA | IS | 59.4 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| d3-MeFOSAA | IS | 82.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| 13C2-PFUnA | IS | 84.4 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| d5-EtFOSAA | IS | 80.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| 13C2-PFDoA | IS | 76.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| 13C2-PFTeDA | IS | 74.8 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 02-Mar-18 03:21 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | 1771 1771 | 1 115 | nit - upper control lim | | When gar | DELL.C | DEVIA I DEVIC | in alorda house the | ear and branched isome | |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes

Work Order 1800342 Page 32 of 39



| Sample ID: WI-AF-EB | 01-021818 | | | | | | | | Mod | ified EPA Metl | nod 537 |
|---|--------------------------|----------------------|------------------|-------------------------|-------|--------------------------------|------------------------|---------------|-----------|------------------------|----------|
| Client Data Name: CH2M Hi Project: 695610.0 | | Matrix: Date Coll | Aquected: 18-F | eous Feb-18 12:10 | Lab S | oratory Data Sample: Received: | 1800342-2 20-Feb-18 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 1.86 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| PFHxA | | ND | 2.27 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| PFHpA | | ND | 0.615 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| PFHxS | | ND | 0.986 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| PFOA | | ND | 0.678 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| PFOS | | ND | 0.840 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| PFNA | | ND | 0.843 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| PFDA | | ND | 1.55 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| MeFOSAA | | ND | 1.72 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| PFUnA | | ND | 1.09 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| EtFOSAA | | ND | 1.43 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| PFDoA | | ND | 0.825 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| PFTrDA | | ND | 0.514 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| PFTeDA | | ND | 0.786 | 5.21 | 8.33 | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 112 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| 13C2-PFHxA | IS | 87.3 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| 13C4-PFHpA | IS | 80.9 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| 18O2-PFHxS | IS | 91.5 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| 13C2-PFOA | IS | 61.7 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| 13C8-PFOS | IS | 80.4 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| I3C5-PFNA | IS | 78.0 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| 13C2-PFDA | IS | 72.6 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| d3-MeFOSAA | IS | 65.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| 13C2-PFUnA | IS | 50.7 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| d5-EtFOSAA | IS | 54.7 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| 13C2-PFDoA | IS | 58.2 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| 13C2-PFTeDA | IS | 52.7 | | 50 - 150 | | | B8B0130 | 22-Feb-18 | 0.120 L | 28-Feb-18 12:20 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | LCL-UCL- | Lower control li | mit - upper control lim | it | | | PFOA and PFOS | | ear and branched isome | IS. |

per 5/30/18

Only the linear isomer is reported for all other analytes

Work Order 1800342 Page 33 of 39

Results reported to the DL

LOQ - Limit of quantitation



DATA VALIDATION SUMMARY REPORT NAS WHIDBEY ISLAND, WASHINGTON

Client: CH2M HILL, Inc., Corvallis, Oregon

SDG: 1800346

Laboratory: Vista Analytical Laboratory, El Dorado Hills, California
Site: NAS Whidbey Island, Ault Field, CTO-4041, Washington

Date: May 30, 2018

| | | PFCs | |
|--------|--------------------------|----------------------|--------|
| EDS ID | Client Sample ID | Laboratory Sample ID | Matrix |
| 1 | WI-AF-SB-FB01-021418 | 1800346-01 | Water |
| 2 | WI-AF-SB-FB01-021318 | 1800346-02 | Water |
| 3 | WI-AF-SB615-6768-0218 | 1800346-03 | Soil |
| 3MS | WI-AF-SB615-6768-0218MS | 1800346-03MS | Soil |
| 3MSD | WI-AF-SB615-6768-0218MSD | 1800346-03MSD | Soil |
| 4 | WI-AF-SB615-0001-0218 | 1800346-04 | Soil |
| 5 | WI-AF-SB615-0506-0218 | 1800346-05 | Soil |

A full data validation was performed on the analytical data for three soil samples and two aqueous field blank samples collected on February 13-14, 2018 by CH2M HILL at the NAS Whidbey Island Ault Field 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 Method References
PFCs (Soil) VAL Method PFAS

PFCS (Water) USEPA Method 537 Modified

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, the Final Sampling and Analysis Plan Phase I Site Investigation for Per- and Polyfluoroalkyl Substances in Soil and Groundwater Ault Field, February 2018, and the USEPA National Functional Guidelines for Organic Data Review as follows:

- The USEPA "Contract Laboratories Program National Functional Guidelines for Organic Superfund Methods Data Review," January 2017;
- 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
- 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 (Level IV) data validation was performed with this review including a recalculation of 10% of the detected results in the samples.

Data Usability Assessment

There were no rejections of data.

Overall the data is 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 Compounds (PFCs)

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 water samples were extracted within 14 days and analyzed within 28 days. All soil samples were extracted within 28 days and analyzed within 30 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 samples were free of contamination.

| Blank ID | Compound | Conc. ng/L | Qualifier | Affected Samples |
|----------------------|-----------|------------|-----------|-------------------|
| WI-AF-SB-FB01-021318 | PFOS | 2.08 | U | 4 |
| WI-AF-EB01-021318 | None - ND | | | 2 |
| WI-AF-EB02-021418 | None - ND | | - | |
| WI-AF-SB-FB01-021418 | PFOS | 2.20 | None | All Associated ND |

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

• The MS/MSD samples exhibited acceptable percent recoveries (%R) and RPD values except for the following.

| MS/MSD Sample | Compound | MS %R/MSD %R/RPD | Qualifier |
|---------------|----------|------------------|------------------|
| 3 | PFHxA | OK/134%/OK | None - Sample ND |
| 10 | PFHpA | OK/131%/OK | None - Sample ND |
| | PFHxS | OK/132%/OK | None - Sample ND |
| | PFOA | 131%/131%/OK | None - Sample ND |
| 12 | PFDA | OK/131%/OK | None - Sample ND |
| | EtFOSAA | 143%/136%/OK | None - Sample ND |
| | PFTeDA | 145%/133%/OK | None - Sample ND |

Laboratory Control Samples

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

Internal Standard (IS) Area Performance

• All internal standards met response and retention time (RT) criteria except for the following.

| EDS Sample ID | Compound | %R | Qualifier |
|---------------|-----------|-------|----------------------|
| 4 | 13C3-PFBS | 43.5% | UJ - Associated Cmpd |

Target Compound Identification

• All mass spectra and quantitation criteria were met.

Compound Quantitation

• All criteria were met.

Field Duplicate Sample Precision

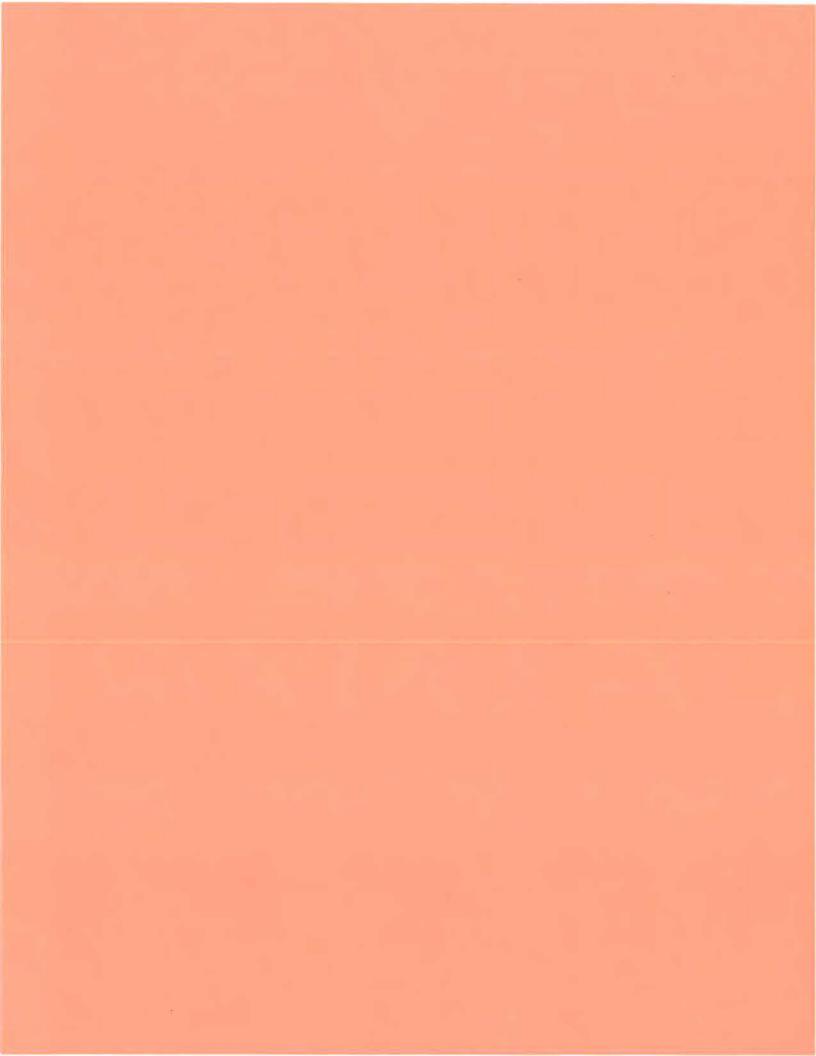
• Field duplicate samples were not collected.

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed:

Nancy Weaver Senior Chemist Dated: 6

| Data Qualifier | Definition |
|-------------------|--|
| U | The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit. |
| J | The analyte is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample. |
| NJ | The analysis has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the samples. |
| UJ | The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise. |
| R | The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the samples. |





| PFBS | od 537 | Sample ID: WI-AF-SB-FB01-021418 Modified EPA Method 5 | | | | | | | | | | | | |
|---|----------|---|-----------|-----------|---------|-------------|------|----------|-------|------------|------|------------------|-----------------------------------|--|
| PFBS | | ВЕН С18 | Column: | | | Lab Sample: | | 1 | | | | NASWI Ault Field | Name: CH2M Hi Project: NASWI A | |
| PFHNA | Dilutio | Analyzed | Samp Size | Extracted | Batch | Qualifiers | LOQ | LOD | DL | nc. (ng/L) | | | Analyte | |
| PFHA | 1 | 07-Mar-18 23:16 | 0.117 L | 26-Feb-18 | B8B0147 | | 8.54 | 5.34 | 1.91 | ND | | | | |
| PFHpA | i | | | | | | | 5.34 | 2.33 | ND | | | PFHxA | |
| PFHS ND 1.01 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOA ND 0.695 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOS 2.20 0.861 5.34 8.54 J B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFNA ND 0.864 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFNA ND 1.59 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFDA ND 1.76 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFUA ND 1.76 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFUA ND 1.12 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFUA ND 1.16 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFUA ND 0.845 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFDA ND 0.845 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFDA ND 0.845 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFDA ND 0.896 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFDA ND 0.896 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFDA ND 0.896 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFDA ND 0.896 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFDA ND 0.896 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFDA ND 0.896 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFDA ND 0.896 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFDA ND 0.896 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFDA ND 0.896 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFDA ND 0.896 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFDA ND 0.896 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFDA ND 0.896 5.34 8.54 B8B0147 26-Feb-18 0.117 L | 1 | 07-Mar-18 23:16 | | 26-Feb-18 | B8B0147 | | 8.54 | 5.34 | 0.631 | ND | | | PFHpA | |
| PFOS S.2.0 0.861 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOS 2.20 0.861 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOS ND 0.864 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOA ND 1.59 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOA ND 1.76 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOB ND 1.12 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOB ND 1.16 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOB ND 0.845 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOB ND 0.857 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOB ND 0.857 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOB ND 0.857 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOB ND 0.857 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOB ND 0.857 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOB ND 0.857 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOB ND 0.857 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOB ND 0.857 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOB ND 0.856 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOB ND 0.856 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOB ND 0.856 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOB ND 0.856 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOB ND 0.856 0.150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOB ND 0.856 0.150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOB ND 0.856 0.150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOB 0.150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFOB 0.150 | 1 | | | | B8B0147 | | 8.54 | 5.34 | 1.01 | ND | | | PFHxS | |
| PFOS | 1 | | | 26-Feb-18 | B8B0147 | | 8.54 | 5.34 | 0.695 | ND | | | PFOA | |
| PFNA ND 0.864 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFDA ND 1.59 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 MeFOSAA ND 1.76 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFUnA ND 1.12 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 EFOSAA ND 1.46 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFDOA ND 0.845 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFTDA ND 0.806 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFTDA ND 0.806 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 BED4 1.55 ND 0.806 5.34 8.54< | 1 | | | | B8B0147 | J | 8.54 | 5.34 | 0.861 | 2.20 | | | | |
| PFDA ND 1.59 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 MeFOSAA ND 1.76 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFUAA ND 1.16 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 EFOSAA ND 1.46 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFDOA ND 0.845 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFTrDA ND 0.527 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFTeDA ND 0.527 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFTeDA ND 0.527 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFTeDA ND 0.527 5.015 B8B0147 | 1 | | | 26-Feb-18 | B8B0147 | | 8.54 | 5.34 | 0.864 | ND | | | PFNA | |
| PFUnA | 1 | | | 26-Feb-18 | B8B0147 | | 8.54 | 5.34 | 1.59 | ND | | | | |
| PFUnA ND | 1 | 07-Mar-18 23:16 | 0.117 L | 26-Feb-18 | B8B0147 | | 8.54 | 5.34 | 1.76 | ND | | | MeFOSAA | |
| PFDOA ND 0.845 5.34 8.54 BBB 0147 26-Feb-18 0.117 L 07-Mar-18 23:16 | 1 | | 0.117 L | 26-Feb-18 | B8B0147 | | 8.54 | 5.34 | 1.12 | ND | | | PFUnA | |
| PFDOA ND 0.845 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFTrDA ND 0.527 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFTeDA ND 0.806 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 PFTeDA ND 0.806 5.34 8.54 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 Rabeled Standards Type % Recovery Limits Qualifiers Batch Extractor Samp Size Analyzed Analyzed Samp Size Samp Size Analyzed Samp Size Samp Size Analyzed Samp Size Samp Size Analyzed Samp Size Analyzed Samp Size Analyzed Samp Size Samp Size Samp Size Analyzed Samp Size Samp Size Samp Size Samp Size Samp Size Samp Size Samp Size Samp Size Samp Size Samp Size Samp Size Samp Size Samp Size | 1 | 07-Mar-18 23:16 | 0.117 L | 26-Feb-18 | B8B0147 | | 8.54 | 5.34 | 1.46 | ND | | | | |
| ND 0.806 5.34 8.54 88B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 | 1 | | 0.117 L | 26-Feb-18 | B8B0147 | | 8.54 | 5.34 | 0.845 | ND | | | PFDoA | |
| Labeled Standards Type % Recovery Limits Qualifiers Batch Extracted Samp Size Analyzed 13C3-PFBS 1S 112 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFHxA 1S 101 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C4-PFHpA 1S 102 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 18O2-PFHxS 1S 106 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFOA 1S 91.1 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFOA 1S 91.1 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFOA 1S 90.8 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFDA 1S 79.0 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 | 1 | 07-Mar-18 23:16 | 0.117 L | 26-Feb-18 | B8B0147 | | 8.54 | 5.34 | 0.527 | ND | | | | |
| 13C3-PFBS IS 112 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFHxA 1S 101 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C4-PFHpA IS 102 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 18O2-PFHxS IS 106 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFOA IS 91.1 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C8-PFOS IS 104 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C5-PFNA IS 90.8 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFDA IS 76.2 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 43-MeFOSAA IS 79.0 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFU | 1 | 07-Mar-18 23:16 | 0.117 L | 26-Feb-18 | B8B0147 | | 8.54 | 5.34 | 0.806 | ND | | | | |
| 13C2-PFHxA 1S 101 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C4-PFHpA IS 102 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 18O2-PFHxS IS 106 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFOA IS 91.1 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C8-PFOS IS 104 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C5-PFNA IS 90.8 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFDA IS 76.2 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 d3-MeFOSAA IS 79.0 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 d5-EtFOSAA IS 79.7 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 d5-EtF | Dilution | Analyzed I | Samp Size | Extracted | Batch | Qualifiers | | Limits | | 6 Recovery | Type | rds | Labeled Standar | |
| 13C2-PFHxA 1S 101 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C4-PFHpA 1S 102 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 18O2-PFHxS 1S 106 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFOA 1S 91.1 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C8-PFOS 1S 104 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C5-PFNA 1S 90.8 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFDA 1S 76.2 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 d3-MeFOSAA 1S 79.0 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 d5-EtFOSAA 1S 82.0 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 d5-EtFOSAA 1S 82.0 50 - 150 B8B0147 26-Feb-18 0.117 | 1 | 07-Mar-18 23:16 | 0.117 L | 26-Feb-18 | B8B0147 | | | 50 - 150 | | 112 | IS | | 13C3-PFBS | |
| 18O2-PFHxS IS 106 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFOA IS 91.1 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C8-PFOS IS 104 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C5-PFNA IS 90.8 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFDA IS 76.2 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 d3-MeFOSAA IS 79.0 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFUnA IS 79.7 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 d5-EtFOSAA IS 82.0 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 d5-EtFOSAA IS 85.7 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 | 1 | 07-Mar-18 23:16 | 0.117 L | 26-Feb-18 | B8B0147 | | | 50 - 150 | | 101 | IS | | | |
| 13C2-PFOA IS 91.1 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C8-PFOS IS 104 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C5-PFNA IS 90.8 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFDA IS 76.2 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 d3-MeFOSAA IS 79.0 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFUnA IS 79.7 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 d5-EtFOSAA IS 82.0 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 d5-EtFOSAA IS 85.7 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 d5-EtFOSAA IS 85.7 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 | 1 | 07-Mar-18 23:16 | 0.117 L | 26-Feb-18 | B8B0147 | | | 50 - 150 | | 102 | IS | | 13C4-PFHpA | |
| 13C8-PFOS 1S 104 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C5-PFNA IS 90.8 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFDA IS 76.2 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 d3-MeFOSAA IS 79.0 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFUnA IS 79.7 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 d5-EtFOSAA IS 82.0 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFDoA IS 85.7 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 | 1 | 07-Mar-18 23:16 | 0.117 L | 26-Feb-18 | B8B0147 | | | 50 - 150 | | 106 | | | | |
| 13C5-PFNA IS 90.8 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFDA IS 76.2 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 d3-MeFOSAA IS 79.0 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFUnA IS 79.7 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 d5-EtFOSAA IS 82.0 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFDoA IS 85.7 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 | 1 | | | 26-Feb-18 | B8B0147 | | | 50 - 150 | | 91.1 | IS | | 13C2-PFOA | |
| 13C2-PFDA IS 76.2 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 d3-MeFOSAA IS 79.0 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFUnA IS 79.7 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 d5-EtFOSAA IS 82.0 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFDoA IS 85.7 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 | 1 | 07-Mar-18 23:16 | 0.117 L | 26-Feb-18 | B8B0147 | | | 50 - 150 | | 104 | 1S | | 13C8-PFOS | |
| 13C2-PFDA IS 76.2 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 d3-MeFOSAA IS 79.0 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFUnA IS 79.7 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 d5-EtFOSAA IS 82.0 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFDoA IS 85.7 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 | 1 | | 0.117 L | 26-Feb-18 | B8B0147 | | | 50 - 150 | | 90.8 | IS | | | |
| 13C2-PFUnA IS 79.7 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 d5-EtFOSAA IS 82.0 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFDoA IS 85.7 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 | 1 | | 0.117 L | 26-Feb-18 | B8B0147 | | | 50 - 150 | | 76.2 | | | 13C2-PFDA | |
| 13C2-PFUnA IS 79.7 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 d5-EtFOSAA IS 82.0 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 13C2-PFDoA IS 85.7 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 | 1 | 07-Mar-18 23:16 | 0.117 L | 26-Feb-18 | B8B0147 | | | 50 - 150 | | 79.0 | IS | | d3-MeFOSAA | |
| 13C2-PFDoA IS 85.7 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 | 1 | | | 26-Feb-18 | B8B0147 | | | 50 - 150 | | 79.7 | | | 13C2-PFUnA | |
| 13C2-PFDoA IS 85.7 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 | 1 | | | 26-Feb-18 | | | | 50 - 150 | | 82.0 | IS | | d5-EtFOSAA | |
| 13C2-PFTeDA IS 67.1 50 - 150 B8B0147 26-Feb-18 0.117 L 07-Mar-18 23:16 | 1 | | | | B8B0147 | | | 50 - 150 | | 85.7 | IS | | 13C2-PFDoA | |
| | 1 | 07-Mar-18 23:16 | 0.117 L | 26-Feb-18 | B8B0147 | | | 50 - 150 | | 67.1 | IS | | 13C2-PFTeDA | |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes



| Sample ID: WI-AF-SB-FB01-021318 Modified EPA Method 537 | | | | | | | | | | | |
|---|--------------------------|---------------------|---|----------|--|------------|-------------------------------|-----------|------------------------|-----------------|----------|
| Name: CH2M F Project: NASWI Location: MW-61: | Ault Field | Matrix: Date Col | Matrix: Aqueous Date Collected: 13-Feb-18 15:30 | | Laboratory Data Lab Sample: Date Received: | | 1800346-02 21-Feb-18 09:00 | | Column | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 1.98 | 5.53 | 8.84 | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | 1 |
| PFHxA | | ND | 2.41 | 5.53 | 8.84 | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | |
| PFHpA | | ND | 0.653 | 5.53 | 8.84 | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | |
| PFHxS | | ND | 1.05 | 5.53 | 8.84 | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | |
| PFOA | | ND | 0.719 | 5.53 | 8.84 | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | |
| PFOS | | 2.08 | 0.891 | 5.53 | 8.84 | J | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | |
| PFNA | | ND | 0.895 | 5.53 | 8.84 | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | |
| PFDA | | ND | 1.65 | 5.53 | 8.84 | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | |
| MeFOSAA | | ND | 1.82 | 5.53 | 8.84 | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | |
| PFUnA | | ND | 1.16 | 5.53 | 8.84 | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | |
| EtFOSAA | | ND | 1.51 | 5.53 | 8.84 | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | |
| PFDoA | | ND | 0.875 | 5.53 | 8.84 | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Маг-18 23:28 | |
| PFTrDA | | ND | 0.546 | 5.53 | 8.84 | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | |
| PFTeDA | | ND | 0.834 | 5.53 | 8.84 | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 112 | | 50 - 150 | | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | 1 |
| 13C2-PFHxA | IS | 92.8 | | 50 - 150 | | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | |
| I3C4-PFHpA | IS | 94.0 | | 50 - 150 | | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Маг-18 23:28 | |
| 18O2-PFHxS | IS | 92.8 | | 50 - 150 | | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | |
| 13C2-PFOA | IS | 86.3 | | 50 - 150 | | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | |
| 13C8-PFOS | IS | 87.1 | | 50 - 150 | | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | |
| 13C5-PFNA | IS | 90.6 | | 50 - 150 | | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | |
| 13C2-PFDA | IS | 80.6 | | 50 - 150 | | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | |
| d3-MeFOSAA | IS | 67.7 | | 50 - 150 | | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | |
| 13C2-PFUnA | 18 | 60.0 | | 50 - 150 | | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | |
| d5-EtFOSAA | IS | 64.5 | | 50 - 150 | | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | |
| 13C2-PFDoA | IS | 72.7 | | 50 - 150 | | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | |
| I3C2-PFTeDA | IS | 70.1 | | 50 - 150 | | | B8B0147 | 26-Feb-18 | 0.113 L | 07-Mar-18 23:28 | |
| DL - Detection Limit | LOD - Limit of Detection | LCL-UCL- | Lower control lim | | When rep | | | | ar and branched isomer | | |

pur 51301.8

Results reported to the DL

LOQ - Limit of quantitation

Only the linear isomer is reported for all other analytes



| Client Data | | | | | Labo | ratory Data | | | | | |
|-------------------|------------|--|-------|----------|--------------------------------------|-------------|---------------------------------------|-----------|-----------|-----------------|----------|
| Name: CH2M I | Ault Field | Matrix: Soil Date Collected: 14-Feb-18 11:30 | | | Lab Sample: Date Received: % Solids: | | 1800346-03 21-Feb-18 09:00 87.1 | | Column | BEH C18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.386 | 1.06 | 2.13 | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | 1 |
| PFHxA | | ND | 0.216 | 1.06 | 2.13 | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | |
| PFHpA | | ND | 0.218 | 1.06 | 2.13 | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | 1 |
| PFHxS | | ND | 0.330 | 1.06 | 2.13 | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | 1 |
| PFOA | | ND | 0.251 | 1.06 | 2.13 | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | 1 |
| PFOS | | ND | 0.899 | 1.06 | 2.13 | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | |
| PFNA | | ND | 0.189 | 1.06 | 2.13 | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | 1 |
| PFDA | | ND | 0.272 | 1.06 | 2.13 | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | |
| MeFOSAA | | ND | 0.321 | 1.06 | 2.13 | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | 1 |
| PFUnA | | ND | 0.376 | 1.06 | 2.13 | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | 1 |
| EtFOSAA | | ND | 0.341 | 1.06 | 2.13 | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | 1 |
| PFDoA | | ND | 0.293 | 1.06 | 2.13 | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | 1 |
| PFTrDA | | ND | 0.130 | 1.06 | 2.13 | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | 1 |
| PFTeDA | | ND | 0.211 | 1.06 | 2.13 | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 98.9 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | 1 |
| 13C2-PFHxA | IS | 80.7 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | 1 |
| 13C4-PFHpA | IS | 85.8 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | 1 |
| 18O2-PFHxS | 18 | 92.4 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | 1 |
| 13C2-PFOA | IS | 78.5 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | 1 |
| 13C8-PFOS | IS | 88.9 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | 1 |
| 13C5-PFNA | IS | 95.8 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | 1 |
| 13C2-PFDA | IS | 79.6 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | 1 |
| d3-MeFOSAA | IS | 72 .7 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | 1 |
| 13C2-PFUnA | IS | 71.3 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | 1 |
| d5-EtFOSAA | IS | 85.8 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | 1 |
| 13C2-PFDoA | IS | 86.7 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | 1 |
| 13C2-PFTeDA | IS | 72.1 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.08 g | 08-Mar-18 05:35 | |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight.
The sample size is reported in wet weight
Results reported to the DL

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.

ble size is reported in wet weight

Work Order 1800346 Page 13 of 20



| s | - PFAS | VAL | | | | | | | | | 0218 | VI-AF-SB615-0001- | Sample ID: V |
|-----|----------|-----------------|-----------|-----------|--------------------------------|--|-------|-------------------|---------------|-----------------------|------|---|--------------------------------------|
| | | BEH C18 | Column: | | 1800346-0 21-Feb-18 78.3 | ratory Data ample: Received: ids: | Lab S | l Feb-18 14:30 | S ected: I | Matrix: Date Colle | | CH2M Hill NASWI Ault Field MW-615 | Client Data Name: Project: Location: |
| n | Dilution | Analyzed | Samp Size | Extracted | Batch | Qualifiers | LOQ | LOD | DL | Conc. (ng/g) | | | Analyte |
| | 1 | 08-Mar-18 05:47 | 1.33 g | 27-Feb-18 | B8B0151 | | 1.92 | 0.960 | 0.348 | ND UJ | | | PFBS |
| | | 08-Mar-18 05:47 | 1.33 g | 27-Feb-18 | B8B0151 | | 1.92 | 0.960 | 0.195 | ND | | | PFHxA |
| | | 08-Mar-18 05:47 | 1.33 g | 27-Feb-18 | B8B0151 | | 1.92 | 0.960 | 0.197 | ND | | | PFHpA |
| - 1 | | 08-Mar-18 05:47 | 1.33 g | 27-Feb-18 | B8B0151 | | 1.92 | 0.960 | 0.298 | ND | | | PFHxS |
| | | 08-Mar-18 05:47 | 1.33 g | 27-Feb-18 | B8B0151 | | 1.92 | 0.960 | 0.227 | ND | | | PFOA |
| - | | 08-Mar-18 05:47 | 1.33 g | 27-Feb-18 | B8B0151 | Y | 1.92 | 0.960 | 0.811 | 1.09 🗸 | | | PFOS |
| | | 08-Mar-18 05:47 | 1.33 g | 27-Feb-18 | B8B0151 | _ | 1.92 | 0.960 | 0.171 | ND | | | PFNA |
| - 1 | | 08-Mar-18 05:47 | 1.33 g | 27-Feb-18 | B8B0151 | | 1.92 | 0.960 | 0.246 | ND | | | PFDA |
| - 1 | | 08-Mar-18 05:47 | 1.33 g | 27-Feb-18 | B8B0151 | | 1.92 | 0.960 | 0.290 | ND | | | MeFOSAA |
| - 1 | | 08-Mar-18 05:47 | _ | | B8B0151 | | 1.92 | 0.960 | 0.340 | ND | | | PFUnA |
| | | 08-Mar-18 05:47 | | | | | 1.92 | 0.960 | 0.308 | ND | | | EtFOSAA |
| - 1 | | 08-Mar-18 05:47 | _ | 27-Feb-18 | B8B0151 | | 1.92 | 0.960 | 0.265 | ND | | | PFDoA |
| - 1 | | 08-Mar-18 05:47 | | | B8B0151 | | 1.92 | 0.960 | 0.117 | ND | | | PFTrDA |
| | | 08-Mar-18 05:47 | _ | 27-Feb-18 | B8B0151 | | 1.92 | 0.960 | 0.190 | ND | | | РFTeDA |
| n | Dilution | | Samp Size | Extracted | Batch | Qualifiers | | Limits | | % Recovery | Туре | rds | Labeled Standaı |
| 1 | 1 | 08-Mar-18 05:47 | 1.33 g | 27-Feb-18 | B8B0151 | H | | 50 - 150 | | 43.5 | IS | | 13C3-PFBS |
| - 1 | 1 | 08-Mar-18 05:47 | 1.33 g | 27-Feb-18 | B8B0151 | | | 50 - 150 | | 63.4 | IS | | 13C2-PFHxA |
| - 1 | 1 | 08-Mar-18 05:47 | 1.33 g | 27-Feb-18 | B8B0151 | | | 50 - 150 | | 65.5 | IS | | I3C4-PFHpA |
| | 1 | 08-Mar-18 05:47 | 1.33 g | 27-Feb-18 | B8B0151 | | | 50 - 150 | | 58.7 | IS | | 18O2-PFHxS |
| - 1 | 1 | 08-Mar-18 05:47 | | 27-Feb-18 | B8B0151 | | | 50 - 150 | | 61.3 | IS | | 13C2-PFOA |
| | 1 | 08-Mar-18 05:47 | _ | 27-Feb-18 | B8B0151 | | | 50 - 150 | | 50.9 | IS | | 13C8-PFOS |
| | 1 | 08-Mar-18 05:47 | - | 27-Feb-18 | B8B0151 | | | 50 - 150 | | 74.5 | IS | | 13C5-PFNA |
| | 1 | 08-Mar-18 05:47 | _ | 27-Feb-18 | B8B0151 | | | 50 - 150 | | 68.5 | IS | | I3C2-PFDA |
| | 1 | 08-Mar-18 05:47 | | 27-Feb-18 | B8B0151 | | | 50 - 150 | | 76.2 | IS | | 13-MeFOSAA |
| | 1 | 08-Mar-18 05:47 | _ | 27-Feb-18 | B8B0151 | | | 50 - 150 | | 78.5 | 1S | | 3C2-PFUnA |
| | 1 | 08-Mar-18 05:47 | _ | 27-Feb-18 | B8B0151 | | | 50 - 150 | | 78.8 | IS | | 15-EtFOSAA |
| | 1 | 08-Mar-18 05:47 | | 27-Feb-18 | B8B0151 | | | 50 - 150 | | 70.8 | 1S | | 13C2-PFDoA |
| | 1 | 08-Mar-18 05:47 | | 27-Feb-18 | B8B0151 | | | 50 - 150 | | 78.4 | IS | | 13C2-PFTeDA |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight
The sample size is reported in wet weight
Results reported to the DL

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

m 5/30/18



| Sample ID: WI | -AF-SB615-0506- | 0218 | | | | | | | | | VAL | - PFAS |
|----------------------|---|------------------------|----------------------|---------------------|-------------------------|-------|--------------------------------|--------------------------------|---------------|-------------------|------------------------|----------|
| Project: | CH2M Hill NASWI Ault Field MW-615 | | Matrix: Date Coll | Soil ected: 13-1 | Feb-18 14:45 | Lab S | Pratory Data Sample: Received: | 1800346-0 21-Feb-18 79.1 | | Column | ВЕН С18 | |
| Analyte | | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | | ND | 0.382 | 1.05 | 2.11 | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | 1 |
| PFHxA | | | ND | 0.214 | 1.05 | 2.11 | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | |
| PFHpA | | | ND | 0.216 | 1.05 | 2.11 | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | 1 |
| PFHxS | | | ND | 0.327 | 1.05 | 2.11 | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | |
| PFOA | | | ND | 0.249 | 1.05 | 2.11 | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | |
| PFOS | | | ND | 0.890 | 1.05 | 2.11 | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | 1 |
| PFNA | | | ND | 0.188 | 1.05 | 2.11 | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | 1 |
| PFDA | | | ND | 0.270 | 1.05 | 2.11 | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | |
| MeFOSAA | | | ND | 0.318 | 1.05 | 2.11 | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | 1 |
| PFUnA | | | ND | 0.373 | 1.05 | 2.11 | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | 1 |
| EtFOSAA | | | ND | 0.338 | 1.05 | 2.11 | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | |
| PFDoA | | | ND | 0,291 | 1.05 | 2.11 | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | |
| PFTrDA | | | ND | 0.129 | 1.05 | 2.11 | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | 1 |
| PFTeDA | | | ND | 0.209 | 1.05 | 2.11 | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | 1 |
| Labeled Standard | S | Туре | % Recovery | | Limits | 7 | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | | IS | 106 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | 1 |
| 13C2-PFHxA | | IS | 90.1 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | 1 |
| 13C4-PFHpA | | IS | 90.3 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | 1 |
| 18O2-PFHxS | | IS | 80.6 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | 1 |
| 13C2-PFOA | | IS | 93.3 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | 1 |
| 13C8-PFOS | | IS | 95.5 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | 1 |
| 13C5-PFNA | | IS | 89.7 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | 1 |
| 13C2-PFDA | | IS | 81.8 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | 1 |
| d3-MeFOSAA | | IS | 79.4 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | 1 |
| 13C2-PFUnA | | IS | 79.9 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | . 1 |
| d5-EtFOSAA | | IS | 91.7 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | 1 |
| 13C2-PFDoA | | IS | 0.18 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | 1 |
| 13C2-PFTeDA | | IS | 99.1 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.20 g | 08-Mar-18 05:58 | 1 |
| DL - Detection Limit | 1.01 |) - Limit of Detection | LCL-DCL- | Lower control li | mit - upper control lim | | When re | norted PEHvS | PEOA and PEOS | include both line | ear and branched isome | TU |

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight
The sample size is reported in wet weight
Results reported to the DL

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.

NW 5130/18

Work Order 1800346 Page 16 of 20



DATA VALIDATION SUMMARY REPORT NAS WHIDBEY ISLAND, WASHINGTON

Client: CH2M HILL, Inc., Corvallis, Oregon

SDG: 1800353

Laboratory: Vista Analytical Laboratory, El Dorado Hills, California
Site: NAS Whidbey Island, Ault Field, CTO-4041, Washington

Date: May 30, 2018

| | | PFCs | |
|--------|-------------------|----------------------|--------|
| EDS ID | Client Sample ID | Laboratory Sample ID | Matrix |
| 1 | WI-AF-N2-5-0218 | 1800353-01 | Water |
| 2 | WI-AF-FB01-022018 | 1800353-02 | Water |
| 3 | WI-AF-MW-3-0218 | 1800353-03 | Water |
| 4 | WI-AF-MW-202-0218 | 1800353-04 | Water |
| 5 | WI-AF-MW-204-0218 | 1800353-05 | Water |
| 6 | WI-AF-MW-114-0218 | 1800353-06 | Water |
| 7 | WI-AF-EB03-022018 | 1800353-07 | Water |

A full data validation was performed on the analytical data for five water samples, one aqueous field blank sample, and one aqueous equipment blank sample collected on February 20, 2018 by CH2M HILL at the NAS Whidbey Island Ault Field 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 Method References
PFCs USEPA Method 537 Modified

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, the Final Sampling and Analysis Plan Phase I Site Investigation for Per- and Polyfluoroalkyl Substances in Soil and Groundwater Ault Field, February 2018, and the USEPA National Functional Guidelines for Organic Data Review as follows:

- The USEPA "Contract Laboratories Program National Functional Guidelines for Organic Superfund Methods Data Review," January 2017;
- 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
- 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 (Level IV) data validation was performed with this review including a recalculation of 10% of the detected results in the samples.

Data Usability Assessment

There were no rejections of data.

Overall the data is 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 Compounds (PFCs)

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 exhibited the following contamination.

| Blank ID | Compound | Conc. ng/L | Qualifier | Affected Samples |
|--------------|----------|------------|-----------|------------------|
| B8B0157-BLK1 | PFOA | 0.374 | U | 7 |

Field QC Blank

• Field QC samples were free of contamination.

| Blank ID | Compound | Conc. ng/L | Qualifier | Affected Samples |
|-------------------|-----------|------------|-----------|------------------|
| WI-AF-FB01-022018 | None - ND | | | |
| WI-AF-EB03-022018 | None - ND | | - 44 | - |

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

• The MS/MSD samples were not analyzed.

Laboratory Control Samples

• 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

Several samples were 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 were not collected.

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed:

laugheaver Dated: 61.1.8

Nancy Weaver

Senior Chemist

| Data Qualifier | Definition |
|-------------------|--|
| U | The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit. |
| J | The analyte is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample. |
| NJ | The analysis has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the samples. |
| UJ | The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise. |
| R | The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the samples. |





| Sample ID: WI-AF-N2 | 2-5-0218 | | | | | | | | Mod | ified EPA Meth | 10d 537 |
|--|--------------------------|---------------------|---|--------------------------|---|------------|---------------|---------------|-------------------|-------------------------|----------|
| Client Data Name: CH2M H Project: 695610.0 | | Matrix: Date Col | latrix: Aqueous ate Collected: 20-Feb-18 09:55 | | Lab Sample: 1800353-01 Date Received: 22-Feb-18 09:13 | | | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | 38.8 | 2.01 | 5.63 | 8.99 | | B8B0157 | 27-Feb-18 | 0.111 L | 11-Mar-18 01:35 | 1 |
| PFHxA | | 330 | 2.45 | 5.63 | 8.99 | | B8B0157 | 27-Feb-18 | 0.111 L | 11-Mar-18 01:35 | 1 |
| PFHpA | | 223 | 0.664 | 5.63 | 8.99 | | B8B0157 | 27-Feb-18 | 0.111 L | 11-Mar-18 01:35 | 1 |
| PFHxS | | 995 | 1.06 | 5.63 | 8.99 | | B8B0157 | 27-Feb-18 | 0.111 L | 11-Mar-18 01:35 | 1 |
| PFOA | | 338 | 0.732 | 5.63 | 8.99 | R | B8B0157 | 27-Feb-18 | 0.111 L | 11-Mar-18 01:35 | 1 |
| PFOS | | 14500 | 9.07 | 56.3 | 89.9 | B | B8B0157 | 27-Feb-18 | 0.111 L | 08-Mar-18 23:03 | |
| PFNA | | 50.9 | 0.910 | 5.63 | 8.99 | | B8B0157 | 27-Feb-18 | 0.111 L | 11-Mar-18 01:35 | 1 |
| PFDA | | 22.3 | 1.67 | 5.63 | 8.99 | | B8B0157 | 27-Feb-18 | 0.111 L | 11-Mar-18 01:35 | 1 |
| MeFOSAA | | - ND | 1.85 | 5.63 | 8.99 | | B8B0157 | 27-Feb-18 | 0.111 L | 11-Mar-18 01:35 | 1 |
| PFUnA | | ND | 1.18 | 5.63 | 8.99 | | B8B0157 | 27-Feb-18 | 0.111 L | 11-Mar-18 01:35 | 1 |
| EtFOSAA | | ND | 1.54 | 5.63 | 8.99 | | B8B0157 | 27-Feb-18 | 0.111 L | 11-Mar-18 01:35 | 1 |
| PFDoA | | ND | 0.890 | 5.63 | 8.99 | | B8B0157 | 27-Feb-18 | 0.111 L | 11-Mar-18 01:35 | 1 |
| PFTrDA | | ND | 0.555 | 5.63 | 8.99 | | B8B0157 | 27-Feb-18 | 0.111 L | 11-Mar-18 01:35 | 1 |
| PFTeDA | | ND | 0.849 | 5.63 | 8.99 | | B8B0157 | 27-Feb-18 | 0.111 L | 11-Маг-18 01:35 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 102 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.111 L | 11-Mar-18 01:35 | 1 |
| 13C2-PFHxA | IS | 93.6 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.111 L | 11-Mar-18 01:35 | 1 |
| 13C4-PFHpA | IS | 104 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.111 L | 11-Mar-18 01:35 | 1 |
| 18O2-PFHxS | IS | 87.4 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.111 L | 11-Mar-18 01:35 | 1 |
| 13C2-PFOA | IS | 91.0 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.111 L | 11-Mar-18 01:35 | 1 |
| 13C8-PFOS | IS | 87.7 | | 50 - 150 | | Ø | B8B0157 | 27-Feb-18 | 0.111 L | 08-Mar-18 23:03 | 10 |
| 13C5-PFNA | IS | 86.5 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.111 L | 11-Mar-18 01:35 | 1 |
| 13C2-PFDA | IS | 75.7 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.111 L | 11-Mar-18 01:35 | 1 |
| d3-MeFOSAA | IS | 60.5 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.111 L | 11-Mar-18 01:35 | 1 |
| 13C2-PFUnA | IS | 79.2 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.111 L | 11-Mar-18 01:35 | 1 |
| d5-EtFOSAA | IS | 63.7 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.111 L | 11-Mar-18 01:35 | 1 |
| 13C2-PFDoA | IS | 87.9 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.111 L | 11-Mar-18 01:35 | 1 |
| 13C2-PFTeDA | IS | 86.5 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.111 L | 11-Mar-18 01:35 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | LCL-UCL | - Lower control lin | nit - upper control limi | | When rep | outed, PFHxS, | PFOA and PFOS | include both line | ear and branched isomer | rs |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL

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



| Sample ID: WI-AF-FE | 301-022018 | | | | | | | | Mod | ified EPA Metl | nod 537 |
|--|--------------------------|----------------------|-------------------|---------------------------|--------------------------------------|------------------------|-----------------|---------------|-------------------|------------------------|----------|
| Client Data Name: CH2M H Project: 695610.0 | | Matrix: Date Coll | Aqueous Lab S | | oratory Data Sample: Received: | 1800353-0 22-Feb-18 | | Column: | ВЕН С18 | | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 1.87 | 5.21 | 8.36 | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | 1 |
| PFHxA | | ND | 2.28 | 5.21 | 8.36 | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | |
| PFHpA | | ND | 0.618 | 5.21 | 8.36 | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | |
| PFHxS | | ND | 0.990 | 5.21 | 8.36 | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | |
| PFOA | | ND | 0.681 | 5.21 | 8.36 | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | |
| PFOS | | ND | 0.844 | 5.21 | 8.36 | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | |
| PFNA | | ND | 0.847 | 5.21 | 8.36 | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | |
| PFDA | | ND | 1.56 | 5.21 | 8.36 | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | |
| MeFOSAA | | ND | 1.72 | 5.21 | 8.36 | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | |
| PFUnA | | ND | 1.10 | 5.21 | 8.36 | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | |
| EtFOSAA | | ND | 1.43 | 5.21 | 8.36 | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | |
| PFDoA | | ND | 0.828 | 5.21 | 8.36 | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | |
| PFTrDA | | ND | 0.516 | 5.21 | 8.36 | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | |
| PFTeDA | | ND | 0.789 | 5.21 | 8.36 | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 111 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | 1 |
| 13C2-PFHxA | IS | 97.8 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | 1 |
| 13C4-PFHpA | IS | 107 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | 1 |
| 18O2-PFHxS | IS | 97.4 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | 1 |
| 13C2-PFOA | IS | 92.0 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | 1 |
| 13C8-PFOS | IS | 81.0 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | 1 |
| 13C5-PFNA | IS | 95.2 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | 1 |
| 13C2-PFDA | IS | 66.7 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | 1 |
| d3-MeFOSAA | IS | 55.5 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | 1 |
| 13C2-PFUnA | IS | 66.8 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | 1 |
| d5-EtFOSAA | IS | 56.4 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | 1 |
| 13C2-PFDoA | IS | 74.4 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | 1 |
| 13C2-PFTeDA | IS | 96.2 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.120 L | 11-Mar-18 01:12 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | LCL-UCL- | Lower control lin | nit - upper control limit | | When rep | orted, PFHxS, 1 | PFOA and PFOS | include both line | ar and branched isomer | rs: |

M 5130 1.8

Only the linear isomer is reported for all other analytes

Results reported to the DL

LOQ - Limit of quantitation

Work Order 1800353



| 0u 33 / | ified EPA Meth | Wida | | | | | | | | 0210 | Sample ID: WI-AF-MW-3 |
|----------|-----------------|-----------|-----------|------------------------|------------------------------------|-------|-------------------|-------|-----------------------|------|---|
| | BEH C18 | Column: | | 1800353-0 22-Feb-18 | ratory Data ample: Received: | Lab S | ous b-18 11:40 | Aque | Matrix: Date Colle | FS | Name: CH2M Hill Project: 695610.04.F |
| Dilution | Analyzed | Samp Size | Extracted | Batch | Qualifiers | LOQ | LOD | DL | Conc. (ng/L) | | Analyte |
| 1 | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | | 8.52 | 5.34 | 1.91 | 49.0 | | PFBS |
| 1 | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | | 8.52 | 5.34 | 2.32 | 363 | | PFHxA |
| 1 | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | | 8.52 | 5.34 | 0.629 | 371 | | PFHpA |
| 1 | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | | 8.52 | 5.34 | 1.01 | 1020 | | PFHxS |
| 1 | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | Æ | 8.52 | 5.34 | 0.693 | 312 | | PFOA |
| 5 | 08-Mar-18 23:15 | 0.117 L | 27-Feb-18 | B8B0157 | Ø | 42.6 | 26.7 | 4.30 | 6050 | | PFOS |
| 1 | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | | 8.52 | 5.34 | 0.862 | 45.9 | | PFNA |
| 1 | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | J | 8.52 | 5.34 | 1.59 | 6.64 | | PFDA |
| 1 | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | | 8.52 | 5.34 | 1.76 | ND | | MeFOSAA |
| 1 | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | | 8.52 | 5.34 | 1.12 | ND | | PFUnA |
| 1 | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | | 8.52 | 5.34 | 1.46 | ND | | EtFOSAA |
| 1 | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | | 8.52 | 5.34 | 0.843 | ND | | PFDoA |
| 1 | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | | 8.52 | 5.34 | 0.526 | ND | | PFTrDA |
| 1 | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | | 8.52 | 5.34 | 0.804 | ND | | PFTeDA |
| Dilution | | Samp Size | Extracted | Batch | Qualifiers | | Limits | | % Recovery | Туре | Labeled Standards |
| 1 | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | | | 50 - 150 | | 98.1 | IS | 13C3-PFBS |
| 1 | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | | | 50 - 150 | | 94.7 | IS | 13C2-PFHxA |
| 1 | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | | | 50 - 150 | | 94.0 | IS | 13C4-PFHpA |
| 1 | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | | | 50 - 150 | | 96.5 | IS | 18O2-PFHxS |
| 1 | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | | | 50 - 150 | | 91.6 | IS | 13C2-PFOA |
| 5 | 08-Mar-18 23:15 | 0.117 L | 27-Feb-18 | B8B0157 | Ð | | 50 - 150 | | 79.8 | IS | 13C8-PFOS |
| 1 | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | | | 50 - 150 | | 87.4 | IS | 13C5-PFNA |
| 1 | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | | | 50 - 150 | | 83.0 | IS | 13C2-PFDA |
| 1 | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | | | 50 - 150 | | 67.4 | IS | d3-MeFOSAA |
| 1 | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | | | 50 - 150 | | 90.6 | IS | 13C2-PFUnA |
| 1 | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | | | 50 - 150 | | 68.2 | IS | d5-EtFOSAA |
| 1 | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | | | 50 - 150 | | 88.8 | IS | 13C2-PFDoA |
| | 11-Mar-18 01:47 | 0.117 L | 27-Feb-18 | B8B0157 | | | 50 - 150 | | 121 | IS | 13C2-PFTeDA |

rw 5/30/18

Results reported to the DL

LOQ - Limit of quantitation

Only the linear isomer is reported for all other analytes

Work Order 1800353



| Sample ID: WI- | -AF-MW-202-021 | 8 | | | | | | | | Mod | ified EPA Meth | od 537 |
|-------------------|-----------------|------|----------------------|---|----------|------|----------------------|------------------------|-----------|-----------|-----------------|----------|
| | Name: CH2M Hill | | Matrix: Date Coll | Matrix: Aqueous Date Collected: 20-Feb-18 11:35 | | | Gample: Received: | 1800353-0 22-Feb-18 | | Column: | BEH C18 | |
| Analyte | | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | | 126 | 1.99 | 5.53 | 8.88 | | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | 1 |
| PFHxA | | | 1020 | 2.42 | 5.53 | 8.88 | | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | 1 |
| PFHpA | | | 735 | 0.656 | 5.53 | 8.88 | | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | 1 |
| PFHxS | | | 3870 | 1.05 | 5.53 | 8.88 | | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | 1 |
| PFOA | | | 815 | 0.723 | 5.53 | 8.88 | 老 | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | 1 |
| PFOS | | | 10900 | 8.96 | 55,3 | 88.8 | Ø | B8B0157 | 27-Feb-18 | 0.113 L | 08-Mar-18 23:26 | 10 |
| PFNA | | | 160 | 0.900 | 5.53 | 8.88 | | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | 1 |
| PFDA | | | 63.2 | 1.65 | 5.53 | 8.88 | | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | 1 |
| MeFOSAA | | | ND | 1.83 | 5.53 | 8.88 | | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | 1 |
| PFUnA | | | 11.1 | 1.17 | 5.53 | 8.88 | | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | 1 |
| EtFOSAA | | | ND | 1.52 | 5.53 | 8.88 | | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | 1 |
| PFDoA | | | ND | 0.880 | 5.53 | 8.88 | | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | 1 |
| PFTrDA | | | ND | 0.549 | 5.53 | 8.88 | | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | 1 |
| PFTeDA | | | ND | 0.838 | 5.53 | 8.88 | | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | 1 |
| Labeled Standards | | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | | IS | 102 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | 1 |
| I3C2-PFHxA | | IS | 93.0 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | 1 |
| 13C4-PFHpA | | IS | 95.5 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | - 1 |
| 18O2-PFHxS | | IS | 93.3 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | 1 |
| 13C2-PFOA | | IS | 85.0 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | 1 |
| 13C8-PFOS | | IS | 91.9 | | 50 - 150 | | D | B8B0157 | 27-Feb-18 | 0.113 L | 08-Маг-18 23:26 | 10 |
| 13C5-PFNA | | IS | 78.0 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | 1 |
| 13C2-PFDA | | IS | 74.3 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | 1 |
| d3-MeFOSAA | | IS | 71.2 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | 1 |
| 13C2-PFUnA | | IS | 81.4 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | 1 |
| d5-EtFOSAA | | IS | 72.0 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | 1 |
| 13C2-PFDoA | | IS | 85.7 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | 1 |
| 13C2-PFTeDA | | IS | 106 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.113 L | 11-Mar-18 01:58 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.



| Sample ID: WI-AF-M | W-204-0218 | | | | | | | | Mod | ified EPA Metl | hod 537 |
|----------------------|--------------------------|--------------|-------------------|--------------------------|-------|-------------|-----------------|---------------|-------------------|------------------------|----------|
| Client Data | | , | | | Labo | ratory Data | | | | | |
| Name: CH2M F | Hill | Matrix: | Aque | ous | Lab S | Sample: | 1800353-0 |)5 | Column: | BEH C18 | |
| Project: 695610.0 | 04.F1.FS | Date Col | | eb-18 15:40 | | Received: | 22-Feb-18 | | Column. | BEHCI | |
| | | Cons (ng/L) | DI | LOD | 100 | 0 1.6 | D. A. I | F 4 4 1 | 0 0 | | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | 63.6 | 1.90 | 5.30 | 8.47 | | B8B0157 | 27-Feb-18 | 0.118 L | 11-Mar-18 03:10 | |
| PFHxA | | 1470 | 2.31 | 5.30 | 8.47 | | B8B0157 | 27-Feb-18 | 0.118 L | 11-Mar-18 03:10 | 1 |
| PFHpA | | 1140 | 0.626 | 5.30 | 8.47 | | B8B0157 | 27-Feb-18 | 0.118 L | 11-Mar-18 03:10 | 1 |
| PFHxS | | 4580 | 10.0 | 53.0 | 84.7 | P | B8B0157 | 27-Feb-18 | 0.118 L | 08-Mar-18 23:38 | 10 |
| PFOA | | 2520 | 0.689 | 5.30 | 8.47 | P | B8B0157 | 27-Feb-18 | 0.118 L | 11-Mar-18 03:10 | 1 |
| PFOS | | 20600 | 8.54 | 53.0 | 84.7 | D' | B8B0157 | 27-Feb-18 | 0.118 L | 08-Mar-18 23:38 | 10 |
| PFNA | | 378 | 0.858 | 5.30 | 8.47 | | B8B0157 | 27-Feb-18 | 0.118 L | 11-Mar-18 03:10 | 1 |
| PFDA | | 70.7 | 1.58 | 5.30 | 8.47 | | B8B0157 | 27-Feb-18 | 0.118 L | 11-Mar-18 03:10 | 1 |
| MeFOSAA | | ND | 1.75 | 5.30 | 8.47 | | B8B0157 | 27-Feb-18 | 0.118 L | 11-Mar-18 03:10 | 1 |
| PFUnA | | ND | 1.11 | 5.30 | 8.47 | | B8B0157 | 27-Feb-18 | 0.118 L | 11-Mar-18 03:10 | 1 |
| EtFOSAA | | ND | 1.45 | 5.30 | 8.47 | | B8B0157 | 27-Feb-18 | 0.118 L | 11-Mar-18 03:10 | 1 |
| PFDoA | | ND | 0.838 | 5.30 | 8.47 | | B8B0157 | 27-Feb-18 | 0.118 L | 11-Mar-18 03:10 | |
| PFTrDA | | ND | 0.523 | 5.30 | 8.47 | | B8B0157 | 27-Feb-18 | 0.118 L | 11-Mar-18 03:10 | |
| PFTeDA | | ND | 0.799 | 5.30 | 8.47 | | B8B0157 | 27-Feb-18 | 0.118 L | 11-Mar-18 03:10 | |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 104 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.118 L | 11-Mar-18 03:10 | 1 |
| 13C2-PFHxA | IS | 91.8 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.118 L | 11-Mar-18 03:10 | |
| 13C4-PFHpA | IS | 99.9 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.118 L | 11-Mar-18 03:10 | |
| 18O2-PFHxS | IS | 97.9 | | 50 - 150 | | В | B8B0157 | 27-Feb-18 | 0.118 L | 08-Mar-18 23:38 | _ |
| 13C2-PFOA | IS | 91.2 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.118 L | 11-Mar-18 03:10 | |
| 13C8-PFOS | IS | 106 | | 50 - 150 | | D/ | B8B0157 | 27-Feb-18 | 0.118 L | 08-Mar-18 23:38 | |
| 13C5-PFNA | IS | 81.7 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.118 L | 11-Mar-18 03:10 | |
| 13C2-PFDA | IS | 79.2 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.118 L | 11-Mar-18 03:10 | |
| d3-MeFOSAA | IS | 76.3 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.118 L | 11-Mar-18 03:10 | |
| 13C2-PFUnA | IS | 81.0 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.118 L | 11-Mar-18 03:10 | |
| d5-EtFOSAA | IS | 70.2 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.118 L | 11-Mar-18 03:10 | |
| 13C2-PFDoA | IS | 92.9 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.118 L | 11-Mar-18 03:10 | |
| I3C2-PFTeDA | IS | 117 | | 50 - 150 | | | B8B0157 | | 0.118 L | 11-Mar-18 03:10 | |
| DL - Detection Limit | LOD - Limit of Detection | LCL-UCL- | Lower control lim | nit - upper control limi | 1 | When rep | orted, PFHxS, I | PFOA and PFOS | include both line | ar and branched isomer | rs |

New Sl301.8

Results reported to the DL

LOQ - Limit of quantitation

Work Order 1800353

Only the linear isomer is reported for all other analytes



| Sample ID: WI-AF-MV | W-114-0218 | | | | | | | | Mod | ified EPA Metl | hod 537 |
|---|--------------------------|---------------------|--------------------|-------------------------|-------|----------------------|------------------------|-----------|-----------|------------------------|----------|
| Client Data Name: CH2M Hi Project: 695610.0 | | Matrix: Date Col | Aque llected: 20-F | eous eb-18 15:50 | Lab S | Sample: Received: | 1800353-0 22-Feb-18 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | 68.6 | 1.88 | 5.25 | 8.42 | | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | 1 |
| PFHxA | | 544 | 2.30 | 5.25 | 8.42 | | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | - |
| PFHpA | | 368 | 0.622 | 5.25 | 8.42 | | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | |
| PFHxS | | 2280 | 0.997 | 5.25 | 8.42 | | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | |
| PFOA | | 549 | 0.685 | 5.25 | 8.42 | B | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | 1 |
| PFOS | | 29200 | 8.50 | 52.5 | 84.2 | D | B8B0157 | 27-Feb-18 | 0.119 L | 08-Mar-18 23:49 | 10 |
| PFNA | | 84.0 | 0.853 | 5.25 | 8.42 | | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | 1 |
| PFDA | | 22.3 | 1.57 | 5.25 | 8.42 | | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | 1 |
| MeFOSAA | | ND | 1.74 | 5.25 | 8.42 | | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | 1 |
| PFUnA | | ND | 1.11 | 5.25 | 8.42 | | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | 1 |
| EtFOSAA | | ND | 1.44 | 5.25 | 8.42 | | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | 1 |
| PFDoA | | ND | 0.834 | 5.25 | 8.42 | | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | 1 |
| PFTrDA | | ND | 0.520 | 5.25 | 8.42 | | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | 1 |
| PFTeDA | | ND | 0.795 | 5.25 | 8.42 | | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 95.7 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | 1 |
| 13C2-PFHxA | IS | 89.2 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | 1 |
| 13C4-PFHpA | IS | 94.9 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | 1 |
| 18O2-PFHxS | IS | 90.7 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | 1 |
| 13C2-PFOA | IS | 86.0 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | 1 |
| 13C8-PFOS | IS | 83.3 | | 50 - 150 | | xb' | B8B0157 | 27-Feb-18 | 0.119 L | 08-Mar-18 23:49 | 10 |
| 13C5-PFNA | IS | 83.4 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | 1 |
| 13C2-PFDA | IS | 76.0 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | 1 |
| d3-MeFOSAA | IS | 57.1 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | 1 |
| 13C2-PFUnA | IS | 63.2 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | 1 |
| d5-EtFOSAA | IS | 66.5 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | 1 |
| 13C2-PFDoA | IS | 85.3 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | 1 |
| I3C2-PFTeDA | IS | 109 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.119 L | 11-Mar-18 03:56 | 1 |
| DI - Dutaction Limit | LOD - Limit of Datastron | | | nit - upper control lim | | 500 | | | | at and heavehad icomer | |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomets.

Only the linear isomer is reported for all other analytes.



| Sample ID: WI | -AF-EB03-022018 | | | | | | | | | Mod | ified EPA Metl | od 537 |
|------------------|-----------------|------|--------------|-------------|--------------|-------|-------------|-----------|-----------|-----------|-----------------|----------|
| Client Data | | | | | | Labo | ratory Data | | | | | |
| Name: | CH2M Hill | | Matrix: | Aqu | eous | Lab S | Sample: | 1800353-0 |)7 | Column: | BEH C18 | |
| Project: | 695610.04.F1.FS | | Date Coll | ected: 20-F | Feb-18 17:00 | Date | Received: | 22-Feb-18 | 09:13 | | BEITCIO | |
| Analyte | | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | | ND | 1.83 | 5.12 | 8.17 | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| PFHxA | | | ND | 2.23 | 5.12 | 8.17 | | | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| PFHpA | | | ND | 0.603 | 5.12 | 8.17 | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| PFHxS | | | ND | 0.967 | 5.12 | 8.17 | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| PFOA | | | 5.12 0.673 W | 0.664 | 5.12 | 8.17 | J. B | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| PFOS | | | ND | 0.824 | 5.12 | 8.17 | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| PFNA | | | ND | 0.827 | 5.12 | 8.17 | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| PFDA | | | ND | 1.52 | 5.12 | 8.17 | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| MeFOSAA | | | ND | 1.68 | 5.12 | 8.17 | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| PFUnA | | | ND | 1.07 | 5.12 | 8.17 | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| EtFOSAA | | | ND | 1.40 | 5.12 | 8.17 | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| PFDoA | | | ND | 0.808 | 5.12 | 8.17 | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| PFTrDA | | | ND | 0.504 | 5.12 | 8.17 | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| PFTeDA | | | ND | 0.771 | 5.12 | 8.17 | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| Labeled Standard | S | Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | | IS | 83.6 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| I3C2-PFHxA | | IS | 85.9 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| 13C4-PFHpA | | IS | 88.7 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| 18O2-PFHxS | | IS | 83.0 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| 13C2-PFOA | | IS | 85.8 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | -1 |
| 13C8-PFOS | | IS | 96.9 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| I3C5-PFNA | | IS | 85.4 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| 13C2-PFDA | | IS | 70.9 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| l3-MeFOSAA | | IS | 53.4 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| 13C2-PFUnA | | IS | 67.5 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| i5-EtFOSAA | | IS | 55.7 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| 13C2-PFDoA | | IS | 74.4 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |
| 13C2-PFTeDA | | IS | 88.2 | | 50 - 150 | | | B8B0157 | 27-Feb-18 | 0.122 L | 11-Mar-18 01:24 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS 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: 1800356

Laboratory: Vista Analytical Laboratory, El Dorado Hills, California
Site: NAS Whidbey Island, Ault Field, CTO-4041, Washington

Date: May 30, 2018

| PFCs | | | | | | |
|--------|------------------------|----------------------|--------|--|--|--|
| EDS ID | Client Sample ID | Laboratory Sample ID | Matrix | | | |
| 1 | WI-AF-SB-FB-022018 | 1800356-01 | Water | | | |
| 2 | WI-AF-EB11-SO-0218 | 1800356-02 | Water | | | |
| 3 | WI-AF-SB611-0H01-0218 | 1800356-03 | Soil | | | |
| 4 | WI-AF-SB611-0103-0218 | 1800356-04 | Soil | | | |
| 5 | WI-AF-SB611P-0103-0218 | 1800356-05 | Soil | | | |
| 6 | WI-AF-SB611-1213-0218 | 1800356-06 | Soil | | | |

A full data validation was performed on the analytical data for four soil samples, one aqueous field blank sample, and one aqueous equipment blank sample collected on February 20, 2018 by CH2M HILL at the NAS Whidbey Island Ault Field 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 Method References
PFCs (Soil) VAL Method PFAS

PFCS (Water) USEPA Method 537 Modified

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, the Final Sampling and Analysis Plan Phase I Site Investigation for Per- and Polyfluoroalkyl Substances in Soil and Groundwater Ault Field, February 2018, and the USEPA National Functional Guidelines for Organic Data Review as follows:

- The USEPA "Contract Laboratories Program National Functional Guidelines for Organic Superfund Methods Data Review," January 2017;
- · 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
- 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 (Level IV) data validation was performed with this review including a recalculation of 10% of the detected results in the samples.

Data Usability Assessment

There were no rejections of data.

Overall the data is 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 Compounds (PFCs)

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 water samples were extracted within 14 days and analyzed within 28 days, and all soil samples were extracted within 28 days and analyzed within 30 days except for the following.

| EDS Sample ID | Date Collected | Date Extracted | Compound | # Days | Qualifier |
|---------------|----------------|----------------|----------|--------|-----------|
| 1 | 02/20/18 | 03/19/18 | PFDOA | 27 | UJ |
| 2 | 02/20/18 | 03/19/18 | PFDOA | 27 | UJ |

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 samples were free of contamination.

| Blank ID | Compound | Conc. ng/L | Qualifier | Affected Samples |
|--------------------|-----------|-----------------|-----------|------------------|
| WI-AF-SB-FB-022018 | None - ND | - I - I - I - I | | ~ 1 |
| WI-AF-EB11-SO-0218 | None - ND | 1 | | - |

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

• The MS/MSD samples were not analyzed.

Laboratory Control Samples

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

Internal Standard (IS) Area Performance

• All internal standards met response and retention time (RT) criteria except for the following.

| EDS Sample ID | Compound | %R | Qualifier |
|---------------|------------|-------|----------------------|
| 3 | 13C3-PFBS | 47.6% | UJ - Associated Cmpd |
| | 18O2-PFHxS | 49.2% | UJ - Associated Cmpd |

Target Compound Identification

All mass spectra and quantitation criteria were met.

Compound Quantitation

All criteria were met.

Field Duplicate Sample Precision

Field duplicate results are summarized below. The precision was acceptable.

| Compound | WI-AF-SB611-0103-0218 ng/g | WI-AF-SB611P-0103-0218 ng/g | RPD | Qualifier |
|----------|-------------------------------|--------------------------------|-----|-----------|
| None | ND | ND | 825 | 2 |

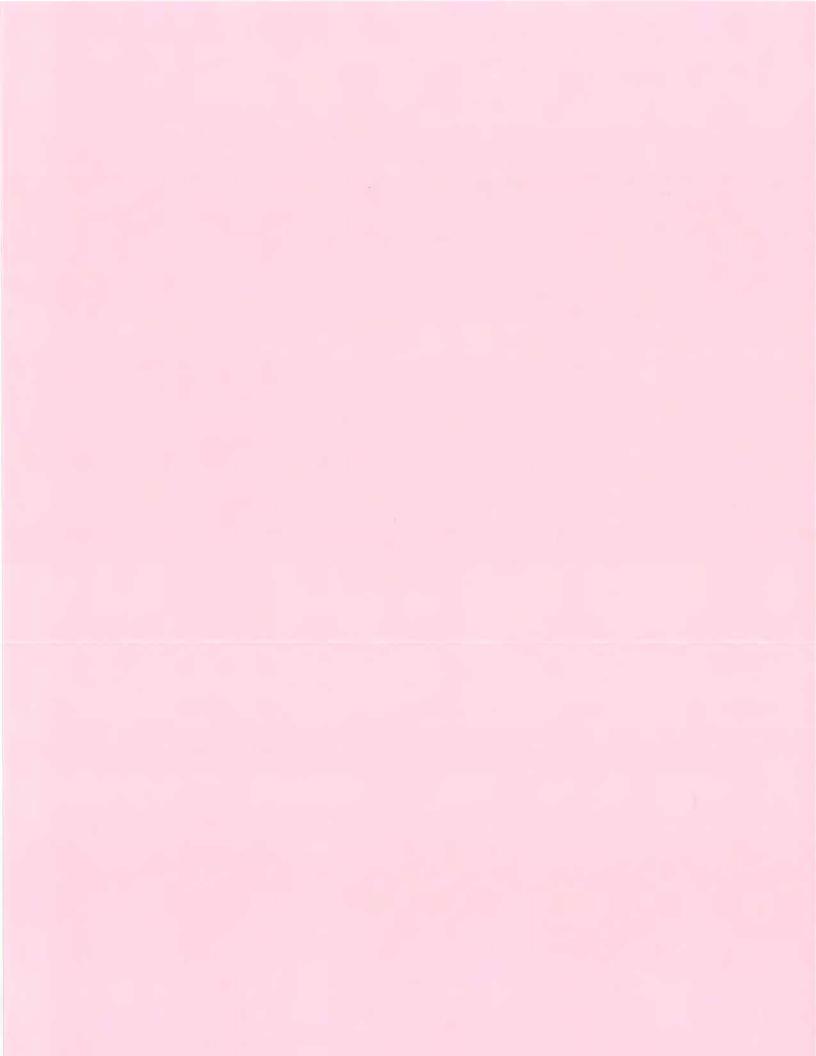
Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed:

Senior Chemist

Mancy Weaver Dated: 6/1/18

| Data Qualifier | Definition |
|-------------------|--|
| U | The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit. |
| J | The analyte is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample. |
| NJ | The analysis has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the samples. |
| UJ | The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise. |
| R | The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the samples. |





| 7 | od 537 | ified EPA Meth | Mod | | | | | | | | 22018 | WI-AF-SB-FB-0 | Sample ID: V |
|---|----------|-----------------|-----------------|-----------|---------|--|------|-------------------|---------------------|-----------------------|-------|--------------------------|----------------------------|
| | | : BEH C18 | Column: BEH C18 | | | Laboratory Data Lab Sample: Date Received: | | ous b-18 10:50 | Aque cted: 20-Fe | Matrix: Date Colle | FIELD | CH2M Hill NAS WI-AULT | Client Data Name: Project: |
| n | Dilution | Analyzed | Samp Size | Extracted | Batch | Qualifiers | LOQ | LOD | DL | Conc. (ng/L) | | | Analyte |
| | 1 | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | 8.51 | 5.30 | 1.90 | ND | | | PFBS |
| | | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | 8.51 | 5.30 | 2.32 | ND | | | PFHxA |
| | | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | 8.51 | 5.30 | 0.629 | ND | | | PFHpA |
| | 1 | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | 8.51 | 5.30 | 1.01 | ND | | | PFHxS |
| | | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | 8.51 | 5.30 | 0.692 | ND | | | PFOA |
| | 1 | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | 8.51 | 5.30 | 0.858 | ND | | | PFOS |
| | 1 | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | 8.51 | 5.30 | 0.861 | ND | | | PFNA |
| | 1 | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | 8.51 | 5.30 | 1.58 | ND | | | PFDA |
| | 1 | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | 8.51 | 5.30 | 1.75 | ND | | | MeFOSAA |
| | 1 | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | 8.51 | 5.30 | 1.12 | ND | | | FUnA |
| | 1 | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | 8.51 | 5.30 | 1.46 | ND | | | EtFOSAA |
| | 1 | 20-Mar-18 16:56 | 0.110 L | 19-Mar-18 | B8C0111 | | 9.11 | 5.68 | 0.902 | ND WJ | | | PFDoA |
| | 1 | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | 8.51 | 5.30 | 0.525 | ND | | | PFTrDA |
| | 1 | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | 8.51 | 5.30 | 0.803 | ND | | | PFTeDA |
| n | Dilution | | Samp Size | Extracted | Batch | Qualifiers | | Limits | | % Recovery | Type | ards | Labeled Standaı |
| | 1 | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | | 50 - 150 | | 108 | IS | | 3C3-PFBS |
| | 1 | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | | 50 - 150 | | 89.2 | IS | | 13C2-PFHxA |
| | 1 | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | | 50 - 150 | | 97.9 | IS | | 3C4-PFHpA |
| | 1 | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | | 50 - 150 | | 89.5 | IS | | 18O2-PFHxS |
| | 1 | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | | 50 - 150 | | 91.1 | IS | | 3C2-PFOA |
| | 1 | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | | 50 - 150 | | 81.2 | IS | | 13C8-PFOS |
| | 1 | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | | 50 - 150 | | 71.5 | IS | | 3C5-PFNA |
| | 1 | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | | 50 - 150 | | 73.4 | IS | | 3C2-PFDA |
| | 1 | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | | 50 - 150 | | 76.3 | IS | | l3-MeFOSAA |
| | 1 | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | | 50 - 150 | | 78.0 | IS | | 3C2-PFUnA |
| | 1 | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | | 50 - 150 | | 82.9 | IS | | 15-EtFOSAA |
| | 1 | 20-Mar-18 16:56 | 0.110 L | 19-Mar-18 | B8C0111 | | | 50 - 150 | | 58.4 | IS | | 3C2-PFDoA |
| | 1 | 08-Mar-18 10:45 | 0.118 L | 28-Feb-18 | B8B0163 | | | 50 - 150 | | 99.2 | IS | | 3C2-PFTeDA |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

mu 5130/18



| Sample ID: WI-AF-EB11-SO-0218 Modified EPA Method 537 | | | | | | | | | | | | | |
|---|-----------------|-----------|-----------|------------------------|------------------------------------|-------|------------------|-----------------------|-----------------------|-------|--------------------------------|----------------------------|--|
| | ВЕН С18 | Column: | | 1800356-0 23-Feb-18 | ratory Data ample: Received: | Lab S | us o-18 11:00 | Aqueo cted: 20-Feb | Matrix: Date Colle | TIELD | ta CH2M Hill NAS WI-AULT | Client Data Name: Project: | |
| Dilution | Analyzed | Samp Size | Extracted | Batch | Qualifiers | LOQ | LOD | DL | Conc. (ng/L) | | | Analyte | |
| 1 | 08-Mar-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | 8.36 | 5.21 | 1.87 | ND | | | PFBS | |
| 1 | 08-Mar-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | 8.36 | 5.21 | 2.28 | ND | | | PFHxA | |
| 1 | 08-Mar-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | 8.36 | 5.21 | 0.617 | ND | | | PFHpA | |
| 1 | 08-Mar-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | 8.36 | 5.21 | 0.989 | ND | | | PFHxS | |
| 1 | 08-Mar-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | 8.36 | 5.21 | 0.680 | ND | | | PFOA | |
| 1 | 08-Mar-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | 8.36 | 5.21 | 0.843 | ND | | | PFOS | |
| 1 | 08-Mar-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | 8.36 | 5.21 | 0.846 | ND | | | PFNA | |
| 1 | 08-Mar-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | 8.36 | 5.21 | 1.56 | ND | | | PFDA | |
| 1 | 08-Mar-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | 8.36 | 5.21 | 1.72 | ND | | | MeFOSAA | |
| 1 | 08-Mar-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | 8.36 | 5.21 | 1.10 | ND | | | PFUnA | |
| 1 | 08-Mar-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | 8.36 | 5.21 | 1.43 | ND | | | EtFOSAA | |
| 1 | 20-Mar-18 17:07 | 0.117 L | 19-Маг-18 | B8C0111 | | 8.54 | 5.34 | 0.845 | NOUJ | | | PFDoA | |
| 1 | 08-Mar-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | 8.36 | 5.21 | 0.516 | ND | | | PFTrDA | |
| I | 08-Mar-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | 8.36 | 5.21 | 0.789 | ND | | | PFTeDA | |
| Dilution | Analyzed | Samp Size | Extracted | Batch | Qualifiers | | Limits | | % Recovery | Туре | tandards | Labeled Standa | |
| 1 | 08-Mar-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | | 50 - 150 | | 102 | IS | S | 13C3-PFBS | |
| 1 | 08-Mar-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | | 50 - 150 | | 95.5 | IS | xA | 13C2-PFHxA | |
| 1 | 08-Mar-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | | 50 - 150 | | 93.8 | IS | pA | 13C4-PFHpA | |
| 1 | 08-Mar-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | | 50 - 150 | | 92.1 | IS | | 18O2-PFHxS | |
| 1 | 08-Mar-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | | 50 - 150 | | 95.8 | IS | A | 13C2-PFOA | |
| 1 | 08-Mar-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | | 50 - 150 | | 102 | IS | S | I3C8-PFOS | |
| 1 | 08-Mar-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | | 50 - 150 | | 86.9 | IS | A | 13C5-PFNA | |
| 1 | 08-Mar-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | | 50 - 150 | | 76.7 | IS | A | I3C2-PFDA | |
| 1 | 08-Mar-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | | 50 - 150 | | 70.5 | IS | AA | i3-MeFOSAA | |
| 1 | 08-Маг-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | | 50 - 150 | | 75.5 | IS | nA | 13C2-PFUnA | |
| 1 | 08-Mar-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | | 50 - 150 | | 62.3 | IS | \A | 15-EtFOSAA | |
| 1 | 20-Mar-18 17:07 | 0.117 L | 19-Mar-18 | B8C0111 | | | 50 - 150 | | 73.4 | IS | | 13C2-PFDoA | |
| 1 | 08-Mar-18 10:57 | 0.120 L | 28-Feb-18 | B8B0163 | | | 50 - 150 | | 122 | IS | eDA | 3C2-PFTeDA | |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

res 5/30/18



| AS | - PFAS | VAL | | | | | | | | | 01-0218 | WI-AF-SB611-01 | Sample ID: V |
|------|----------|-----------------|-----------|-----------|--------------------------------|--|-------|------------|--------------------|------------------------|---------|--------------------------|----------------------------------|
| | | : ВЕН С18 | Column: | | 1800356-0 23-Feb-18 86.2 | ratory Data ample: Received: ids: | Lab S | b-18 10:55 | Soil cted: 20-F | Matrix: Date Collec | ELD | CH2M Hill NAS WI-AULT | Client Data Name: Project: |
| tion | Dilutio | Analyzed | Samp Size | Extracted | Batch | Qualifiers | LOQ | LOD | DL | Conc. (ng/g) | | | Analyte |
| | 1 | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | 2.19 | 1.09 | 0.397 | ND LJ | | | PFBS |
| 1 | 1.7 | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | 2.19 | 1.09 | 0.222 | ND | | | PFHxA |
| | 1 | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | 2.19 | 1.09 | 0.224 | ND | | | PFHpA |
| | | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | 2.19 | 1.09 | 0.339 | NHO UJ | | | PFHxS |
| | | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | 2.19 | 1.09 | 0.258 | ND | | | PFOA |
| | | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | 2.19 | 1.09 | 0.925 | ND | | | PFOS |
| | | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | 2.19 | 1.09 | 0.195 | ND | | | PFNA |
| | | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | 2.19 | 1.09 | 0.280 | ND | | | PFDA |
| | | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | 2.19 | 1.09 | 0.331 | ND | | | MeFOSAA |
| | | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | 2.19 | 1.09 | 0.388 | ND | | | PFUnA |
| | 1 | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | 2.19 | 1.09 | 0.351 | ND | | | EtFOSAA |
| 1 | 1 | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | 2.19 | 1.09 | 0.302 | ND | | | PFDoA |
| 1 | 1 | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | 2.19 | 1.09 | 0.134 | ND | | | PFTrDA |
| 1 | 1 | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | 2.19 | 1.09 | 0.217 | ND | | | PFTeDA |
| ion | Dilution | Analyzed | Samp Size | Extracted | Batch | Qualifiers | | Limits | | % Recovery | Type | dards | Labeled Standa |
| | 1 | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | Н | | 50 - 150 | | 47.6 | IS | | 13C3-PFBS |
| | 1 | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | | 50 - 150 | | 60.1 | IS | | 13C2-PFHxA |
| | 1 | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | | 50 - 150 | | 61.6 | IS | | 13C4-PFHpA |
| | 1 | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | Н | | 50 - 150 | | 49.2 | IS | | 18O2-PFHxS |
| 200 | 1 | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | | 50 - 150 | | 68.4 | IS | | 13C2-PFOA |
| | 1 | 08-Маг-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | | 50 - 150 | | 72.9 | IS | | 13C8-PFOS |
| 31 | 1 | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | | 50 - 150 | | 67.6 | IS | | 13C5-PFNA |
| | 1 | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | | 50 - 150 | | 63.1 | IS | | 13C2-PFDA |
| | 1 | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | | 50 - 150 | | 59.9 | IS | | i3-MeFOSAA |
| | 1 | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | | 50 - 150 | | 73.2 | IS | | 13C2-PFUnA |
| | 1 | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | | 50 - 150 | | 74.2 | IS | | 15-EtFOSAA |
| | 1 | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | | 50 - 150 | | 79.8 | IS | | I3C2-PFDoA |
| | 1 | 08-Mar-18 06:09 | 1.06 g | 27-Feb-18 | B8B0151 | | | 50 - 150 | | 75.0 | IS | | 13C2-PFTeDA |

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight

The sample size is reported in wet weight Results reported to the DL

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

m S/30/18

Work Order 1800356 Page 15 of 22



| Sample ID: WI-AF-S | SB611-0103-0218 | | | | | | | | | VAL | - PFAS |
|------------------------------|--------------------------|----------------------|----------------------|-------------------------|-------|--------------------------------|--------------------------------|--------------|---------------|-----------------------|----------|
| Name: CH2M Project: NAS V | Hill WI-AULT FIELD | Matrix: Date Coll | Soil ected: 20-Fo | eb-18 11:05 | Lab S | Fratory Data Sample: Received: | 1800356-0 23-Feb-18 94.0 | | Column | BEH C18 | |
| Analyte | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 0.361 | 0.995 | 1.99 | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | 1 |
| PFHxA | | ND | 0.202 | 0.995 | 1.99 | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | |
| PFHpA | | ND | 0.204 | 0.995 | 1.99 | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | |
| PFHxS | | ND | 0.308 | 0.995 | 1.99 | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | |
| PFOA | | ND | 0.235 | 0.995 | 1.99 | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | |
| PFOS | | ND | 0.841 | 0.995 | 1.99 | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | |
| PFNA | | ND | 0.177 | 0.995 | 1.99 | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | |
| PFDA | | ND | 0.255 | 0.995 | 1.99 | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | |
| MeFOSAA | | ND | 0.300 | 0.995 | 1.99 | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | |
| PFUnA | | ND | 0.352 | 0.995 | 1.99 | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | |
| EtFOSAA | | ND | 0.319 | 0.995 | 1.99 | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | |
| PFDoA | | ND | 0.275 | 0.995 | 1.99 | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | 1 |
| PFTrDA | | ND | 0.121 | 0.995 | 1.99 | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | 1 |
| PFTeDA | | ND | 0.197 | 0.995 | 1.99 | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | IS | 104 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | 1 |
| 13C2-PFHxA | IS | 90.4 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | |
| 13C4-PFHpA | IS | 91.0 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | 1 |
| 18O2-PFHxS | IS | 86.7 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | |
| 13C2-PFOA | IS | 80.3 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | 1 |
| 13C8-PFOS | 18 | 88.2 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | 1 |
| 13C5-PFNA | IS | 84.5 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | 1 |
| 13C2-PFDA | IS | 79.6 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | 1 |
| d3-MeFOSAA | IS | 66.4 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | |
| 13C2-PFUnA | IS | 70.1 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | 1 |
| d5-EtFOSAA | IS | 78.7 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | 1 |
| 13C2-PFDoA | IS | 66.9 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | 1 |
| 13C2-PFTeDA | IS | 66.1 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.07 g | 08-Mar-18 06:21 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | 1.01.1101 | 1 | it - upper control limi | | 9.7 | . 1 19211 0 | DEC A I DECO | 2. 1. V (fig. | ar and branched isome | |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight.
The sample size is reported in wet weight
Results reported to the DL

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.



| | -AF-SB611P-0103-0218 | | | | | | | | | | VAL | - PFAS |
|----------------------------------|--------------------------------|---|----------------------|---------------------|-------------|-------|--|--------------------------------|-----------|-----------|-----------------|----------|
| Client Data Name: Project: | CH2M Hill NAS WI-AULT FIELD | | Matrix: Date Coll | Soil ected: 20-F | eb-18 11:10 | Lab S | ratory Data Sample: Received: lids: | 1800356-0 23-Feb-18 93.6 | | Column | ВЕН С18 | |
| Analyte | | (| Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | | ND | 0.334 | 0.921 | 1.84 | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | 1 |
| PFHxA | | | ND | 0.187 | 0.921 | 1.84 | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | |
| PFHpA | | | ND | 0.189 | 0.921 | 1.84 | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | |
| PFHxS | | | ND | 0.286 | 0.921 | 1.84 | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | 2 1 |
| PFOA | | | ND | 0.217 | 0.921 | 1.84 | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | |
| PFOS | | | ND | 0.778 | 0.921 | 1.84 | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | 1 |
| PFNA | | | ND | 0.164 | 0.921 | 1.84 | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | |
| PFDA | | | ND | 0.236 | 0.921 | 1.84 | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | |
| MeFOSAA | | | ND | 0.278 | 0.921 | 1.84 | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | |
| PFUnA | | | ND | 0.326 | 0.921 | 1.84 | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | |
| EtFOSAA | | | ND | 0.296 | 0.921 | 1.84 | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | 1 |
| PFDoA | | | ND | 0.254 | 0.921 | 1.84 | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | |
| PFTrDA | | | ND | 0.112 | 0.921 | 1.84 | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | 1 |
| PFTeDA | | | ND | 0.182 | 0.921 | 1.84 | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | 1 |
| Labeled Standard | s Type | 2 | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | I | S | 103 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | 1 |
| 13C2-PFHxA | 1: | 8 | 86.8 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | 1 |
| I3C4-PFHpA | I | 8 | 87.2 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | |
| 18O2-PFHxS | I: | S | 88.3 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | 1 |
| 13C2-PFOA | I: | 8 | 76.7 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | 1 |
| 13C8-PFOS | I: | S | 88.6 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | 1 |
| 13C5-PFNA | I: | 3 | 79.6 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | 1 |
| 13C2-PFDA | I: | S | 101 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | 1 |
| d3-MeFOSAA | I. | 5 | 76.2 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | . 1 |
| 13C2-PFUnA | I: | S | 78.9 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | 1 |
| d5-EtFOSAA | 1: | 5 | 87.8 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | 1 |
| 13C2-PFDoA | 1: | | 77.3 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | 1 |
| 13C2-PFTeDA | IS | S | 70.9 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.16 g | 08-Mar-18 06:32 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight
The sample size is reported in wet weight

When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.

Results reported to the DL



| Project: Analyte PFBS | CH2M Hill NAS WI-AULT FIELD | Matrix: Date Col | Soil lected: 20-Fe | 1 10 11 15 | | • | | | | | |
|------------------------|--------------------------------|---------------------|-----------------------|-------------|------|--|---------|-----------|-----------|-----------------|----------|
| PFBS | | | | :D-18 14:15 | Date | Laboratory Data Lab Sample: 1800356-06 Date Received: 23-Feb-18 0 % Solids: 88.2 | | | Column: | BEH C18 | |
| | | Conc. (ng/g) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| | | ND | 0.374 | 1.03 | 2.06 | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | 1 |
| PFHxA | | ND | 0.209 | 1.03 | 2.06 | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | |
| PFHpA | | ND | 0.211 | 1.03 | 2.06 | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | |
| PFHxS | | ND | 0.319 | 1.03 | 2.06 | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | |
| PFOA | | ND | 0.243 | 1.03 | 2.06 | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | |
| PFOS | | ND | 0.871 | 1.03 | 2.06 | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | |
| PFNA | | ND | 0.183 | 1.03 | 2.06 | | B8B0151 | | 1.10 g | 08-Mar-18 06:44 | |
| PFDA | | ND | 0.264 | 1.03 | 2.06 | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | |
| MeFOSAA | | ND | 0.311 | 1.03 | 2.06 | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | |
| PFUnA | | ND | 0.365 | 1.03 | 2.06 | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06;44 | - |
| EtFOSAA | | ND | 0.331 | 1.03 | 2.06 | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | |
| PFDoA | | ND | 0.284 | 1.03 | 2.06 | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | - 2 |
| PFTrDA | | ND | 0.126 | 1.03 | 2.06 | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | |
| PFTeDA | | ND | 0.204 | 1.03 | 2.06 | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 111 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | 1 |
| 13C2-PFHxA | IS | 95.0 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | |
| 13C4-PFHpA | IS | 96.4 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | |
| 18O2-PFHxS | IS | 94.7 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | |
| 13C2-PFOA | IS | 86.6 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | 1 |
| 13C8-PFOS | IS | 96.3 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | 1 |
| 13C5-PFNA | IS | 95.4 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | 1 |
| 13C2-PFDA | IS | 84.5 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | 1 |
| d3-MeFOSAA | IS | 82.0 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | 1 |
| 13C2-PFUnA | IS | 67.2 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | |
| d5-EtFOSAA | IS | 88.8 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | 1 |
| 13C2-PFDoA | IS | 76.0 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | 1 |
| 13C2-PFTeDA | IS | 72.8 | | 50 - 150 | | | B8B0151 | 27-Feb-18 | 1.10 g | 08-Mar-18 06:44 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation

The results are reported in dry weight The sample size is reported in wet weight Results reported to the DL

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: 1800410

Laboratory: Vista Analytical Laboratory, El Dorado Hills, California Site: NAS Whidbey Island, Ault Field, CTO-4041, Washington

Date: May 30, 2018

| | | PFCs | |
|--------|-------------------|----------------------|--------|
| EDS ID | Client Sample ID | Laboratory Sample ID | Matrix |
| 1 | WI-AF-FB01-030118 | 1800410-01 | Water |
| 2 | WI-AF-MW-615-0318 | 1800410-02 | Water |
| 3 | WI-AF-EB01-030118 | 1800410-03 | Water |
| 4 | WI-AF-MW-611-0318 | 1800410-04 | Water |

A full data validation was performed on the analytical data for two water samples, one aqueous field blank sample, and one aqueous equipment blank sample collected on March 1, 2018 by CH2M HILL at the NAS Whidbey Island Ault Field 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 Method References
PFCs USEPA Method 537 Modified

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, the Final Sampling and Analysis Plan Phase I Site Investigation for Per- and Polyfluoroalkyl Substances in Soil and Groundwater Ault Field, February 2018, and the USEPA National Functional Guidelines for Organic Data Review as follows:

- The USEPA "Contract Laboratories Program National Functional Guidelines for Organic Superfund Methods Data Review," January 2017;
- 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
- 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 (Level IV) data validation was performed with this review including a recalculation of 10% of the detected results in the samples.

Data Usability Assessment

There were no rejections of data.

Overall the data is acceptable for the intended purposes. There were no qualifications.

Perfluorinated Compounds (PFCs)

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 samples were free of contamination.

| Blank ID | Compound | Conc. ng/L | Qualifier | Affected Samples |
|-------------------|-----------|-----------------|-----------|------------------|
| WI-AF-FB01-030118 | None - ND | 14 11 12 19 4 1 | 1 | 4 |
| WI-AF-EB01-030118 | None - ND | 10 - O- | | |

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

• The MS/MSD samples were not analyzed.

Laboratory Control Samples

• 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.

Signed: Lavy Weaver
Senior Chemist

Dated: 6118

Please contact the undersigned at (757) 564-0090 if you have any questions or need further

| Data Qualifier | Definition | | | | | | |
|-------------------|--|--|--|--|--|--|--|
| U | The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit. | | | | | | |
| J | The analyte is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample. | | | | | | |
| NJ | The analysis has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the samples. | | | | | | |
| UJ | The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise. | | | | | | |
| R | The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the samples. | | | | | | |





| Sample ID: WI- | AF-FB01-030118 | 8 | | | | | | | | Mod | ified EPA Metl | hod 537 |
|---------------------|---|------------------------|----------------------|------------------------------------|------------------------|-------|--|---------|-------------------------------|-----------|-------------------------|----------|
| Project: 6 | CH2M Hill 595610.04.F1,FS Field Blank | | Matrix: Date Coll | Aqueous lected: 01-Mar-18 11:00 | | Lab S | Laboratory Data Lab Sample: Date Received: | | 1800410-01 03-Mar-18 10:15 | | BEH C18 | |
| Analyte | | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | | ND | 1.91 | 5.34 | 8.55 | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | 1 |
| PFHxA | | | ND | 2.33 | 5.34 | 8.55 | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | |
| PFHpA | | | ND | 0.632 | 5.34 | 8.55 | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | 1 |
| PFHxS | | | ND | 1.01 | 5.34 | 8.55 | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | 1 |
| PFOA | | | ND | 0.696 | 5.34 | 8.55 | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | |
| PFOS | | | ND | 0.863 | 5.34 | 8.55 | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | 1 |
| PFNA | | | ND | 0.866 | 5.34 | 8.55 | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | |
| PFDA | | | ND | 1.59 | 5.34 | 8.55 | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | |
| MeFOSAA | | | ND | 1.76 | 5.34 | 8.55 | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | |
| PFUnA | | | ND | 1.12 | 5.34 | 8.55 | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | |
| EtFOSAA | | | ND | 1.46 | 5.34 | 8.55 | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | |
| PFDoA | | | ND | 0.847 | 5.34 | 8.55 | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | 1 |
| PFTrDA | | | ND | 0.528 | 5.34 | 8.55 | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | |
| PFTeDA | | | ND | 0.807 | 5.34 | 8.55 | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | 1 |
| Labeled Standards | | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | | Dilution |
| 13C3-PFBS | | IS | 105 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | 1 |
| 13C2-PFHxA | | IS | 88.4 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | 1 |
| 13C4-PFHpA | | IS | 88.1 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | 1 |
| 18O2-PFHxS | | IS | 83.5 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | 1 |
| 13C2-PFOA | | IS | 87.1 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | 1 |
| 13C8-PFOS | | IS | 91.7 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | 1 |
| 13C5-PFNA | | IS | 82.4 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | 1 |
| 13C2-PFDA | | IS | 71.0 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | 1 |
| d3-MeFOSAA | | IS | 64.6 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | |
| 13C2-PFUnA | | IS | 78.6 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | 1 |
| d5-EtFOSAA | | IS | 71.7 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | 1 |
| 13C2-PFDoA | | 1S | 62.4 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | 1 |
| 13C2-PFTeDA | | IS | 69.4 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.117 L | 16-Mar-18 05:43 | 1 |
| Dl. Dutastian Limit | |) - Limit of Detection | | | ut - upper control lum | | | | | | ear and branched isomer | |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.



| Sample ID: WI-AF-MW-6 | 615-0318 | | | | | | | | Mod | ified EPA Meth | nod 537 |
|--|----------|---|-------|----------|-------|----------------------|------------------------|-----------|-----------|-----------------|----------|
| Client Data Name: CH2M Hill Project: 695610.04.F. Location: MW-615 | 1.FS | Matrix: Aqueous Date Collected: 01-Mar-18 11:40 | | | Lab S | Gample: Received: | 1800410-0 03-Mar-18 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | 89.1 | 1.97 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 05:55 | 1 |
| PFHxA | | 51.7 | 2.40 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 05:55 | |
| PFHpA | | 8.41 | 0.650 | 5.48 | 8.80 | J | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 05:55 | |
| PFHxS | | 123 | 1.04 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 05:55 | |
| PFOA | | 7.85 | 0.716 | 5.48 | 8.80 | J | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 05:55 | |
| PFOS | | 3.37 | 0.888 | 5.48 | 8.80 | J | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 05:55 | 1 |
| PFNA | | ND | 0.891 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 05:55 | 1 |
| PFDA | | ND | 1.64 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 05:55 | 1 |
| MeFOSAA | | ND | 1.82 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 05:55 | 1 |
| PFUnA | | ND | 1.16 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 05:55 | 1 |
| EtFOSAA | | ND | 1.51 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 05:55 | 1 |
| PFDoA | | ND | 0.871 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 05:55 | 1 |
| PFTrDA | | ND | 0.543 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 05:55 | 1 |
| PFTeDA | | ND | 0.831 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 05:55 | 1 |
| Labeled Standards | Type | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 113 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 05:55 | 1 |
| 13C2-PFHxA | IS | 96.2 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 05:55 | 1 |
| 13C4-PFHpA | IS | 85.2 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 05:55 | 1 |
| 18O2-PFHxS | IS | 102 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 05:55 | 1 |
| 13C2-PFOA | IS | 96.3 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 05:55 | 1 |
| 13C8-PFOS | IS | 79.0 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 05:55 | 1 |
| 13C5-PFNA | IS | 82.1 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 05:55 | 1 |
| 13C2-PFDA | IS | 87.3 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Маг-18 05:55 | 1 |
| d3-MeFOSAA | IS | 87.5 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 05:55 | 1 |
| 13C2-PFUnA | IS | 93.8 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Маг-18 05:55 | 1 |
| d5-EtFOSAA | IS | 84.3 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 05:55 | 1 |
| 13C2-PFDoA | IS | 78.0 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Маг-18 05:55 | 1 |
| 13C2-PFTeDA | IS | 81.0 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 05:55 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation

D

LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes



| Sample ID: WI-AF-E | B01-030118 | | | | | | | | Mod | ified EPA Meth | 10d 537 |
|----------------------|----------------------------------|---|-------------------|---|------|------------|------------------------|---------------|-------------------|------------------------|----------|
| , | Hill 0.04.F1.FS nent Blank | Matrix: Aqueous Date Collected: 01-Mar- | | ous Laboratory Dat Lab Sample: Date Received: | | Sample: | 1800410-(03-Mar-18 | | Column: | BEH C18 | |
| Analyte | | Conc. (ng/L) | DL | LOD | LOQ | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| PFBS | | ND | 1.97 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | 1 |
| PFHxA | | ND | 2.40 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | 1 |
| PFHpA | | ND | 0.650 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | 1 |
| PFHxS | | ND | 1.04 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | |
| PFOA | | ND | 0.716 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | 1 |
| PFOS | | ND | 0.888 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | 1 |
| PFNA | | ND | 0.891 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | 1 |
| PFDA | | ND | 1.64 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | 1 |
| MeFOSAA | | ND | 1.81 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | 1 |
| PFUnA | | ND | 1.15 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | |
| EtFOSAA | | ND | 1.51 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | 1 |
| PFDoA | | ND | 0.871 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | |
| PFTrDA | | ND | 0.543 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | |
| PFTeDA | | ND | 0.830 | 5.48 | 8.80 | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | 1 |
| Labeled Standards | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| 13C3-PFBS | IS | 109 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | 1 |
| 13C2-PFHxA | IS | 99.5 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | 1 |
| 13C4-PFHpA | IS | 93.8 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | 1 |
| 18O2-PFHxS | IS | 89.8 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | |
| 13C2-PFOA | IS | 86.6 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | |
| 13C8-PFOS | IS | 106 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Маг-18 06:06 | 1 |
| 13C5-PFNA | IS | 89.0 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | 1 |
| 13C2-PFDA | IS | 79.5 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | 1 |
| d3-MeFOSAA | IS | 63.3 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | |
| 13C2-PFUnA | IS | 71.2 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | |
| d5-EtFOSAA | IS | 62.1 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | |
| 13C2-PFDoA | IS | 58.5 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | 1 |
| 13C2-PFTeDA | IS | 67.0 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.114 L | 16-Mar-18 06:06 | 1 |
| DL - Detection Limit | LOD - Limit of Detection | LCL-UCL- | Lower control lin | nit - upper control limit | | When rep | orted, PFHxS, I | PFOA and PFOS | include both line | ar and branched isomer | S |

LOQ - Limit of quantitation

pm 5130/18

Results reported to the DL

Only the linear isomer is reported for all other analytes



| PFHxA PFHpA PFHpA PFHxS PFOA PFOS PFNA PFDA MeFOSAA PFUnA EtFOSAA PFTDA PFTeDA Labeled Standards 13C3-PFBS 13C2-PFHxA | | Matrix: Date Col Conc. (ng/L) ND ND ND ND ND ND ND ND ND N | Aque- lected: 01-M DL 2.02 2.47 0.669 1.07 0.736 0.913 0.916 1.69 | LOD 5.63 5.63 5.63 5.63 5.63 5.63 5.63 5.6 | Lab S | ratory Data Gample: Received: Qualifiers | 1800410-0 03-Mar-18 Batch B8C0085 B8C0085 B8C0085 B8C0085 | Extracted 14-Mar-18 14-Mar-18 14-Mar-18 | Column: Samp Size 0.111 L 0.111 L 0.111 L | 16-Mar-18 06:18 16-Mar-18 06:18 | |
|---|------|---|---|--|--------------------------------------|---|---|---|---|---|----------|
| PFBS PFHxA PFHpA PFHpA PFOA PFOS PFNA PFDA MeFOSAA PFUnA EtFOSAA PFTDA PFTDA Labeled Standards 13C3-PFBS 13C2-PFHxA | | ND ND ND ND ND ND ND ND ND ND | 2.02 2.47 0.669 1.07 0.736 0.913 | 5.63 5.63 5.63 5.63 5.63 5.63 | 9.05 9.05 9.05 9.05 9.05 | Qualifiers | B8C0085 B8C0085 B8C0085 | 14-Mar-18 14-Mar-18 14-Mar-18 | 0.111 L 0.111 L | 16-Mar-18 06:18 16-Mar-18 06:18 | 1 |
| PFHxA PFHpA PFHxS PFOA PFOS PFNA PFDA MeFOSAA PFUnA EtFOSAA PFDoA PFTrDA | | ND ND ND ND ND ND | 2.47 0.669 1.07 0.736 0.913 0.916 | 5.63 5.63 5.63 5.63 | 9.05 9.05 9.05 9.05 | | B8C0085 B8C0085 | 14-Mar-18 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | |
| PFHpA PFHxS PFOA PFOS PFNA PFDA MeFOSAA PFUnA EtFOSAA PFTDA PFTcDA Labeled Standards 13C3-PFBS 13C2-PFHxA | | ND ND ND ND ND | 0.669 1.07 0.736 0.913 0.916 | 5.63 5.63 5.63 5.63 | 9.05 9.05 9.05 | | B8C0085 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | |
| PFHxS PFOA PFOS PFNA PFDA MeFOSAA PFUnA EtFOSAA PFDoA PFTrDA PFTeDA Labeled Standards 13C3-PFBS 13C2-PFHxA | | ND ND ND ND | 1.07 0.736 0.913 0.916 | 5.63 5.63 | 9.05 9.05 | | | | 0.111.1 | 4 | |
| PFOA PFOS PFNA PFDA MeFOSAA PFUnA EtFOSAA PFDoA PFTrDA PFTeDA Labeled Standards 13C3-PFBS 13C2-PFHxA | | ND ND ND ND | 0.736 0.913 0.916 | 5.63 5.63 | 9.05 | | B8C0085 | | 0.111 L | 16-Mar-18 06:18 | 1 |
| PFOS PFNA PFDA MeFOSAA PFUnA EtFOSAA PFDoA PFTrDA PFTeDA Labeled Standards 13C3-PFBS 13C2-PFHxA | | ND ND ND | 0.913 0.916 | 5.63 | | | 200000 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | 1 |
| PFNA PFDA MeFOSAA PFUnA EtFOSAA PFDoA PFTrDA PFTeDA Labeled Standards 13C3-PFBS 13C2-PFHxA | | ND ND | 0.916 | | 9.05 | | B8C0085 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | 1 |
| PFDA MeFOSAA PFUnA EtFOSAA PFDOA PFTrDA PFTeDA Labeled Standards 13C3-PFBS 13C2-PFHxA | | ND | | 5.63 | | | B8C0085 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | |
| MeFOSAA PFUnA EtFOSAA PFDOA PFTrDA PFTeDA Labeled Standards 13C3-PFBS 13C2-PFHxA | | | 1.69 | | 9.05 | | B8C0085 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | 1 |
| PFUnA EtFOSAA PFDoA PFTrDA PFTeDA Labeled Standards 13C3-PFBS 13C2-PFHxA | | ND | | 5.63 | 9.05 | | B8C0085 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | 1 |
| EtFOSAA PFDoA PFTrDA PFTeDA Labeled Standards 13C3-PFBS 13C2-PFHxA | | | 1.87 | 5.63 | 9.05 | | B8C0085 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | - 1 |
| PFDoA PFTrDA PFTeDA Labeled Standards 13C3-PFBS 13C2-PFHxA | | ND | 1.19 | 5.63 | 9.05 | | B8C0085 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | 1 |
| PFTrDA PFTeDA Labeled Standards 13C3-PFBS 13C2-PFHxA | | ND | 1.55 | 5.63 | 9.05 | | B8C0085 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | 1 |
| PFTeDA Labeled Standards 13C3-PFBS 13C2-PFHxA | | ND | 0.896 | 5.63 | 9.05 | | B8C0085 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | 1 |
| Labeled Standards 13C3-PFBS 13C2-PFHxA | | ND | 0.559 | 5.63 | 9.05 | | B8C0085 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | 1 |
| 13C3-PFBS 13C2-PFHxA | | ND | 0.854 | 5.63 | 9.05 | | B8C0085 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | 1 |
| 13C2-PFHxA | Туре | % Recovery | | Limits | | Qualifiers | Batch | Extracted | Samp Size | Analyzed | Dilution |
| | IS | 93.7 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | 1 |
| 13C4-PFHpA | IS | 96.6 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | 1 |
| | IS | 91.3 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | 1 |
| 18O2-PFHxS | IS | 86.9 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | 1 |
| 13C2-PFOA | IS | 89.8 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | 1 |
| 13C8-PFOS | 1S | 89.2 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | 1 |
| 13C5-PFNA | IS | 90.3 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | 1 |
| 13C2-PFDA | IS | 79.9 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | 1 |
| d3-MeFOSAA | IS | 71.2 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | 1 |
| 13C2-PFUnA | IS | 81,1 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | 1 |
| d5-EtFOSAA | IS | 78.6 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | 1 |
| 13C2-PFDoA | IS | 87.3 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | 1 |
| I3C2-PFTeDA | IS | 90.0 | | 50 - 150 | | | B8C0085 | 14-Mar-18 | 0.111 L | 16-Mar-18 06:18 | 1 |

LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Page 11 of 15