RESPONSE TO 26 AUG 2021
COMPLIANCE COMMUNICATION NO. CC-003462

MOBILIZATION AND TRAINING EQUIPMENT SITE (MATES)
GROUND WATER DISCHARGE PERMIT GW1810156
CAMP GRAYLING JOINT MANEUVER TRAINING CENTER

2 NOV 2021

PREPARED BY:
ENVIRONMENTAL SECTION
CONSTRUCTION FACILITIES MAINTENANCE OFFICE
MICHIGAN DEPARTMENT OF MILITARY AND VETERANS AFFAIRS

SUBMITTED TO:
EMERGING POLLUTANTS SECTION
WATER RESOURCES DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

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LIST OF ACRONYMS

ARNG	Army National Guard
CGJMTC	Camp Grayling Joint Maneuver Training Center
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	Certificate of Coverage
DMVA	Department of Military and Veterans Affairs
EGLE	(Michigan Department of) Environment, Great Lakes, and Energy
GAAF	Grayling Army Airfield
GAC	granulated activated carbon
MATES	Mobilization and Training Equipment Site
MIARNG	Michigan Army National Guard
ng/L	nanograms per liter (equivalent to ppt)
NREPA	Natural Resources and Environmental Protection Act 1994 PA 451
NPDES	National Pollutant Discharge Elimination System
o/w	oil/water
PA	Preliminary Assessment
PFAS	Per- and Polyfluoroalkyl Substances
PFOA	Perfluorooctanoic acid
POL	petroleum/oil/lubricant
ppt	parts per trillion (equivalent to ng/L)
RI	Remedial Investigation
SI	Site Inspection
T&D	transport and disposal
UST	underground storage tank
WRD	Water Resources Division
WWTP	Waste Water Treatment Plant

1. PURPOSE

The purpose of this report is to provide information to the Michigan Department of Environment, Great Lakes, and Energy (EGLE) in response to Compliance Communication CC-003462 dated 26 August 2021 (**Attachment A)** regarding the Camp Grayling Joint Maneuver Training Center (CGJMTC) Mobilization and Training Equipment Site (MATES). EGLE requested that CGJMTC:

- Collect grab samples of pre-treatment system influent (Sample 1)
- Collect a grab sample of pre-treatment system effluent (Sample 2).
- Collect a sample of water from each of
    - Pond #1, the sedimentation/separation pond (Sample 3).
    - Pond #2, the holding pond (Sample 4).
    - Rapid infiltration bed influent, i.e., discharge to the seepage beds (Sample 5).
- Analyze all samples for PFAS listed on EGLE's PFAS Minimum Laboratory Analyte List.

2. SITE DESCRIPTION

CGJMTC is a 147,000-acre military training installation located in the northern lower peninsula of Michigan (**Figure 1**). CGJMTC is comprised of: North Camp ranges and training areas; South Camp ranges, training areas and Cantonment; the MATES; the Grayling Army Airfield (GAAF). With the exception of 1,050 acres that are owned by the federal government, CGJMTC is owned by the State of Michigan.

The 62-acre MATES is characterized by Building 1400, outbuildings, outdoor military vehicle and equipment staging areas, a wash rack, and a gray water (maintenance rinse water) treatment system (**Figure 2**). Administrative offices, the store room, support services, and vehicle maintenance bays are in Building 1400.

- The MATES storm water is monitored pursuant to the National Pollutant Discharge Elimination System (NPDES) general permit and Certificate of Coverage (COC) number MIS410164 issued by EGLE.
- Potable water and water the services the wash rack is sourced by two non-community non-transient groundwater wells.
- The septic field is located south of the wash rack and east of the Rapid Infiltration Beds.
- There are no manufacturing processes at the MATES.
- Chemicals used at the MATES maintenance bays of Building 1400 are stored in Building 1408 and the Parts Room in Building 1400. An updated comprehensive list of chemicals stored at the MATES was developed on 12 and 13 October 2021 **(Attachment B).**

3. WATER TREATMENT PROCESS FLOW

The MATES water treatment system operates under Groundwater Discharge Permit GW1810156. There are two sources of water that is treated: 1) water from vehicle maintenance processes inside Building 1400; and, 2) rinse water from the wash rack. **Figures 2 and 3** summarize the water treatment process flow described below.

3.1 Building 1400 – Oil/Water Separator

Trench drains inside Building 1400 collect incidental spillage resulting from military vehicle maintenance operations. Solids are removed in a grit chamber. The solids settle out and the grit is containerized. Periodic maintenance of the grit chamber is performed by the MATES Michigan Army National Guard (MIARNG) staff. Transport and disposal (T&D) of the solids are managed by the MATES MIARNG personnel. The water in the grit chamber is directed to the oil/water (o/w) separator to remove free phase oils. Oil in the o/w separator is removed by a vacuum truck operated by a contracted vendor on an as-needed basis.

3.2 Building 1408 - Gray Water Pre-Treatment System

The effluent water from the o/w separator in Building 1400 flows by gravity to a dedicated lift station (Meyers model B20R0-48144) which is powered by two 5-horsepower pumps and integrated level control components that are plumbed into the Pre-Treatment System located inside dedicated Building 1408. When untreated o/w separator effluent water reaches a prescribed level in the lift station, a pump is engaged and the gray water is pumped into Building 1408 for pre-treatment. The Pre-Treatment System process that occurs inside Building 1408 is described below.

The lift station and Pre-Treatment System were installed in 2005. Prior to 2005, a 5,000-gallon capacity underground storage tank (UST) was situated were the lift station is now located. Effluent from the o/w separator in Building 1400 was directed to the UST, which was periodically pumped out into a tanker owned and operated by CGJMTC Facilities Engineering Department. The contents of the tanker was discharged into Lagoon #1 of the WWTP shown on **Figure 1**. The UST was properly removed and attained a clean closure in 2005 prior to construction of the lift station.

3.2.1 Vessels 1 and 2, Initial Removal of Dissolved Phase POL

The pre-treatment system influent is pumped into Building 1408 and filtered through a particulate bag filter to remove particulate. The filtered water then flows through a totalizing flow meter into the first of two vessels in series containing Organo-clay (EC100 Media), which removes dissolved petroleum distillates, oils and greases, and lubricates (POL). Each vessel is

36-inches in diameter and 72-inches tall. Each vessel contains 1,200-pounds of the Organo-clay product.

The particulate bag filter is monitored monthly and replaced with a clean filter as needed. The piping manifold of the two Organo-clay vessels is configured such that water samples can be collected from three points: influent (before the first carbon vessel); mid-point (between the two vessels); and, effluent (after the second vessel).

3.2.2 Vessels 3 and 4, Further Removal of Dissolved Phase POL

For the purpose of redundancy and to ensure a high degree of confidence in the system efficacy, the effluent of Vessel 2 is treated by granular activated carbon (GAC). The redundancy protects each successive downgradient component of the system - namely Pond #1, Pond #2, and the Rapid Infiltration Beds - as well as the ultimate receiving natural resources downgradient of the Rapid Infiltration Beds.

The effluent of Vessel 2 is filtered through GAC (8X30 DCRC) to further remove dissolved phase organic material. The GAC is housed in two 36-inch diameter by 72-inch tall vessels that are operated in series. Each vessel is 36-inches in diameter and 72-inches tall. Each vessel contains 800-pounds of GAC.

The piping manifold of the two GAC vessels is configured such that water samples can be collected from three points: influent (before the first GAC vessel); mid-point (between the two GAC vessels); and, effluent (after the second GAC vessel).

The effluent from the Pre-Treatment System in Building 1408 is gravity discharged to POND #1.

3.3 Wash Rack Rinse Water

Wash rack water runoff is collected in a surface drain, which also collects storm water and snow melt. Water in this surface drain is directed to POND #1.

3.4 Ponds #1 and #2

The GW Discharge Permit refers to POND #1 as a Sedimentation Tank. POND #1 acts as a passive o/w separator. Oil in POND #1 water rises to the top. The underlying water in POND #1 is gravity fed to POND #2, which is a holding pond.

Water in POND #2 is discharged by a manually-operated pump on an as-needed to the Rapid Infiltration Beds.

3.5 Rapid Infiltration Beds

The GW Discharge Permit refers to the Rapid Infiltration Beds as Spray Irrigation Fields. The aboveground PVC piping manifold discharges water from POND #2 into each of the four Rapid Infiltration Beds.

4. FIELD EVENT

On 21 September 2021 Wood Engineering personnel, on behalf of DMVA, collected the five samples requested by EGLE.

- The samples were collected in accordance with the *Wastewater PFAS Sampling Guidance* developed by the Michigan Department of Environmental Quality (MDEQ, now EGLE) dated 17 October 2019 available at https://www.michigan.gov/documents/pfasresponse/Wastewater_PFAS_Sampling_Guidance_636791_7.pdf.
    - Gray water pre-treatment influent and effluent grab samples as well as the discharge to the Rapid Infiltration Bed were collected using free flow methodology.
    - Grab samples of surface water in Ponds #1 and 2 were collected using dip methodology.
    - Photo-documentation of sampling methodologies is provided in the Photograph Log (**Attachment C**).

- The five samples were properly labelled, packaged, and submitted to Vista Analytical Laboratory in El Dorado Hills, California, an EGLE-approved laboratory.

- Sample collection points:
    - Pre-treatment system influent was collected from the sampling port in Building 1408 positioned after the particulate filter and before Vessel #1.
    - Pre-treatment system effluent was collected from the sampling port in Building 1408 positioned after Vessel #4.
    - Pond#1 surface water.
    - Pond #2 surface water.
    - Water discharged from PVC piping manifold to the Rapid Infiltration Beds.

5. ANALYTICAL RESULTS

The samples were analyzed by Vista Laboratory for compounds on EGLE's *PFAS Minimum Laboratory Analyte List* available at https://www.michigan.gov/pfasresponse/0.9038.7-365-88059_95747---.00.html. The analytical report (**Attachment D**) was received on 29 October 2021. A summary of analytical results is provided in **Table 1**.

6. STATUS OF PFAS CERCLA INVESTIGATION

6.1 CGJMTC Property

The CGJMTC PFAS Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Preliminary Assessment was finalized in April of 2018. Results of the PA indicated that a PFAS CERCLA Site Inspection (SI) should be conducted for the MATES and the vicinity referred to as the 30 Complex training area. The *Site Inspection Report Range 30 Complex and MATES, Camp Grayling JMTC, MI* was finalized in October 2020. Results of the SI indicate:

- Concentrations of PFOA and/or PFOS in groundwater at the MATES and in the vicinity of the facility boundary were greater than the Office of the Assistant Secretary of Defense Screening Level of 40 parts per trillion (ppt) for PFOA and 40 ppt for PFOS.
- The maximum PFOA and PFOS concentrations were 60.7 ppt and 7,810 ppt, respectively at a temporary well location located on the western boundary of the MATES.

6.2 Private Residences

During the CERCLA SI process, as a precautionary measure residential groundwater samples were collected from sixteen residences located downgradient of the MATES. Analytical results indicate:

- There were no detections of PFOS or PFOA in any of the samples.
- Groundwater at one residence contained PFBS at 2.33 ppt.
- Groundwater at three residences contained PFHSX at 2 ppt or less.
- No other PFAS were detected in the drinking water samples.

6.3 Next Step

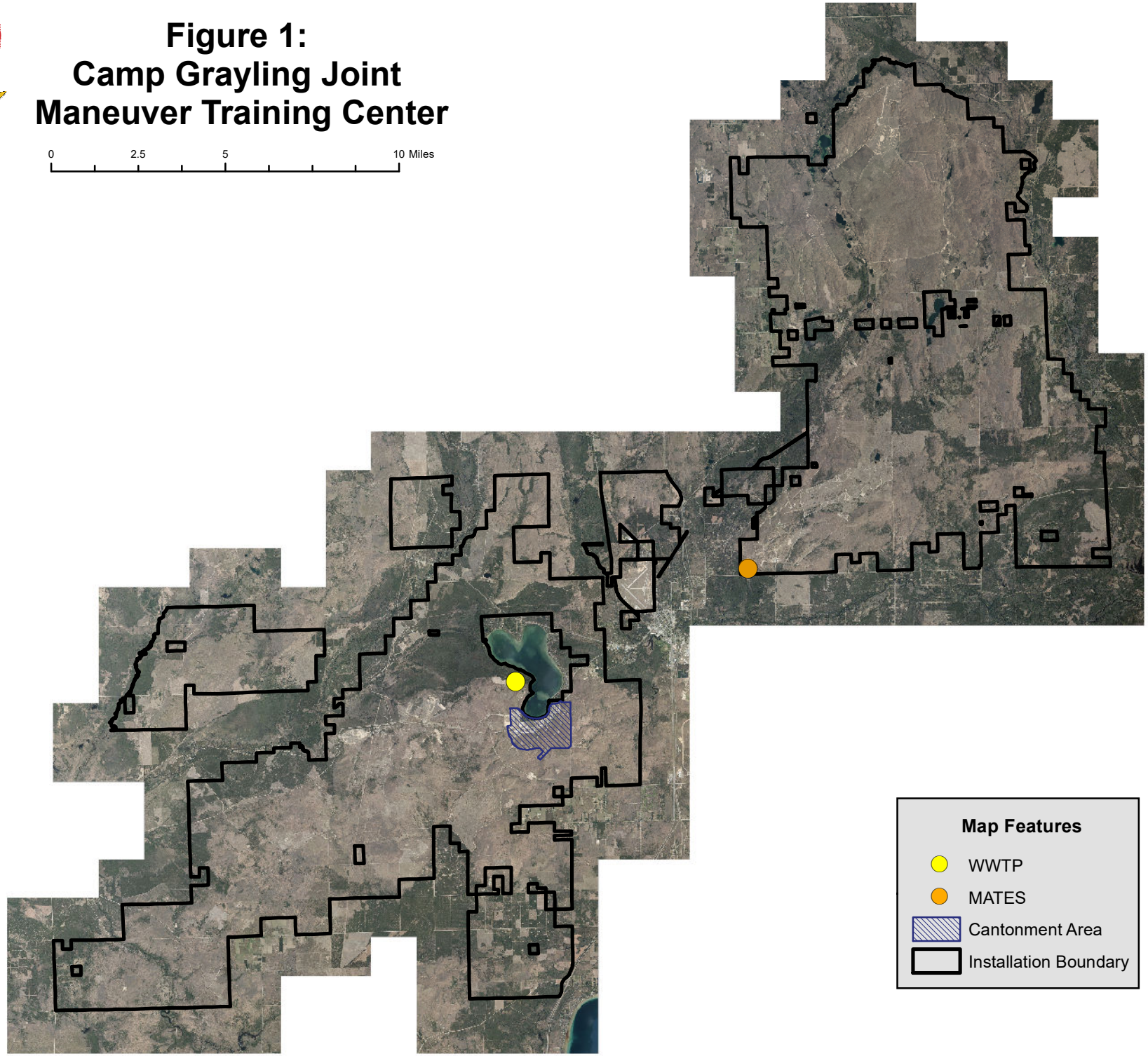
The CERCLA Site Investigation confirmed the release of PFAS in the area. The next step in the CERCLA process is to conduct a Remedial Investigation (RI). During the RI, the Army National Guard will collect detailed information to characterize site conditions, determine the nature and extent of the contamination, and evaluate risks to human health and the environment posed by the site conditions by conducting a baseline ecological and human health risk assessment.

A contract for an RI was awarded in September 2021. The RI Work Plan is currently in development and the Agency will initiate engagement of regulatory stakeholders by early 2022. Any remedial action associated with releases of PFAS from the MATES will be conducted as part of the CERCLA process.

Figure 1:
Camp Grayling Joint Maneuver Training Center

0 2.5 5 10 Miles

N



Map Features

- WWTP
- MATES
- Cantonment Area
- Installation Boundary

989-344-6180
MIARNG-CG-ENV
Oct 2021
Figure1

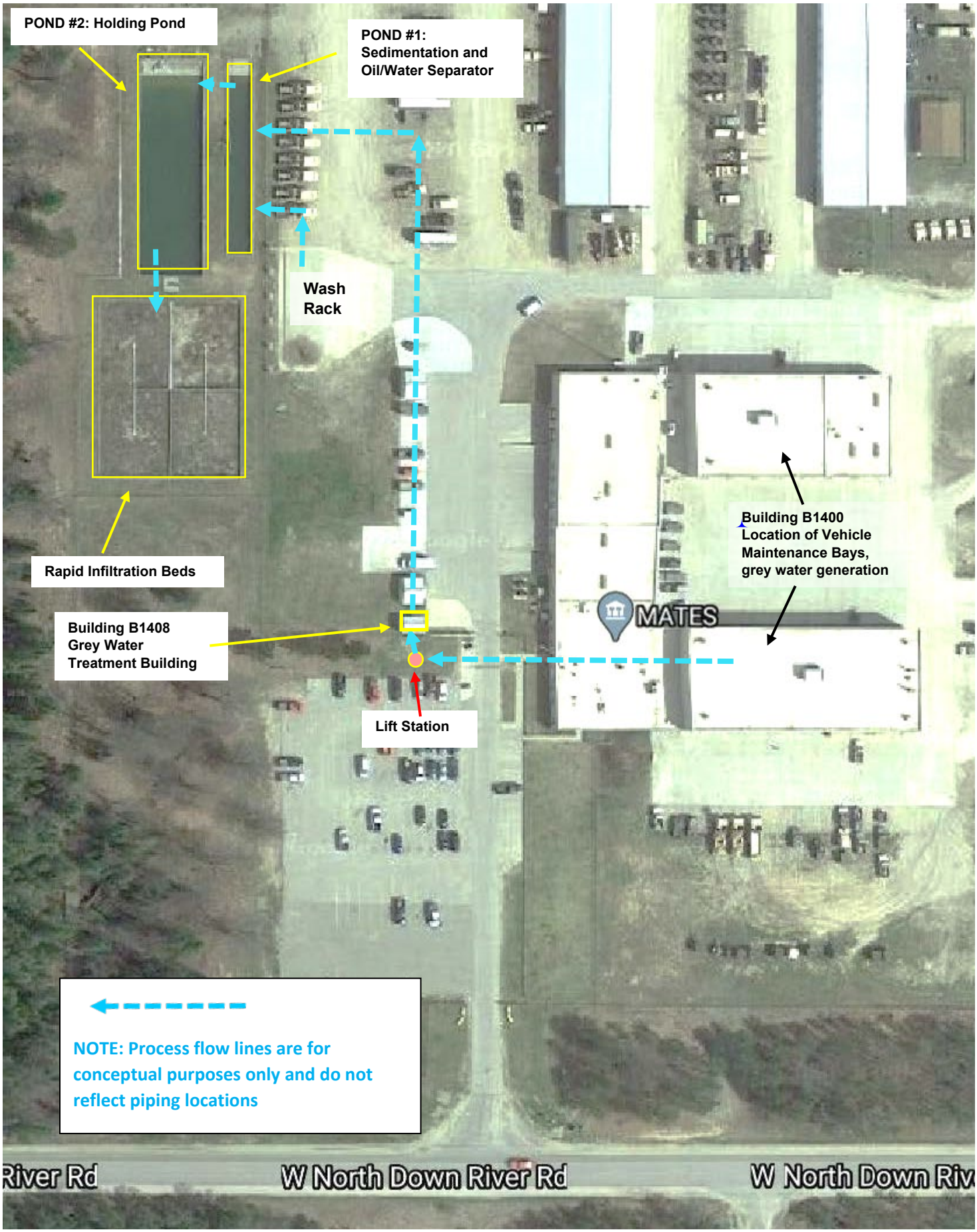


FIGURE 2: Camp Grayling MATES Grey Water Treatment System Flow Path

FIGURE 3:
MATES Gray Water Treatment and Wash Rack Rinse Water Process Flow Chart

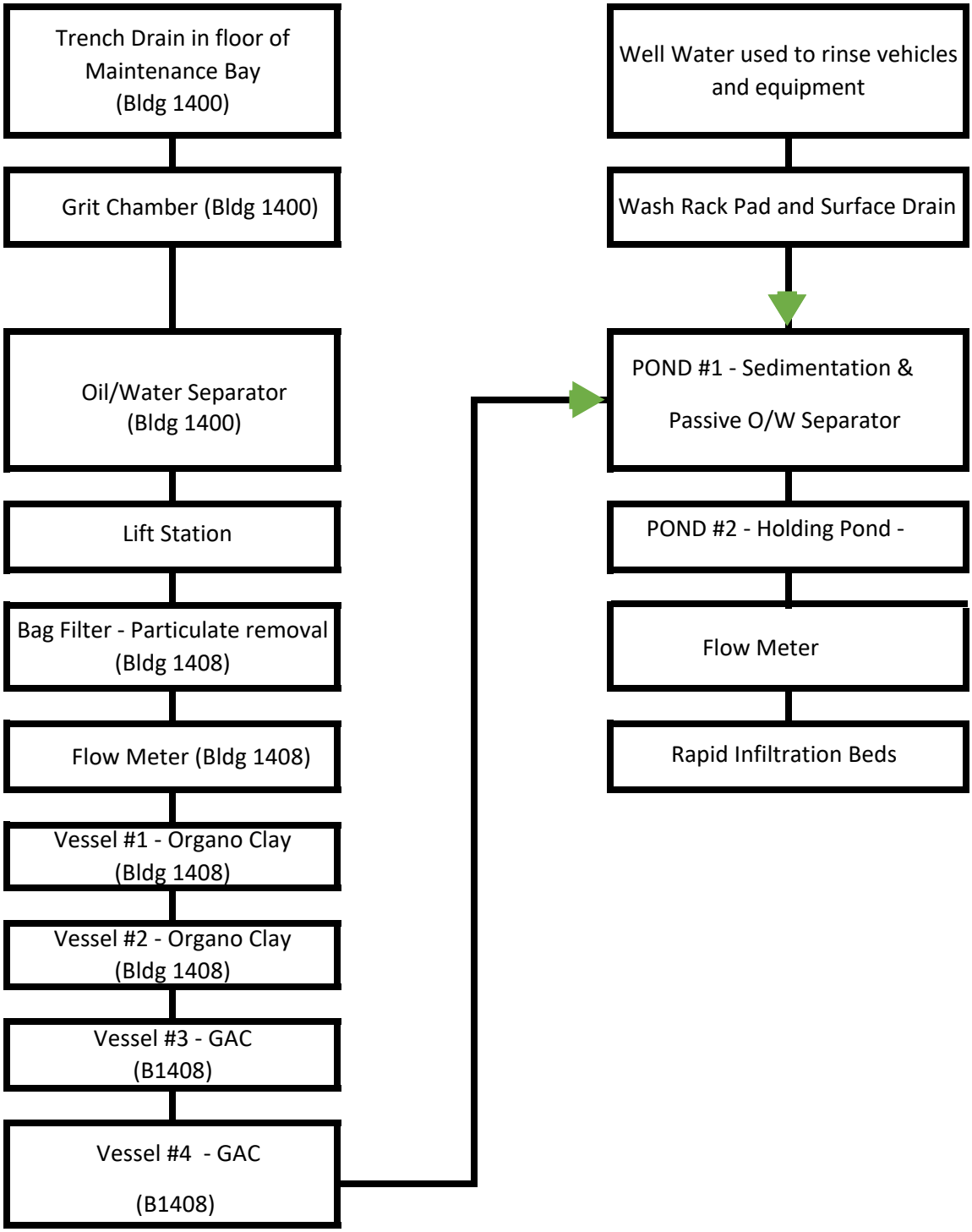


Table 1.
Analytical Results (ppt)
21 September 2021 Field Event
MATES Grey Water Pre-Treatment Influent, Pre-Treatment Effluent, and Treatment Pond Samples
Camp Grayling Joint Maneuver Training Center

LINE ITEM	ANALYTE ACRONYM	ANALYTE	DETECTED CONCENTRATION (ppt)							
			Grey Water Pre-Treatment System		Pond #1 Surface Water	Pond #2 Surface Water	Influent to Rapid Infiltration Beds	BLIND DUPLICATE	TRIP BLANK	FIELD BLANK
			Influent	Effluent						
			Lab #4	Lab #3	Lab #5	Lab #6	Lab #7	Lab #8	Lab #1	Lab #2
1	PFOA	Perfluoro octanoic acid	**29.6**	ND	**2.11**	**2.43**	ND	**1.69**	ND	ND
2	PFOS	Perfluoro octanesulfonic acid	**80.1**	ND	ND	ND	ND	ND	ND	ND
3	PFNA	Perfluoro nonanoic acid	**8.01**	ND	ND	**1.28**	ND	ND	ND	ND
4	PFHxA	Perfluoro hexanoic acid	**24**	ND	**7.98**	**2.81**	**4.09**	**7.97**	ND	ND
5	PFHxS	Perfluoro hexanesulfonic acid	**17.5**	ND	ND	ND	ND	ND	ND	ND
6	PFBS	Perfluoro butanesulfonic acid	ND	ND	ND	ND	ND	ND	ND	ND
7	HFPO-DA	Hexa fluoro propylene oxide dimer acid	ND	ND	ND	ND	ND	ND	ND	ND
8	PFTeA	Perfluoro tetradecanoic acid	ND	ND	ND	ND	ND	ND	ND	ND
9	PFTriA	Perfluoro tridecanoic acid	ND	ND	ND	ND	ND	ND	ND	ND
10	PFDoA	Perfluoro dodecanoic acid	ND	ND	ND	ND	ND	ND	ND	ND
11	PFUnA	Perfluoro undecanoic acid	ND	ND	ND	ND	ND	ND	ND	ND
12	PFDA	Perfluoro decanoic acid	**2.93**	ND	ND	ND	ND	ND	ND	ND
13	PFHpA	Perfluoro heptanoic acid	**16.4**	ND	ND	**1.44**	**2.82**	ND	ND	ND
14	PFPeA	Perfluoro pentanoic acid	**46.3**	**62.6**	**3.76**	**5.9**	**6.76**	**3.7**	ND	ND
15	PFBA	Perfluoro butanoic acid	ND	**46.4**	**4.37**	**8.25**	**10.6**	**3.76**	ND	ND
16	PFDS	Perfluoro deanesulfonic acid	ND	ND	ND	ND	ND	ND	ND	ND
17	PFNS	Perfluoro nonanesulfonic acid	ND	ND	ND	ND	ND	ND	ND	ND
18	PFHpS	Perfluoro heptanesulfonic acid	ND	ND	ND	ND	ND	ND	ND	ND
19	PFPeS	Perfluoro pentanesulfonic acid	ND	ND	ND	ND	ND	ND	ND	ND
20	PFOSA	Perfluoro octanesulfonamide	**2.21**	ND	ND	ND	ND	ND	ND	ND
21	FtS 8:2	Fluorotelomer sulphonic acid 8:2	**152**	ND	ND	ND	ND	ND	ND	ND
22	FtS 6:2	Fluorotelomer sulphonic acid 6:2	**139**	ND	ND	ND	ND	ND	ND	ND
23	FtS 4:2	Fluorotelomer sulphonic acid 4:2	ND	ND	ND	ND	ND	ND	ND	ND
24	N-EtFOSAA	Ethylper fluoro octanedulfonamido acetic acid	**2.21**	ND	ND	ND	ND	ND	ND	ND
25	N-MeFOSAA	Methylper fluoro octanesulfonamido acetic acid	ND	ND	ND	ND	ND	ND	ND	ND
26	11Cl-OF3OUdS	11-chloroeicosa fluoro-3-oxaundecane-1-sulfonic acid	ND	ND	ND	ND	ND	ND	ND	ND
27	9Cl-PF3ONS	9-chlorohexadeca fluoro-3-oxanone-1-sulfonic acid	ND	ND	ND	ND	ND	ND	ND	ND
28	ADONA	4,8-dioxa-3H-perfluoro nonanoic acid	ND	ND	ND	ND	ND	ND	ND	ND

ppt : parts per tillion (equal to nanograms per liter)
ND : Not detected.

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ATTACHMENT A

Compliance Communication CC-003462

GRETCHEN WHITMER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
LANSING

LIESL EICHLER CLARK
DIRECTOR

August 26, 2021

Compliance Communication No. CC-003462

VIA E-MAIL

Ms. Carla Lange
Environmental Office
Camp Grayling
Building 100A
Grayling, Michigan 49739

Dear Ms. Lange:

SUBJECT: EGLE Groundwater Discharge Permit No. GW1810156
Designated Name: MDMA-Camp Grayling-MATES
Part 22 Rules Request
Per- and Polyfluoroalkyl Substances (PFAS)
Compliance Communication

On October 22, 2020, the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Water Resources Division (WRD), received the results of the groundwater monitoring well sampling conducted on August 2, 2018, and October 19, 2018, at the Camp Grayling Maneuver Area Training Equipment Site (Site) located at 2450 North Down River Road, Grayling, Michigan. Groundwater monitoring for PFAS was conducted as part of the Site Inspection and reported in the *Final Site Inspection Report for Range 30 Complex and MATES Camp Grayling JMTC, MI*, dated October 2020. The sampling results indicated that environmental contamination is present in the groundwater at the Site. Michigan's environmental cleanup law, Part 201, Environmental Remediation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA); and the Part 22, Groundwater Quality, Administrative Rules, promulgated pursuant to Part 31, Water Resources Protection, of the NREPA (Part 22 Rules), identify actions or precautions an entity needs to take with respect to environmental contamination. Owners and operators of contaminated property may have responsibilities associated with that contamination.

Sample results identified groundwater impacts of perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS) above the applicable criteria contained in the Administrative Rules of Part 201 of the NREPA that became effective on August 3, 2020. The sample results exceeding groundwater protection criteria are summarized below:

Sample Location	Sample Date	Pollutant	Result (ng/L)	Applicable Criteria (ng/L)
MATE-MW-3	8/2/2018	PFOA	13.5	8
MATE-MW-3	8/2/2018	PFOS	137	16
MATE-MW-3	10/19/2018	PFOS	142	16

Sample Location	Sample Date	Pollutant	Result (ng/L)	Applicable Criteria (ng/L)
MATE-MW-8	8/2/2018	PFOS	17.3	16
MATE-MW-8	10/19/2018	PFOS	32	16
Temporary Well 8-2	10/25/2018	PFOS	7810	16
Temporary Well 8-2	10/25/2018	PFOA	60.7	8
Temporary Well 8-3	10/25/2018	PFOS	397	16
Temporary Well 8-9	10/29/2018	PFOS	41	16
Temporary Well 8-10	10/30/2018	PFOS	18.3	16

The concentrations of PFOA and PFOS in groundwater that exceed applicable Part 201 criteria in compliance Monitoring Wells MATE-MW-3 (PFOA and PFOS) and MATE-MW-8 (PFOS only), as well as temporary Monitoring Wells 8-2 (PFOA and PFOS), 8-3 (PFOS only), 8-9 (PFOS only), and 8-10 (PFOS only) are a violation of Rule 323.2204 and constitute a violation of Groundwater Discharge Permit No. GW1810156.

EGLE is requesting additional sampling of waste streams flowing into and at the Site's Wastewater Treatment Plant (WWTP), per Rule 2227, to determine the extent and potential source(s) of PFAS contamination to the groundwater.

Please conduct the following sampling and submit the requested report to EGLE via MiWaters by <u>October 29, 2021</u>.

1. Sample wastewater at the following locations for PFAS:

    a. Wastewater prior to the organoclay and Granular-Activated Carbon (GAC) filters (i.e., filter influent).
    b. Wastewater after the organoclay and GAC filters (i.e., filter effluent).
    c. Wastewater in the sedimentation/separation tank.
    d. Wastewater in the holding pond.
    e. WWTP effluent discharged to the seepage beds.

2. Prepare and submit a report that includes:

    a. Full analytical laboratory reports from the above PFAS sampling.

    b. A summary of the operational and treatment procedures at the Site, including submitting a list of all the chemicals/products used or stored at the Site that contain PFAS and may enter the waste stream based on a review of Safety Data Sheets.

    c. A current narrative description and process flow diagram for the WWTP.

        i. Please include an explanation for why GAC filters are needed in the treatment train and how often the GAC filters are changed out.

Note, all samples shall be analyzed for EGLE's PFAS Minimum Laboratory Analyte list (https://www.michigan.gov/pfasresponse/0,9038,7-365-88059_95747---,00.html). PFAS sampling guidance for wastewater can be found on the Michigan PFAS Action Response Team Web site (https://www.michigan.gov/pfasresponse/0,9038,7-365-88059_91297---,00.html).

EGLE encourages the Michigan Department of Military and Veteran Affairs (MDMVA) to become familiar with Part 201 and the Part 22 Rules, and requests that the MDMVA take the necessary steps to comply with the provisions of the law that may apply. The MDMVA may want to confer with an environmental consultant to assist in complying with the provisions of Part 201 and the Part 22 Rules. The explanations of Part 201 and the Part 22 Rules in this Compliance Communication should not be considered a complete listing of the MDMVA's legal obligations under the law. The Part 201 statute and rules can be found in their entirety at the EGLE Web site: www.michigan.gov/egle, by clicking on 'Land,' 'Remediation,' then 'Site Investigation and Remediation.' The Part 22 Rules can be found at: http://www.deq.state.mi.us/documents/deq-wmd-gwp-part22.pdf.

If the MDMVA has factual information it would like EGLE to consider regarding this Compliance Communication, please provide this with the written response.

Compliance with the terms of Compliance Communication No. CC-003462 does not relieve the MDMVA of any liability, past or present, from failing to meet the conditions specified in, or failing to comply with, Groundwater Discharge Permit No. GW1810156, Part 201, and the Part 22 Rules.

We appreciate your cooperation in addressing this matter. Should the MDMVA require further information regarding this Complication Communication or the MDMVA would like to arrange a meeting to discuss this communication, please contact Mr. Matthew Pfister, Emerging Pollutants Section, WRD, at 517-667-1073; PfisterM@michigan.gov; or EGLE, WRD, P.O. Box 30473, Lansing, Michigan 48909-7973

Sincerely,

Stephanie Kammer

Stephanie Kammer, Manager
Emerging Pollutants Section
Water Resources Division
517-897-1597

cc: Mr. Jonathon, Edgerly, MDMVA (electronic)
Ms. Amy Handley, MDMVA (electronic)
Ms. Patricia Lyman, MDMVA (electronic)
Mr. Jon Russell, EGLE
Mr. Mathew Pfister, EGLE
Ms. Sydney Ruhala, EGLE
Ms. Kristine Rendon, EGLE
Mr. Justin Pung, EGLE
Mr. Dave Walters, EGLE
Mr. Brian Jankowski, EGLE

Mr. Randy Rothe, EGLE
Mr. Christiaan Bon, EGLE

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ATTACHMENT B

List of Chemicals Stored at the MATES

Line Item	Manufacturer / Brand	Product / Item	Military Issue Part Number
Building 1400 Parts Room Flammable Cabinets			
1	Skilcraft	Enamel	AA2787-1-160Z-37038
2	Skilcraft	Enamel	01-D4-390
3	Skilcraft	Enamel	AA2787-1-160Z-33446
4	Shirwin Williams	Tru-Mix	na
5	MilSpray	MilSpray	Fed-STD-595C
6	Skilcraft	Enamel	AA2787-1-160Z-34088
7	Skilcraft	So-sure	0394-390
8	Skilcraft	So-sure	0234-382
9	Skilcraft	So-sure	0394-370
10	Akzo Nobel	Aerosol coating	8010-01-633-9119
11	Rustoleum	Inverted striping paint	na
12	Rustoleum	Inverted traffic paing	na
13	Shirwin Williams	Polymeric mousture cure	2177
14	Akzo Nobel	Polyurethane coating	8010-01-633-9116
15	Ace	Zone marking paint	
16	Akzo Nobel	Black coating	8010-01-633-9122
17	Anti-seize	Plumbers pipe degreaser	25108
18	Insta-bond	Pipe sealant	01-054-0740
19	Akzo Nobel	Polyurethane coating	8010-01-652-4917
20	WD40	Lubricant	na
21	Goo Gone	Propower solvent	na
22	Hernon	Gasket replacer	916
23	Skilcraft	De-icer fluid	6850-00-835-0484
24	Loctite	LB8008	LB8008
25	Skilcraft	Power duster	na
26	Berkebile Oil Company	2+2 Carb Cleaner	na
27	SPC	Starting fluid	na
28	Liquid Wrench	Lock lubricant and de-icer	na
29	[out of stock item]	Grez-off	na
30	[out of stock item]	Brake cleaner	na
31	[out of stock item]	Corrosion preventive compound	na
32	GMD	Disulfide grease	9150-00-754-2595
33	Sentinel Canada	Weapon lubricant	9150-01-109-7793
34	Nautilus Premium	Engine oil	9150-00-117-8791
35	G96	Rifle bore cleaner	6850-00224-6657
36	Quick Start	Diesel starting fluid	2910-00-646-9727
37	Loctite	RTV Silicone gasket maker	234590
38	Sentinel America	Lubricating oil	9150-00-949-0323
39	Hernon	Nuts N Bolts	434
40	Novagard	Silicone compound	8082420
41	Loctite	Fuel tank repair kit	5705168

42	Saf-t-lok	Thread lock	8030-00-148-9833
43	3M	Spray adhesive	8074
44	Instabond	Synthetic rubber adhesive	8040-00-043-1717
45	Dowsil	Electrical sealant	na
46	Dr. Tranny	Tranmission assembly lubricant	na
47	Moly Kote	Extreme low temperature grease	na
48	Loctite	572 Thread sealant	na
49	PSI	Silicone sealer	601
50	Red Devil	RTV Silicone sealer	na
51	JB Weld	Epoxy	8040-01-590-1896
52	Emkarate	Refrigeration lubricant	na
53	Nexeo Solutions	lens cleaning compound	6850-00-227-1887
54	3M	Weather strip and gasket adhesive	na
55	[out of stock item]	Adhesive	na
56	NAPA	Motor oil 15W-40	na
57	NAPA	Motor oil SAE-40	na
58	NAPA	Motor oil SAE-30	na
59	AMS Oil	Synthetic motor cycle oil SAE20W-50	na
60	Prestone	Radiator flush and oil degreaser	na
61	NAPA	Power steering fluid	na
62	Spot Check	SKL-SPI penetrant	na
63	Spot Check	SKD-S2 developer	na
64	NAPA	Thermo aid	na
65	Isoheet	Injector cleaner	na
66	Bar-s-leaks	radiator stop leak	na
67	NAPA	Mac's radiator fast flush	na
68	HEET	Gasoline antifreeze and water remover	na
69	Krylon	Color master spray paint - red	na
70	Krylon	Color master spray paint - brown	na
71	Loctite	Hitemp silicone	6850-01-358-3510
72	DAP	Kitchen, bath and plumbing silicone seal	na
73	DAP	Concrete filler and sealant	na
74	Turbo lock	Thread seal	6850-01-171-7628
75	[out of stock item]	Cleaner/remover	na
76	Krylon	Color master spray paint - green	na
77	UVEX Clear	Lens cleaning solution	na
78	ACE	Silicone caulk	na
79	Johnsen's	Page 100 Freeze	na
80	Power Service	Diesel fuel supplement	na
81	TRC	880 crown and chaasis grease	na
82	(no brand on label)	Isopropyl alcohol	8016
83	Radcolube	Weapon lubricant and cleaner	9150-01-054-6453
84	Sandstorm	Solid film lubricant	9150-01-260-2534
85	Permatex	Gasket sealant	80062
86	[out of stock item]	Mineral spirits	na
87	Power Service	Diesel 911	na
88	Johnsen's	Anti-congelante	na

89	Earth-friendly	Bioglass cleaner	na
90	Permatex	Form A gasket sealant	8030-00-247-2525
91	Skilcraft	Pine disinfectant detergent	na
92	Azcol	Spray nine multipurpose cleaner	na
93	Ronson	Butane fuel	na
94	Skilcraft	Meter mist fragrance	na
Building 1400 Parts Room Janitorial Supply Shelf			
95	Rite-kem	Detergent with bleach	7930-00-721-8592
96	Gojo	Antibacterial handwash	na
97	Butchers	Heavy duty spot remover	na
98	Gojo	Antigrease hand cleaner	na
99	Gojo	Antimicobial lotion-soap	na
100	Damprid	High capacity moisture absorber	na
101	Tough Guy	Bath and bowl cleaner	na
102	Tough Guy	Hydrochloric bowl cleaner	na
103	2X Corporation	Gym wipes	na
104	Rite-kem	Hand sanitizer gel	na
105	Purel	Hand sanitizer	na
Building 1400 Fire Extinguishers - located in Parts Room and at the end of each mainteance bay			
106	JL Industries	ABC hand-held fire extinguishers	na
Building 1407 ("POL" building)			
107	Safety Kleen	5W-30 Engine oil	9150-01-460-7370
108	Amalie Oil Company	Hydraulic fluid	9150-01-114-9968
109	Generic	Grade 40 engine oil	9150-01-433-7970
110	United Oil Company	Coating oil	9150-00-231-2357
111	Amalie Oil Company	SAE-80W Multi-purpose gear oil	9150-01-035-5394
112	Zep	Parts washer and degreaser	9150-01-418-1338
113	Allegheny Petroleum	SAE-95W Petroleum gear oil	9150-01-035-5396
114	Casatrol	Micronic 73 gear oil	9150-00-035-9810
115	Dyna	Weapons cleaner	17041
116	ECS	Clean shot degreaser	na
117	Radcolube	H537 Hyraulic fluid	na
118	HOC Industries	Windshield leaning compound	6850-01-368-5489
119	Fleetrite	SA30 engine oil	9150-01-422-8997
120	Akcela	Engine oil	9150-01-614-6419
121	Safety Kleen	10W Engine oil	9150-01-496-1948
122	Univar Solutions	Linseed oil	8010-00-684-8789
123	Allegheny Petroleum	SAE-80W-90 gear oil	9150-01-035-5394
124	Radcolube	Brake fluid	9150-01-102-9455
125	Ecolink	Electrical contract solvent	6850-01-371-8048
126	Phillip 66	Automatic transmission fluid	na
127	Dextron	Hydraulic fluid	na
128	Ecopower	Grade 30 engine oil	9150-01-433-7986
129	Radcolube	Fire resistent hydraulic fluid	9150-00-111-6254

130	Royco	Aircraft turbine engine oil	9150-01-439-0756
131	Radcolube	Brake fluid	9150-01-123-3152
132	Evenrude	XD100 injection oil	na
133	CAT	10W Transmission and drive train oil	na
134	Allegheny Petroleum	SAE-W90 gear oil	9150-00-001-9395
135	Marathon	SAE-20W-50 Motor oil	na
136	Advanced Auto Parts	A101 Automatic transmission fluid	na
137	Johnsen's	Anti-congelante	na
138	HSM	Shredder lubricant	na
139	Berkebile Oil Company	Brake fluid	9150-01-052-6762
140	Univar Solutions	Dot3 Brake fluid	9150-01-052-6762
141	Castrol	5W50 Engine oil	na
142	NAPA	Chain saw oil	na
143	Technolube	Aircraft missile and ordinance fluid	9150-00-252-6383
144	Penray	Pencool collant additive	6850-01-476-7761
145	Radcolube	Weapon cleaning lubricant	9150-01-053-6688
146	NAPA	Heavy duty tractor hydraulic and transmission oil	na
147	NAPA	Rando hydraulic fluid	na
148	Radcolube	Hydraulic fluid	9150-00-935-9809
149	Amalie Oil Company	Hydraulic fluid	9150-00-657-4959
150	Biofrost	Antifreeze concentrate	na
151	Anderol Lubricants	Royco 22 Multipurpose grease	9150-01-262-3358
152	Rainex	De-icer fluid	na
153	Anderol Lubricants	Aircraft grease	9150-00-145-0268
154	Radcolube	Automotive and artilary grease	9150-01-197-7693
155	Peak Fleetchange	Antifreeze	na
156	Radcolube	Silicone brake fluid	9150-01-102-9455
157	Old World Industries	Antifreeze	6850-01-464-9125
158	Arctic Wave	Heavy duty antifreeze	6850-01-464-9125
159	Amalie Oil Company	15W-40 Engine oil	na
160	Amalie Oil Company	Automatic tramission hydraulic fluid	na
161	Azure Blue Ink	TAC 106 Cannon bore cleaner	na
162	Rite-kem	Windshield fluid	6850-00-926-2275
163	Crown	Boiled linseed oil	8010-00-152-3245
164	Allegheny Petroleum	SAE85W-140 gear oil	9150-01-035-5395
165	AJ Chemicals	Silicone brake fluid	9150-01-123-3152
166	Radcolube	Brake fluid	9150-01-123-3154

RESPONSE TO 26 AUG 2021 COMPLIANCE COMMUNCIATION NO. CC-003462
MOBILIZATION AND TRAINING EQUIPMENT SITE
GROUNDWATER DISCHARGE PERMIT GW1810156
CAMP GRAYLING JOINT MANEUVER TRAINING CENTER

ATTACHMENT C

Photograph Log

PHOTOGRAPH LOG – THE MATES
RESPONSE TO EGLE AUGUST 26, 2021 COMPLIANCE COMMUNICATIONS CC-003462

PHOTO 1. SUBJECT: Grab sample collection method at pre-treatment system influent sampling port, Building 1408.
DATE: 21 September 2021.
PHOTOGRAPHER: C.J.Lange.

PHOTO 2. SUBJECT: Grab sample collection method at pre-treatment system effluent sampling port, Building 1408.
DATE: 21 September 2021.
PHOTOGRAPHER: C.J.Lange.

PHOTO 3. SUBJECT: Grab sample collection method at Pond 1 (sedimentation/separation tank) and Pond 2 (holding pond).
DATE: 21 September 2021.
PHOTOGRAPHER: C.J.Lange.

PHOTO 4. SUBJECT: Discharge from Pond 2 to the NE quadrant of rapid infiltration bed; looking SSE.
DATE: 21 September 2021.
PHOTOGRAPHER: C.J.Lange.

PHOTO 5. SUBJECT: Grab sample collection method at discharge from Pond 2 to rapid infiltration bed.
DATE: 21 September 2021.
PHOTOGRAPHER: C.J.Lange.

RESPONSE TO 26 AUG 2021 COMPLIANCE COMMUNCIATION NO. CC-003462
MOBILIZATION AND TRAINING EQUIPMENT SITE
GROUNDWATER DISCHARGE PERMIT GW1810156
CAMP GRAYLING JOINT MANEUVER TRAINING CENTER

ATTACHMENT D

Laboratory Analytical Report

Vista
an Enthalpy Analytical Laboratory

October 29, 2021

Vista Work Order No. 2109230

Ms. Ashlee Charters
Wood Environment & Infrastructure
41 Hughest Drive
Traverse City, MI 49696

Dear Ms. Charters,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on September 22, 2021 under your Project Name 'CG MATES'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at jfox@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Oliver Cawdill For

Jamie Fox
Laboratory Director

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 2109230
Case Narrative

Sample Condition on Receipt:

Eight groundwater samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology. The samples were received in good condition and within the recommended temperature requirements.

Analytical Notes:

PFAS Isotope Dilution/LC-MSMS Method Compliant with Table B-15 of DoD QSM 5.3 (Aqueous)

Sample "Wastewater Influent 21921"contained particulate and was centrifuged prior to extraction.

The samples were extracted and analyzed for a selected list of PFAS using Isotope Dilution and LC-MS/MS compliant with Table B-15 of DoD QSM 5.3. The results for PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) were extracted and analyzed with each preparation batch. No analytes were detected in the Method Blanks above 1/2 of the LOQ concentrations. In preparation batch B110177, the recovery of 9Cl-PF3OUdS was greater than 135% in the LCS; this analyte was not detected in the samples. In preparation batch B110177, the RPDs of 9Cl-PF3OUdS, 8:2 FTS and PFNS were greater than 30%; the recoveries and RPDs of all other analytes were within the acceptance criteria. In preparation batch B1J0040, the LCS/LCSD recoveries were within the acceptance criteria and the RPD of PFPeS was greater than 30%.

The labeled standard recoveries outside the acceptance criteria are flagged with an "H" qualifier. The responses of the internal standards with low recoveries were greater than 10:1 signal-to-noise, which is the limit generally considered acceptable for accurate quantitation by isotope dilution analysis.

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Sample Inventory Report

Vista
an Enthalpy Analytical Laboratory

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2109230-01	TB-01 MATES 21921	21-Sep-21 08:00	22-Sep-21 12:06	Polypropylene, 250mL
				Polypropylene, 250mL
2109230-02	FB-01 MATES 21921	21-Sep-21 09:10	22-Sep-21 12:06	Polypropylene, 250mL
2109230-03	Wastewater Effluent MATES 21921	21-Sep-21 09:05	22-Sep-21 12:06	Polypropylene, 250mL
				Polypropylene, 250mL
2109230-04	Wastewater Influent 21921	21-Sep-21 09:00	22-Sep-21 12:06	Polypropylene, 250mL
				Polypropylene, 250mL
2109230-05	Separation tank pond 1 MATES 21921	21-Sep-21 09:15	22-Sep-21 12:06	Polypropylene, 250mL
				Polypropylene, 250mL
2109230-06	Holding pond-pond 2 MATES 21921	21-Sep-21 09:20	22-Sep-21 12:06	Polypropylene, 250mL
				Polypropylene, 250mL
2109230-07	Seepage beds discharge MATES 21921	21-Sep-21 09:25	22-Sep-21 12:06	Polypropylene, 250mL
				Polypropylene, 250mL
2109230-08	BD-01 MATES 21921	21-Sep-21 00:00	22-Sep-21 12:06	Polypropylene, 250mL
				Polypropylene, 250mL

ANALYTICAL RESULTS

Vista
an Enthalpy Analytical Laboratory

Sample ID: Method Blank — **PFAS Isotope Dilution Table B-15**

Client Data				Laboratory Data			
Name:	Wood Environment & Infrastructure	Matrix:	Aqueous	Lab Sample:	B110177-BLK1	Column:	BEH C18
Project:	CG MATES						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
PFPeA	2706-90-3	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
PFBS	375-73-5	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
4:2 FTS	757124-72-4	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
PFHxA	307-24-4	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
PFPeS	2706-91-4	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
HFPO-DA	13252-13-6	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
PFHpA	375-85-9	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
ADONA	919005-14-4	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
PFHxS	355-46-4	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
6:2 FTS	27619-97-2	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
PFOA	335-67-1	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
PFHpS	375-92-8	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	21-Oct-21 23:45	1
PFNA	375-95-1	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
PFOSA	754-91-6	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
PFOS	1763-23-1	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	21-Oct-21 23:45	1
9Cl-PF3ONS	756426-58-1	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
PFDA	335-76-2	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
8:2 FTS	39108-34-4	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
PFNS	68259-12-1	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
MeFOSAA	2355-31-9	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
EtFOSAA	2991-50-6	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
PFUnA	2058-94-8	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
PFDS	335-77-3	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	21-Oct-21 23:45	1
11Cl-PF3OUdS	763051-92-9	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
PFDoA	307-55-1	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
PFTrDA	72629-94-8	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
PFTeDA	376-06-7	ND	1.00	2.00	4.00		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	58.9	50 - 150		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
13C3-PFPeA	IS	62.0	50 - 150		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
13C3-PFBS	IS	78.5	50 - 150		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
13C3-HFPO-DA	IS	59.7	50 - 150		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
13C2-4:2 FTS	IS	87.3	50 - 150		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
13C2-PFHxA	IS	59.9	50 - 150		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
13C4-PFHpA	IS	66.2	50 - 150		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
13C3-PFHxS	IS	90.6	50 - 150		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
13C2-6:2 FTS	IS	62.1	50 - 150		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1

Sample ID: Method Blank

PFAS Isotope Dilution Table B-15

Client Data				Laboratory Data			
Name:	Wood Environment & Infrastructure	Matrix:	Aqueous	Lab Sample:	B110177-BLK1	Column	BEH C18
Project:	CG MATES						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C5-PFNA	IS	61.3	50 - 150		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
13C8-PFOSA	IS	21.9	50 - 150	H	B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
13C2-PFOA	IS	62.9	50 - 150		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
13C8-PFOS	IS	60.7	50 - 150		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
13C2-PFDA	IS	73.5	50 - 150		B110177	03-Oct-21	0.250 L	21-Oct-21 23:45	1
13C2-8:2 FTS	IS	95.2	50 - 150		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
d3-MeFOSAA	IS	64.7	50 - 150		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
13C2-PFUnA	IS	55.2	50 - 150		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
d5-EtFOSAA	IS	59.3	50 - 150		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
13C2-PFDoA	IS	61.1	50 - 150		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1
13C2-PFTeDA	IS	63.8	50 - 150		B110177	03-Oct-21	0.250 L	20-Oct-21 00:19	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL

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

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Sample ID: LCSD — **PFAS Isotope Dilution Table B-15**

Name:	Wood Environment & Infrastructure	Lab Sample:	B1I0177-BS1/B1I0177-BSD1
Project:	CG MATES	QC Batch:	B1I0177
Matrix:	Aqueous	Samp Size:	0.250/0.250 L
		Date Extracted:	03-Oct-21
		Column:	BEH C18

Analyte	CAS Number	LCS (ng/L)	LCS Spike	LCS % Rec	LCS Quals	LCSD (ng/L)	LCSD Spike	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
PFBA	375-22-4	40.8	40.0	102		39.2	40.0	97.9	3.97		73-129	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1
PFPeA	2706-90-3	45.2	40.0	113		43.1	40.0	108	4.63		72-129	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1
PFBS	375-73-5	44.1	40.0	110		39.8	40.0	99.4	10.3		72-130	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1
4:2 FTS	757124-72-4	46.1	40.0	115		41.3	40.0	103	11.2		63-143	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1
PFHxA	307-24-4	43.2	40.0	108		39.6	40.0	99.1	8.52		72-129	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1
PFPeS	2706-91-4	46.2	40.0	116		45.7	40.0	114	1.08		71-127	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1
HFPO-DA	13252-13-6	50.4	40.0	126		43.8	40.0	110	14.0		65-135	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1
PFHpA	375-85-9	41.7	40.0	104		43.6	40.0	109	4.32		72-130	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1
ADONA	919005-14-4	39.3	40.0	98.3		38.8	40.0	97.0	1.41		65-135	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1
PFHxS	355-46-4	42.8	40.0	107		37.3	40.0	93.1	13.9		68-131	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1
6:2 FTS	27619-97-2	45.5	40.0	114		42.0	40.0	105	8.01		64-140	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1
PFOA	335-67-1	36.1	40.0	90.2		39.4	40.0	98.5	8.82		71-133	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1
PFHpS	375-92-8	36.7	40.0	91.8		39.4	40.0	98.5	7.06		69-134	30	21-Oct-21 23:55	1	22-Oct-21 00:06	1
PFNA	375-95-1	44.4	40.0	111		42.4	40.0	106	4.55		69-130	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1
PFOSA	754-91-6	37.9	40.0	94.7		42.8	40.0	107	12.3		67-137	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1
PFOS	1763-23-1	38.2	40.0	95.4		44.6	40.0	112	15.6		65-140	30	21-Oct-21 23:55	1	22-Oct-21 00:06	1
9Cl-PF3ONS	756426-58-1	60.6	40.0	151	H	41.4	40.0	103	37.6	H	65-135	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1
PFDA	335-76-2	35.9	40.0	89.9		37.9	40.0	94.7	5.25		71-129	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1
8:2 FTS	39108-34-4	26.9	40.0	67.1		37.7	40.0	94.3	33.6	H	67-138	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1
PFNS	68259-12-1	49.4	40.0	123		27.6	40.0	68.9	56.7	H	69-127	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1
MeFOSAA	2355-31-9	45.8	40.0	114		41.2	40.0	103	10.4		65-136	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1
EtFOSAA	2991-50-6	43.2	40.0	108		48.0	40.0	120	10.7		61-135	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1
PFUnA	2058-94-8	39.9	40.0	99.7		46.7	40.0	117	15.7		69-133	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1
PFDS	335-77-3	38.2	40.0	95.6		38.3	40.0	95.9	0.252		53-142	30	21-Oct-21 23:55	1	22-Oct-21 00:06	1
11Cl-PF3OUdS	763051-92-9	39.6	40.0	99.0		43.0	40.0	107	8.23		65-135	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1
PFDoA	307-55-1	40.1	40.0	100		45.5	40.0	114	12.5		72-134	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1
PFTrDA	72629-94-8	37.9	40.0	94.8		44.9	40.0	112	16.8		65-144	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1
PFTeDA	376-06-7	42.7	40.0	107		44.7	40.0	112	4.62		71-132	30	20-Oct-21 00:30	1	20-Oct-21 00:40	1

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C3-PFBA	IS	63.4		59.6		50 - 150	20-Oct-21 00:30	1	20-Oct-21 00:40	1
13C3-PFPeA	IS	62.2		59.9		50 - 150	20-Oct-21 00:30	1	20-Oct-21 00:40	1
13C3-PFBS	IS	88.7		85.4		50 - 150	20-Oct-21 00:30	1	20-Oct-21 00:40	1

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Sample ID: LCSD

PFAS Isotope Dilution Table B-15

Name:	Wood Environment & Infrastructure	Lab Sample:	BI10177-BS1/BI10177-BSD1		
Project:	CG MATES	QC Batch:	BI10177	Date Extracted:	03-Oct-21
Matrix:	Aqueous	Samp Size:	0.250/0.250 L	Column:	BEH C18

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C3-HFPO-DA	IS	55.2		53.2		50 - 150	20-Oct-21 00:30	1	20-Oct-21 00:40	1
13C2-4:2 FTS	IS	80.2		80.8		50 - 150	20-Oct-21 00:30	1	20-Oct-21 00:40	1
13C2-PFHxA	IS	58.1		56.7		50 - 150	20-Oct-21 00:30	1	20-Oct-21 00:40	1
13C4-PFHpA	IS	70.5		63.6		50 - 150	20-Oct-21 00:30	1	20-Oct-21 00:40	1
13C3-PFHxS	IS	90.1		85.0		50 - 150	20-Oct-21 00:30	1	20-Oct-21 00:40	1
13C2-6:2 FTS	IS	76.9		86.4		50 - 150	20-Oct-21 00:30	1	20-Oct-21 00:40	1
13C5-PFNA	IS	77.5		71.9		50 - 150	20-Oct-21 00:30	1	20-Oct-21 00:40	1
13C8-PFOSA	IS	36.7	H	21.5	H	50 - 150	20-Oct-21 00:30	1	20-Oct-21 00:40	1
13C2-PFOA	IS	81.4		68.1		50 - 150	20-Oct-21 00:30	1	20-Oct-21 00:40	1
13C8-PFOS	IS	70.6		64.3		50 - 150	21-Oct-21 23:55	1	22-Oct-21 00:06	1
13C2-PFDA	IS	77.1		72.6		50 - 150	20-Oct-21 00:30	1	20-Oct-21 00:40	1
13C2-8:2 FTS	IS	115		82.2		50 - 150	20-Oct-21 00:30	1	20-Oct-21 00:40	1
d3-MeFOSAA	IS	71.4		69.6		50 - 150	20-Oct-21 00:30	1	20-Oct-21 00:40	1
13C2-PFUnA	IS	67.0		56.4		50 - 150	20-Oct-21 00:30	1	20-Oct-21 00:40	1
d5-EtFOSAA	IS	64.6		56.4		50 - 150	20-Oct-21 00:30	1	20-Oct-21 00:40	1
13C2-PFDoA	IS	60.1		50.1		50 - 150	20-Oct-21 00:30	1	20-Oct-21 00:40	1
13C2-PFTeDA	IS	73.2		64.2		50 - 150	20-Oct-21 00:30	1	20-Oct-21 00:40	1

Sample ID: Method Blank — **PFAS Isotope Dilution Table B-15**

Client Data				Laboratory Data			
Name:	Wood Environment & Infrastructure	Matrix:	Aqueous	Lab Sample:	B1J0040-BLK1	Column:	BEH C18
Project:	CG MATES						

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
PFPeA	2706-90-3	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
PFBS	375-73-5	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
4:2 FTS	757124-72-4	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
PFHxA	307-24-4	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
PFPeS	2706-91-4	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
HFPO-DA	13252-13-6	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
PFHpA	375-85-9	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
ADONA	919005-14-4	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
PFHxS	355-46-4	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
6:2 FTS	27619-97-2	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
PFOA	335-67-1	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
PFHpS	375-92-8	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
PFNA	375-95-1	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
PFOSA	754-91-6	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
PFOS	1763-23-1	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
9Cl-PF3ONS	756426-58-1	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
PFDA	335-76-2	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
8:2 FTS	39108-34-4	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
PFNS	68259-12-1	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
MeFOSAA	2355-31-9	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
EtFOSAA	2991-50-6	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
PFUnA	2058-94-8	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
PFDS	335-77-3	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
11Cl-PF3OUdS	763051-92-9	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
PFDoA	307-55-1	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
PFTrDA	72629-94-8	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
PFTeDA	376-06-7	ND	1.00	2.00	4.00		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	101	50 - 150		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
13C3-PFPeA	IS	76.2	50 - 150		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
13C3-PFBS	IS	69.5	50 - 150		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
13C3-HFPO-DA	IS	84.2	50 - 150		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
13C2-4:2 FTS	IS	77.2	50 - 150		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
13C2-PFHxA	IS	79.3	50 - 150		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
13C4-PFHpA	IS	72.5	50 - 150		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
13C3-PFHxS	IS	72.8	50 - 150		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
13C2-6:2 FTS	IS	79.1	50 - 150		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1

Sample ID: Method Blank

PFAS Isotope Dilution Table B-15

Client Data				Laboratory Data			
Name:	Wood Environment & Infrastructure	Matrix:	Aqueous	Lab Sample:	B1J0040-BLK1	Column:	BEH C18
Project:	CG MATES						

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C5-PFNA	IS	69.5	50 - 150		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
13C8-PFOSA	IS	41.0	50 - 150	H	B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
13C2-PFOA	IS	75.4	50 - 150		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
13C8-PFOS	IS	67.4	50 - 150		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
13C2-PFDA	IS	56.3	50 - 150		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
13C2-8:2 FTS	IS	59.6	50 - 150		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
d3-MeFOSAA	IS	71.0	50 - 150		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
13C2-PFUnA	IS	62.6	50 - 150		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
d5-EtFOSAA	IS	64.6	50 - 150		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
13C2-PFDoA	IS	62.0	50 - 150		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1
13C2-PFTeDA	IS	70.4	50 - 150		B1J0040	14-Oct-21	0.250 L	22-Oct-21 21:15	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
Results reported to the DL

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

Sample ID: LCSD **PFAS Isotope Dilution Table B-15**

Name:	Wood Environment & Infrastructure	Lab Sample:	B1J0040-BS1/B1J0040-BSD1
Project:	CG MATES	QC Batch:	B1J0040
Matrix:	Aqueous	Samp Size:	0.250/0.250 L
		Date Extracted:	14-Oct-21
		Column:	BEH C18

Analyte	CAS Number	LCS (ng/L)	LCS Spike	LCS % Rec	LCS Quals	LCSD (ng/L)	LCSD Spike	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
PFBA	375-22-4	34.4	40.0	85.9		37.6	40.0	93.9	8.92		73-129	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
PFPeA	2706-90-3	35.9	40.0	89.8		41.0	40.0	102	13.2		72-129	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
PFBS	375-73-5	37.9	40.0	94.7		43.5	40.0	109	13.8		72-130	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
4:2 FTS	757124-72-4	34.4	40.0	86.0		37.7	40.0	94.3	9.26		63-143	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
PFHxA	307-24-4	37.4	40.0	93.5		42.4	40.0	106	12.6		72-129	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
PFPeS	2706-91-4	32.6	40.0	81.5		46.9	40.0	117	35.9	H	71-127	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
HFPO-DA	13252-13-6	41.0	40.0	102		41.5	40.0	104	1.21		65-135	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
PFHpA	375-85-9	38.4	40.0	96.0		41.9	40.0	105	8.64		72-130	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
ADONA	919005-14-4	36.1	40.0	90.2		39.3	40.0	98.3	8.50		65-135	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
PFHxS	355-46-4	40.5	40.0	101		40.6	40.0	101	0.287		68-131	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
6:2 FTS	27619-97-2	40.2	40.0	101		36.4	40.0	91.1	9.90		64-140	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
PFOA	335-67-1	39.0	40.0	97.5		42.8	40.0	107	9.34		71-133	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
PFHpS	375-92-8	41.4	40.0	104		42.2	40.0	105	1.74		69-134	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
PFNA	375-95-1	33.0	40.0	82.4		39.4	40.0	98.5	17.7		69-130	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
PFOSA	754-91-6	35.1	40.0	87.7	Q	43.4	40.0	109	21.2	Q	67-137	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
PFOS	1763-23-1	39.3	40.0	98.2		39.2	40.0	98.1	0.0692		65-140	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
9Cl-PF3ONS	756426-58-1	39.6	40.0	99.0		35.3	40.0	88.1	11.6		65-135	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
PFDA	335-76-2	37.0	40.0	92.5		41.9	40.0	105	12.5		71-129	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
8:2 FTS	39108-34-4	32.1	40.0	80.3		42.4	40.0	106	27.5		67-138	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
PFNS	68259-12-1	36.0	40.0	90.1		35.5	40.0	88.8	1.38		69-127	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
MeFOSAA	2355-31-9	36.2	40.0	90.5		41.1	40.0	103	12.8		65-136	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
EtFOSAA	2991-50-6	38.5	40.0	96.3		39.5	40.0	98.8	2.54		61-135	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
PFUnA	2058-94-8	37.4	40.0	93.4		40.8	40.0	102	8.70		69-133	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
PFDS	335-77-3	33.7	40.0	84.2		34.2	40.0	85.4	1.34		53-142	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
11Cl-PF3OUdS	763051-92-9	33.8	40.0	84.4		38.5	40.0	96.3	13.2		65-135	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
PFDoA	307-55-1	34.9	40.0	87.2		38.0	40.0	94.9	8.45		72-134	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
PFTrDA	72629-94-8	37.0	40.0	92.5		34.7	40.0	86.9	6.31		65-144	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1
PFTeDA	376-06-7	37.7	40.0	94.3		44.9	40.0	112	17.4		71-132	30	22-Oct-21 21:25	1	22-Oct-21 21:36	1

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C3-PFBA	IS	98.6		94.2		50 - 150	22-Oct-21 21:25	1	22-Oct-21 21:36	1
13C3-PFPeA	IS	75.3		69.8		50 - 150	22-Oct-21 21:25	1	22-Oct-21 21:36	1
13C3-PFBS	IS	74.3		65.8		50 - 150	22-Oct-21 21:25	1	22-Oct-21 21:36	1

Sample ID: LCSD

PFAS Isotope Dilution Table B-15

Name:	Wood Environment & Infrastructure	Lab Sample:	B1J0040-BS1/B1J0040-BSD1		
Project:	CG MATES	QC Batch:	B1J0040	Date Extracted:	14-Oct-21
Matrix:	Aqueous	Samp Size:	0.250/0.250 L	Column:	BEH C18

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C3-HFPO-DA	IS	76.1		74.5		50 - 150	22-Oct-21 21:25	1	22-Oct-21 21:36	1
13C2-4:2 FTS	IS	85.8		74.5		50 - 150	22-Oct-21 21:25	1	22-Oct-21 21:36	1
13C2-PFHxA	IS	78.9		72.9		50 - 150	22-Oct-21 21:25	1	22-Oct-21 21:36	1
13C4-PFHpA	IS	73.5		70.9		50 - 150	22-Oct-21 21:25	1	22-Oct-21 21:36	1
13C3-PFHxS	IS	71.2		71.7		50 - 150	22-Oct-21 21:25	1	22-Oct-21 21:36	1
13C2-6:2 FTS	IS	83.8		76.7		50 - 150	22-Oct-21 21:25	1	22-Oct-21 21:36	1
13C5-PFNA	IS	86.8		72.9		50 - 150	22-Oct-21 21:25	1	22-Oct-21 21:36	1
13C8-PFOSA	IS	42.9	H	36.8	H	50 - 150	22-Oct-21 21:25	1	22-Oct-21 21:36	1
13C2-PFOA	IS	68.1		68.8		50 - 150	22-Oct-21 21:25	1	22-Oct-21 21:36	1
13C8-PFOS	IS	65.5		76.0		50 - 150	22-Oct-21 21:25	1	22-Oct-21 21:36	1
13C2-PFDA	IS	63.1		61.2		50 - 150	22-Oct-21 21:25	1	22-Oct-21 21:36	1
13C2-8:2 FTS	IS	69.2		64.2		50 - 150	22-Oct-21 21:25	1	22-Oct-21 21:36	1
d3-MeFOSAA	IS	72.8		69.4		50 - 150	22-Oct-21 21:25	1	22-Oct-21 21:36	1
13C2-PFUnA	IS	62.2		58.6		50 - 150	22-Oct-21 21:25	1	22-Oct-21 21:36	1
d5-EtFOSAA	IS	63.1		61.6		50 - 150	22-Oct-21 21:25	1	22-Oct-21 21:36	1
13C2-PFDoA	IS	65.9		68.9		50 - 150	22-Oct-21 21:25	1	22-Oct-21 21:36	1
13C2-PFTeDA	IS	62.9		64.6		50 - 150	22-Oct-21 21:25	1	22-Oct-21 21:36	1

Sample ID: TB-01 MATES 21921

PFAS Isotope Dilution Table B-15

Client Data				Laboratory Data			
Name:	Wood Environment & Infrastructure	Matrix:	Groundwater	Lab Sample:	2109230-01	Column:	BEH C18
Project:	CG MATES	Date Collected:	21-Sep-21 08:00	Date Received:	22-Sep-21 12:06		

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
PFPeA	2706-90-3	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
PFBS	375-73-5	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
4:2 FTS	757124-72-4	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
PFHxA	307-24-4	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
PFPeS	2706-91-4	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
HFPO-DA	13252-13-6	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
PFHpA	375-85-9	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
ADONA	919005-14-4	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
PFHxS	355-46-4	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
6:2 FTS	27619-97-2	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
PFOA	335-67-1	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
PFHpS	375-92-8	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	22-Oct-21 02:22	1
PFNA	375-95-1	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
PFOSA	754-91-6	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
PFOS	1763-23-1	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	22-Oct-21 02:22	1
9Cl-PF3ONS	756426-58-1	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
PFDA	335-76-2	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
8:2 FTS	39108-34-4	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
PFNS	68259-12-1	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
MeFOSAA	2355-31-9	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
EtFOSAA	2991-50-6	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
PFUnA	2058-94-8	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
PFDS	335-77-3	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	22-Oct-21 02:22	1
11Cl-PF3OUdS	763051-92-9	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
PFDoA	307-55-1	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
PFTrDA	72629-94-8	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
PFTeDA	376-06-7	ND	1.04	2.09	4.18		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	63.1	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
13C3-PFPeA	IS	64.8	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
13C3-PFBS	IS	78.7	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
13C3-HFPO-DA	IS	62.1	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
13C2-4:2 FTS	IS	81.6	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
13C2-PFHxA	IS	64.5	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
13C4-PFHpA	IS	62.9	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
13C3-PFHxS	IS	93.6	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1

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Sample ID: TB-01 MATES 21921

PFAS Isotope Dilution Table B-15

Client Data				Laboratory Data			
Name:	Wood Environment & Infrastructure	Matrix:	Groundwater	Lab Sample:	2109230-01	Column:	BEH C18
Project:	CG MATES	Date Collected:	21-Sep-21 08:00	Date Received:	22-Sep-21 12:06		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-6:2 FTS	IS	83.2	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
13C5-PFNA	IS	64.7	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
13C8-PFOSA	IS	33.7	50 - 150	H	B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
13C2-PFOA	IS	64.5	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
13C8-PFOS	IS	65.1	50 - 150		B110177	03-Oct-21	0.239 L	22-Oct-21 02:22	1
13C2-PFDA	IS	66.5	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
13C2-8:2 FTS	IS	75.4	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
d3-MeFOSAA	IS	76.1	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
13C2-PFUnA	IS	61.5	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
d5-EtFOSAA	IS	59.6	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
13C2-PFDoA	IS	54.2	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1
13C2-PFTeDA	IS	63.2	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 02:57	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
Results reported to the DL

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

Sample ID: FB-01 MATES 21921

PFAS Isotope Dilution Table B-15

Client Data				Laboratory Data			
Name:	Wood Environment & Infrastructure	Matrix:	Groundwater	Lab Sample:	2109230-02	Column:	BEH C18
Project:	CG MATES	Date Collected:	21-Sep-21 09:10	Date Received:	22-Sep-21 12:06		

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
PFPeA	2706-90-3	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
PFBS	375-73-5	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
4:2 FTS	757124-72-4	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
PFHxA	307-24-4	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
PFPeS	2706-91-4	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
HFPO-DA	13252-13-6	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
PFHpA	375-85-9	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
ADONA	919005-14-4	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
PFHxS	355-46-4	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
6:2 FTS	27619-97-2	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
PFOA	335-67-1	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
PFHpS	375-92-8	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	22-Oct-21 02:33	1
PFNA	375-95-1	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
PFOSA	754-91-6	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
PFOS	1763-23-1	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	22-Oct-21 02:33	1
9Cl-PF3ONS	756426-58-1	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
PFDA	335-76-2	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
8:2 FTS	39108-34-4	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
PFNS	68259-12-1	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
MeFOSAA	2355-31-9	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
EtFOSAA	2991-50-6	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
PFUnA	2058-94-8	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
PFDS	335-77-3	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	22-Oct-21 02:33	1
11Cl-PF3OUdS	763051-92-9	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
PFDoA	307-55-1	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
PFTrDA	72629-94-8	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
PFTeDA	376-06-7	ND	1.01	2.02	4.04		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	60.1	50 - 150		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
13C3-PFPeA	IS	65.7	50 - 150		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
13C3-PFBS	IS	78.3	50 - 150		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
13C3-HFPO-DA	IS	60.7	50 - 150		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
13C2-4:2 FTS	IS	78.0	50 - 150		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
13C2-PFHxA	IS	56.7	50 - 150		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
13C4-PFHpA	IS	66.5	50 - 150		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
13C3-PFHxS	IS	98.1	50 - 150		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1

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Sample ID: FB-01 MATES 21921

PFAS Isotope Dilution Table B-15

Client Data				Laboratory Data			
Name:	Wood Environment & Infrastructure	Matrix:	Groundwater	Lab Sample:	2109230-02	Column:	BEH C18
Project:	CG MATES	Date Collected:	21-Sep-21 09:10	Date Received:	22-Sep-21 12:06		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-6:2 FTS	IS	68.5	50 - 150		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
13C5-PFNA	IS	65.1	50 - 150		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
13C8-PFOSA	IS	37.1	50 - 150	H	B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
13C2-PFOA	IS	62.4	50 - 150		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
13C8-PFOS	IS	58.1	50 - 150		B110177	03-Oct-21	0.248 L	22-Oct-21 02:33	1
13C2-PFDA	IS	65.6	50 - 150		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
13C2-8:2 FTS	IS	86.9	50 - 150		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
d3-MeFOSAA	IS	69.5	50 - 150		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
13C2-PFUnA	IS	53.9	50 - 150		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
d5-EtFOSAA	IS	55.3	50 - 150		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
13C2-PFDoA	IS	46.8	50 - 150	H	B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1
13C2-PFTeDA	IS	52.7	50 - 150		B110177	03-Oct-21	0.248 L	20-Oct-21 03:07	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
Results reported to the DL

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

Sample ID: Wastewater Effluent MATES 21921

PFAS Isotope Dilution Table B-15

Client Data				Laboratory Data			
Name:	Wood Environment & Infrastructure	Matrix:	Groundwater	Lab Sample:	2109230-03	Column:	BEH C18
Project:	CG MATES	Date Collected:	21-Sep-21 09:05	Date Received:	22-Sep-21 12:06		

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	46.4	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
PFPeA	2706-90-3	62.6	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
PFBS	375-73-5	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
4:2 FTS	757124-72-4	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
PFHxA	307-24-4	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
PFPeS	2706-91-4	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
HFPO-DA	13252-13-6	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
PFHpA	375-85-9	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
ADONA	919005-14-4	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
PFHxS	355-46-4	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
6:2 FTS	27619-97-2	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
PFOA	335-67-1	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
PFHpS	375-92-8	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	22-Oct-21 02:43	1
PFNA	375-95-1	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
PFOSA	754-91-6	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
PFOS	1763-23-1	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	22-Oct-21 02:43	1
9Cl-PF3ONS	756426-58-1	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
PFDA	335-76-2	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
8:2 FTS	39108-34-4	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
PFNS	68259-12-1	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
MeFOSAA	2355-31-9	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
EtFOSAA	2991-50-6	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
PFUnA	2058-94-8	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
PFDS	335-77-3	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
11Cl-PF3OUdS	763051-92-9	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	22-Oct-21 02:43	1
PFDoA	307-55-1	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
PFTrDA	72629-94-8	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
PFTeDA	376-06-7	ND	1.04	2.07	4.16		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	69.9	50 - 150		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
13C3-PFPeA	IS	71.4	50 - 150		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
13C3-PFBS	IS	93.9	50 - 150		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
13C3-HFPO-DA	IS	74.0	50 - 150		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
13C2-4:2 FTS	IS	97.9	50 - 150		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
13C2-PFHxA	IS	71.6	50 - 150		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
13C4-PFHpA	IS	72.1	50 - 150		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
13C3-PFHxS	IS	101	50 - 150		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1

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Sample ID: Wastewater Effluent MATES 21921 — **PFAS Isotope Dilution Table B-15**

Client Data				Laboratory Data			
Name:	Wood Environment & Infrastructure	Matrix:	Groundwater	Lab Sample:	2109230-03	Column:	BEH C18
Project:	CG MATES	Date Collected:	21-Sep-21 09:05	Date Received:	22-Sep-21 12:06		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-6:2 FTS	IS	74.0	50 - 150		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
13C5-PFNA	IS	73.2	50 - 150		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
13C8-PFOSA	IS	33.2	50 - 150	H	B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
13C2-PFOA	IS	75.6	50 - 150		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
13C8-PFOS	IS	63.4	50 - 150		B110177	03-Oct-21	0.241 L	22-Oct-21 02:43	1
13C2-PFDA	IS	64.8	50 - 150		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
13C2-8:2 FTS	IS	82.3	50 - 150		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
d3-MeFOSAA	IS	71.4	50 - 150		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
13C2-PFUnA	IS	65.3	50 - 150		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
d5-EtFOSAA	IS	57.4	50 - 150		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
13C2-PFDoA	IS	62.0	50 - 150		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1
13C2-PFTeDA	IS	61.5	50 - 150		B110177	03-Oct-21	0.241 L	20-Oct-21 03:18	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
Results reported to the DL.
When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes

Sample ID: Wastewater Influent 21921 — **PFAS Isotope Dilution Table B-15**

Client Data				Laboratory Data			
Name:	Wood Environment & Infrastructure	Matrix:	Groundwater	Lab Sample:	2109230-04	Column:	BEH C18
Project:	CG MATES	Date Collected:	21-Sep-21 09:00	Date Received:	22-Sep-21 12:06		

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	ND	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
PFPeA	2706-90-3	46.3	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
PFBS	375-73-5	ND	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
4:2 FTS	757124-72-4	ND	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
PFHxA	307-24-4	24.0	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
PFPeS	2706-91-4	ND	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
HFPO-DA	13252-13-6	ND	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
PFHpA	375-85-9	16.4	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
ADONA	919005-14-4	ND	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
PFHxS	355-46-4	17.5	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
6:2 FTS	27619-97-2	139	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
PFOA	335-67-1	29.6	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
PFHpS	375-92-8	ND	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	22-Oct-21 02:54	1
PFNA	375-95-1	8.01	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
PFOSA	754-91-6	ND	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
PFOS	1763-23-1	80.1	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	22-Oct-21 02:54	1
9Cl-PF3ONS	756426-58-1	ND	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
PFDA	335-76-2	2.93	1.06	2.13	4.25	J	B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
8:2 FTS	39108-34-4	152	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
PFNS	68259-12-1	ND	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
MeFOSAA	2355-31-9	ND	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
EtFOSAA	2991-50-6	2.21	1.06	2.13	4.25	J, Q	B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
PFUnA	2058-94-8	ND	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
PFDS	335-77-3	ND	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	22-Oct-21 02:54	1
11Cl-PF3OUdS	763051-92-9	ND	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
PFDoA	307-55-1	ND	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
PFTrDA	72629-94-8	ND	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
PFTeDA	376-06-7	ND	1.06	2.13	4.25		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	30.8	50 - 150	H	B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
13C3-PFPeA	IS	59.2	50 - 150		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
13C3-PFBS	IS	68.1	50 - 150		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
13C3-HFPO-DA	IS	59.8	50 - 150		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
13C2-4:2 FTS	IS	66.5	50 - 150		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
13C2-PFHxA	IS	64.0	50 - 150		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
13C4-PFHpA	IS	69.5	50 - 150		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
13C3-PFHxS	IS	88.8	50 - 150		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1

Sample ID: Wastewater Influent 21921 — **PFAS Isotope Dilution Table B-15**

Client Data				Laboratory Data			
Name:	Wood Environment & Infrastructure	Matrix:	Groundwater	Lab Sample:	2109230-04	Column:	BEH C18
Project:	CG MATES	Date Collected:	21-Sep-21 09:00	Date Received:	22-Sep-21 12:06		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-6:2 FTS	IS	57.3	50 - 150		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
13C5-PFNA	IS	56.8	50 - 150		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
13C8-PFOSA	IS	8.70	50 - 150	H	B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
13C2-PFOA	IS	65.8	50 - 150		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
13C8-PFOS	IS	57.0	50 - 150		B110177	03-Oct-21	0.235 L	22-Oct-21 02:54	1
13C2-PFDA	IS	65.4	50 - 150		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
13C2-8:2 FTS	IS	88.2	50 - 150		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
d3-MeFOSAA	IS	65.8	50 - 150		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
13C2-PFUnA	IS	51.8	50 - 150		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
d5-EtFOSAA	IS	53.8	50 - 150		B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
13C2-PFDoA	IS	35.3	50 - 150	H	B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1
13C2-PFTeDA	IS	34.7	50 - 150	H	B110177	03-Oct-21	0.235 L	20-Oct-21 03:28	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
Results reported to the DL

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

Sample ID: Separation tank pond 1 MATES 21921 — **PFAS Isotope Dilution Table B-15**

Client Data				Laboratory Data			
Name:	Wood Environment & Infrastructure	Matrix:	Groundwater	Lab Sample:	2109230-05	Column:	BEH C18
Project:	CG MATES	Date Collected:	21-Sep-21 09:15	Date Received:	22-Sep-21 12:06		

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	4.37	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
PFPeA	2706-90-3	3.76	1.05	2.11	4.21	J	B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
PFBS	375-73-5	ND	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
4:2 FTS	757124-72-4	ND	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
PFHxA	307-24-4	7.98	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
PFPeS	2706-91-4	ND	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
HFPO-DA	13252-13-6	ND	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
PFHpA	375-85-9	ND	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
ADONA	919005-14-4	ND	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
PFHxS	355-46-4	ND	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
6:2 FTS	27619-97-2	ND	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
PFOA	335-67-1	2.11	1.05	2.11	4.21	J	B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
PFHpS	375-92-8	ND	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	22-Oct-21 03:04	1
PFNA	375-95-1	ND	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
PFOSA	754-91-6	ND	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
PFOS	1763-23-1	ND	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	22-Oct-21 03:04	1
9Cl-PF3ONS	756426-58-1	ND	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
PFDA	335-76-2	ND	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
8:2 FTS	39108-34-4	ND	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
PFNS	68259-12-1	ND	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
MeFOSAA	2355-31-9	ND	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
EtFOSAA	2991-50-6	ND	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
PFUnA	2058-94-8	ND	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
PFDS	335-77-3	ND	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	22-Oct-21 03:04	1
11Cl-PF3OUdS	763051-92-9	ND	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
PFDoA	307-55-1	ND	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
PFTrDA	72629-94-8	ND	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
PFTeDA	376-06-7	ND	1.05	2.11	4.21		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	64.4	50 - 150		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
13C3-PFPeA	IS	68.7	50 - 150		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
13C3-PFBS	IS	70.6	50 - 150		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
13C3-HFPO-DA	IS	60.3	50 - 150		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
13C2-4:2 FTS	IS	76.2	50 - 150		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
13C2-PFHxA	IS	67.1	50 - 150		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
13C4-PFHpA	IS	69.9	50 - 150		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
13C3-PFHxS	IS	81.2	50 - 150		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1

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Sample ID: Separation tank pond 1 MATES 21921 — **PFAS Isotope Dilution Table B-15**

Client Data				Laboratory Data			
Name:	Wood Environment & Infrastructure	Matrix:	Groundwater	Lab Sample:	2109230-05	Column:	BEH C18
Project:	CG MATES	Date Collected:	21-Sep-21 09:15	Date Received:	22-Sep-21 12:06		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-6:2 FTS	IS	81.7	50 - 150		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
13C5-PFNA	IS	65.3	50 - 150		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
13C8-PFOSA	IS	32.1	50 - 150	H	B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
13C2-PFOA	IS	64.7	50 - 150		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
13C8-PFOS	IS	62.8	50 - 150		B110177	03-Oct-21	0.237 L	22-Oct-21 03:04	1
13C2-PFDA	IS	69.2	50 - 150		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
13C2-8:2 FTS	IS	91.9	50 - 150		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
d3-MeFOSAA	IS	63.4	50 - 150		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
13C2-PFUnA	IS	51.9	50 - 150		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
d5-EtFOSAA	IS	63.9	50 - 150		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
13C2-PFDoA	IS	48.9	50 - 150	H	B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1
13C2-PFTeDA	IS	53.6	50 - 150		B110177	03-Oct-21	0.237 L	20-Oct-21 03:39	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
Results reported to the DL.
When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: Holding pond-pond 2 MATES 21921 — **PFAS Isotope Dilution Table B-15**

Client Data				Laboratory Data			
Name:	Wood Environment & Infrastructure	Matrix:	Groundwater	Lab Sample:	2109230-06	Column:	BEH C18
Project:	CG MATES	Date Collected:	21-Sep-21 09:20	Date Received:	22-Sep-21 12:06		

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	8.25	1.05	2.09	4.19		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
PFPeA	2706-90-3	5.90	1.05	2.09	4.19		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
PFBS	375-73-5	ND	1.05	2.09	4.19		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
4:2 FTS	757124-72-4	ND	1.05	2.09	4.19		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
PFHxA	307-24-4	2.81	1.05	2.09	4.19	J, Q	B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
PFPeS	2706-91-4	ND	1.05	2.09	4.19		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
HFPO-DA	13252-13-6	ND	1.05	2.09	4.19		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
PFHpA	375-85-9	1.44	1.05	2.09	4.19	J	B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
ADONA	919005-14-4	ND	1.05	2.09	4.19		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
PFHxS	355-46-4	ND	1.05	2.09	4.19		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
6:2 FTS	27619-97-2	ND	1.05	2.09	4.19		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
PFOA	335-67-1	2.43	1.05	2.09	4.19	J	B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
PFHpS	375-92-8	ND	1.05	2.09	4.19		B110177	03-Oct-21	0.239 L	22-Oct-21 03:15	1
PFNA	375-95-1	1.28	1.05	2.09	4.19	J, Q	B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
PFOSA	754-91-6	ND	1.05	2.09	4.19		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
PFOS	1763-23-1	ND	1.05	2.09	4.19		B110177	03-Oct-21	0.239 L	22-Oct-21 03:15	1
9Cl-PF3ONS	756426-58-1	ND	1.05	2.09	4.19		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
PFDA	335-76-2	ND	1.05	2.09	4.19		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
8:2 FTS	39108-34-4	ND	1.05	2.09	4.19		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
PFNS	68259-12-1	ND	1.05	2.09	4.19		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
MeFOSAA	2355-31-9	ND	1.05	2.09	4.19		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
EtFOSAA	2991-50-6	ND	1.05	2.09	4.19		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
PFUnA	2058-94-8	ND	1.05	2.09	4.19		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
PFDS	335-77-3	ND	1.05	2.09	4.19		B110177	03-Oct-21	0.239 L	22-Oct-21 03:15	1
11Cl-PF3OUdS	763051-92-9	ND	1.05	2.09	4.19		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
PFDoA	307-55-1	ND	1.05	2.09	4.19		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
PFTrDA	72629-94-8	ND	1.05	2.09	4.19		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
PFTeDA	376-06-7	ND	1.05	2.09	4.19		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	67.4	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
13C3-PFPeA	IS	64.5	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
13C3-PFBS	IS	68.8	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
13C3-HFPO-DA	IS	64.2	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
13C2-4:2 FTS	IS	76.7	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
13C2-PFHxA	IS	64.0	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
13C4-PFHpA	IS	64.1	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
13C3-PFHxS	IS	87.5	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1

Sample ID: Holding pond-pond 2 MATES 21921 — **PFAS Isotope Dilution Table B-15**

Client Data				Laboratory Data			
Name:	Wood Environment & Infrastructure	Matrix:	Groundwater	Lab Sample:	2109230-06	Column:	BEH C18
Project:	CG MATES	Date Collected:	21-Sep-21 09:20	Date Received:	22-Sep-21 12:06		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-6:2 FTS	IS	66.1	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
13C5-PFNA	IS	71.9	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
13C8-PFOSA	IS	33.5	50 - 150	H	B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
13C2-PFOA	IS	65.7	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
13C8-PFOS	IS	61.3	50 - 150		B110177	03-Oct-21	0.239 L	22-Oct-21 03:15	1
13C2-PFDA	IS	65.9	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
13C2-8:2 FTS	IS	57.5	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
d3-MeFOSAA	IS	66.7	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
13C2-PFUnA	IS	57.6	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
d5-EtFOSAA	IS	58.8	50 - 150		B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
13C2-PFDoA	IS	48.6	50 - 150	H	B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1
13C2-PFTeDA	IS	36.3	50 - 150	H	B110177	03-Oct-21	0.239 L	20-Oct-21 03:49	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
Results reported to the DL

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

Sample ID: Seepage beds discharge MATES 21921 — **PFAS Isotope Dilution Table B-15**

Client Data				Laboratory Data			
Name:	Wood Environment & Infrastructure	Matrix:	Groundwater	Lab Sample:	2109230-07	Column:	BEH C18
Project:	CG MATES	Date Collected:	21-Sep-21 09:25	Date Received:	22-Sep-21 12:06		

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	10.6	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
PFPeA	2706-90-3	6.76	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
PFBS	375-73-5	ND	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
4:2 FTS	757124-72-4	ND	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
PFHxA	307-24-4	4.09	1.62	3.25	6.49	J	B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
PFPeS	2706-91-4	ND	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
HFPO-DA	13252-13-6	ND	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
PFHpA	375-85-9	2.82	1.62	3.25	6.49	J	B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
ADONA	919005-14-4	ND	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
PFHxS	355-46-4	ND	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
6:2 FTS	27619-97-2	ND	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
PFOA	335-67-1	ND	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
PFHpS	375-92-8	ND	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
PFNA	375-95-1	ND	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
PFOSA	754-91-6	ND	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
PFOS	1763-23-1	ND	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
9Cl-PF3ONS	756426-58-1	ND	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
PFDA	335-76-2	ND	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
8:2 FTS	39108-34-4	ND	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
PFNS	68259-12-1	ND	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
MeFOSAA	2355-31-9	ND	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
EtFOSAA	2991-50-6	ND	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
PFUnA	2058-94-8	ND	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
PFDS	335-77-3	ND	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
11Cl-PF3OUdS	763051-92-9	ND	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
PFDoA	307-55-1	ND	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
PFTrDA	72629-94-8	ND	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
PFTeDA	376-06-7	ND	1.62	3.25	6.49		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	48.8	50 - 150	H	B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
13C3-PFPeA	IS	43.1	50 - 150	H	B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
13C3-PFBS	IS	45.8	50 - 150	H	B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
13C3-HFPO-DA	IS	40.7	50 - 150	H	B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
13C2-4:2 FTS	IS	36.8	50 - 150	H	B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
13C2-PFHxA	IS	44.9	50 - 150	H	B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
13C4-PFHpA	IS	45.5	50 - 150	H	B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
13C3-PFHxS	IS	49.7	50 - 150	H	B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1

Sample ID: Seepage beds discharge MATES 21921 — **PFAS Isotope Dilution Table B-15**

Client Data				Laboratory Data			
Name:	Wood Environment & Infrastructure	Matrix:	Groundwater	Lab Sample:	2109230-07	Column:	BEH C18
Project:	CG MATES	Date Collected:	21-Sep-21 09:25	Date Received	22-Sep-21 12:06		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-6:2 FTS	IS	39.0	50 - 150	H	B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
13C5-PFNA	IS	52.0	50 - 150		B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
13C8-PFOSA	IS	15.4	50 - 150	H	B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
13C2-PFOA	IS	48.6	50 - 150	H	B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
13C8-PFOS	IS	42.3	50 - 150	H	B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
13C2-PFDA	IS	43.0	50 - 150	H	B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
13C2-8:2 FTS	IS	47.2	50 - 150	H	B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
d3-MeFOSAA	IS	36.4	50 - 150	H	B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
13C2-PFUnA	IS	39.5	50 - 150	H	B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
d5-EtFOSAA	IS	35.1	50 - 150	H	B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
13C2-PFDoA	IS	34.4	50 - 150	H	B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1
13C2-PFTeDA	IS	27.2	50 - 150	H	B1J0040	14-Oct-21	0.154 L	26-Oct-21 15:42	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
Results reported to the DL

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

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an Enthalpy Analytical Laboratory

Sample ID: BD-01 MATES 21921 — **PFAS Isotope Dilution Table B-15**

Client Data				Laboratory Data			
Name:	Wood Environment & Infrastructure	Matrix:	Groundwater	Lab Sample:	2109230-08	Column:	BEH C18
Project:	CG MATES	Date Collected:	21-Sep-21 00:00	Date Received:	22-Sep-21 12:06		

Analyte	CAS Number	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBA	375-22-4	3.76	1.07	2.15	4.30	J	B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
PFPeA	2706-90-3	3.70	1.07	2.15	4.30	J	B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
PFBS	375-73-5	ND	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
4:2 FTS	757124-72-4	ND	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
PFHxA	307-24-4	7.97	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
PFPeS	2706-91-4	ND	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
HFPO-DA	13252-13-6	ND	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
PFHpA	375-85-9	ND	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
ADONA	919005-14-4	ND	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
PFHxS	355-46-4	ND	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
6:2 FTS	27619-97-2	ND	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
PFOA	335-67-1	1.69	1.07	2.15	4.30	J	B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
PFHpS	375-92-8	ND	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	22-Oct-21 03:57	1
PFNA	375-95-1	ND	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
PFOSA	754-91-6	ND	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
PFOS	1763-23-1	ND	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	22-Oct-21 03:57	1
9Cl-PF3ONS	756426-58-1	ND	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
PFDA	335-76-2	ND	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
8:2 FTS	39108-34-4	ND	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
PFNS	68259-12-1	ND	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
MeFOSAA	2355-31-9	ND	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
EtFOSAA	2991-50-6	ND	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
PFUnA	2058-94-8	ND	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
PFDS	335-77-3	ND	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	22-Oct-21 03:57	1
11Cl-PF3OUdS	763051-92-9	ND	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
PFDoA	307-55-1	ND	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
PFTrDA	72629-94-8	ND	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
PFTeDA	376-06-7	ND	1.07	2.15	4.30		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBA	IS	81.2	50 - 150		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
13C3-PFPeA	IS	85.5	50 - 150		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
13C3-PFBS	IS	83.1	50 - 150		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
13C3-HFPO-DA	IS	79.7	50 - 150		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
13C2-4:2 FTS	IS	111	50 - 150		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
13C2-PFHxA	IS	84.3	50 - 150		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
13C4-PFHpA	IS	84.5	50 - 150		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
13C3-PFHxS	IS	97.9	50 - 150		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1

Sample ID: BD-01 MATES 21921 — **PFAS Isotope Dilution Table B-15**

Client Data				Laboratory Data			
Name:	Wood Environment & Infrastructure	Matrix:	Groundwater	Lab Sample:	2109230-08	Column:	BEH C18
Project:	CG MATES	Date Collected:	21-Sep-21 00:00	Date Received:	22-Sep-21 12:06		

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-6:2 FTS	IS	95.8	50 - 150		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
13C5-PFNA	IS	82.9	50 - 150		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
13C8-PFOSA	IS	49.5	50 - 150	H	B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
13C2-PFOA	IS	79.7	50 - 150		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
13C8-PFOS	IS	78.3	50 - 150		B110177	03-Oct-21	0.233 L	22-Oct-21 03:57	1
13C2-PFDA	IS	79.3	50 - 150		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
13C2-8:2 FTS	IS	85.9	50 - 150		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
d3-MeFOSAA	IS	90.8	50 - 150		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
13C2-PFUnA	IS	71.2	50 - 150		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
d5-EtFOSAA	IS	82.3	50 - 150		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
13C2-PFDoA	IS	70.3	50 - 150		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1
13C2-PFTeDA	IS	63.7	50 - 150		B110177	03-Oct-21	0.233 L	20-Oct-21 04:31	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL

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

DATA QUALIFIERS & ABBREVIATIONS

B	This compound was also detected in the method blank
Conc.	Concentration
CRS	Cleanup Recovery Standard
D	Dilution
DL	Detection Limit
E	The associated compound concentration exceeded the calibration range of the instrument
H	Recovery and/or RPD was outside laboratory acceptance limits
I	Chemical Interference
IS	Internal Standard
J	The amount detected is below the Reporting Limit/LOQ
LOD	Limit of Detection
LOQ	Limit of Quantitation
M	Estimated Maximum Possible Concentration (CA Region 2 projects only)
MDL	Method Detection Limit
NA	Not applicable
ND	Not Detected
OPR	Ongoing Precision and Recovery sample
P	The reported concentration may include contribution from chlorinated diphenyl ether(s).
Q	The ion transition ratio is outside of the acceptance criteria.
RL	Reporting Limit
RL	For 537.1, the reported RLs are the MRLs.
TEQ	Toxic Equivalency, sum of the toxic equivalency factors (TEF) multiplied by the sample concentrations.
TEQMax	TEQ calculation that uses the detection limit as the concentration for non-detects
TEQMin	TEQ calculation that uses zero as the concentration for non-detects
TEQRisk	TEQ calculation that uses ½ the detection limit as the concentration for non-detects
U	Not Detected (specific projects only)
*	See Cover Letter

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

Vista Analytical Laboratory Certifications

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	21-023-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-26
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2020018
Massachusetts Department of Environmental Protection	M-CA413
Michigan Department of Environmental Quality	9932
Minnesota Department of Health	1980678
New Hampshire Environmental Accreditation Program	207720
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Ohio Environmental Protection Agency	87778
Oregon Laboratory Accreditation Program	4042-016
Pennsylvania Department of Environmental Protection	017
Texas Commission on Environmental Quality	T104704189-21-12
Vermont Department of Health	VT-4042
Virginia Department of General Services	10769
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p- Dioxins & Polychlorinated Dibenzofurans	EPA 23
Polychlorinated Dibenzodioxins in Ambient Air by GC/HRMS	EPA TO-9A

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613/1613B
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537.1
Determination of Per- and Polyfluoroalkyl Substances in Drinking Water by Isotope Dilution Anion Exchange Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry	EPA 533
Perfluorooctanesulonate (PFOS) and Perfluorooctanoate (PFOA) - Method for Unfiltered Samples Using Solid Phase Extraction and Liquid Chromatography/Mass Spectrometry	ISO 25101 2009

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Vista Analytical Laboratory

CHAIN OF COUSTODY

For Laboratory Use Only	
Work Order #: 2109230	Temp: 3.8 °C
Storage ID: R-13, WR-2	Storage Secured: Yes ☒ No ☐

Project ID: CG-MATES PO#: 331019502 Sampler: Ashlee Charters (name)

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

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Ashlee Ch[illegible]	9.21.21	1700	Fedex	9.21.21	1700
Fed Ex	09/22/21	12:06	Karen[illegible]	09/22/21	12:06

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

ATTN: ____

Method of Shipment: fedex

Tracking No.: ____

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

Sample ID	~~Date~~	Time	~~Location~~ ~~Sample Description~~ Date	Quantity	Type	Matrix	PFOA/PFOS	UCMR3 PFAS List 6	537.1 List 14 or 18 (Circle One)	EPA Draft List of 24	OTHER: please attach analyte list — M1 List 28 analytes	PFOA/PFOS	UCMR3 PFAS List 6	537.1 List of 14	537.1 List of 18	Comments
TB-01 MATES	21921	800	9.21.21	2	P	GW					X					Trip Blank
FB-01 MATES	21921	910	↓	1	P	GW					X					Field Blank
Wstwater Effluent MATES	21921	905	↓	2	P	GW					X					
Wastewater Influent	21921	900	↓	2	P	GW					X					
Seperation tank pond 1 mates	21921	915	↓	2	P	GW					X					
Holding pond-pond 2 mates	21921	920	↓	2	P	GW					X					
Seepage beds discharge mates	21921	925	↓	2	P	GW					X					
BD-01 MATES	21921	—	↓	2	P	GW					X					Blind Duplicate

Special Instructions/Comments:
ashlee.charters@woodplc.com Scott.Rought@woodplc.com
Helen.Rought@woodplc.com
peter.neither.curt@woodplc.com
Carla.J.Langan.nfg@mail.mil
Robert.K.Macleod2.nfg@mail.mil

SEND DOCUMENTATION AND RESULTS TO:
Name: ____
Company: ____
Address: ____
City: ____ State: ____ Zip: ____
Phone: ____
Email: ____

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

Bottle Preservation Type:
TZ = Trizma: ____

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

ID: LR-537COC Rev. No.: 2 Rev. Date: 06/03/2020 Page: 1 of 1

Vista Analytical Laboratory

Sample Log-In Checklist

Page # 1 of 1

Vista Work Order #: 2109230 TAT Std

Samples Arrival:	**Date/Time** 09/22/21 11:04		**Initials:** KR		**Location:** WR-2 **Shelf/Rack:** N/A		
Delivered By:	(FedEx)	UPS	On Trac	GLS	DHL	Hand Delivered	Other
Preservation:	(Ice)		Blue Ice		Techni Ice	Dry Ice	None
Temp °C: 0.9 (uncorrected) **Temp °C:** 0.8 (corrected)			**Probe used:** Y / (N)		**Thermometer ID:** IR-3		

	YES	NO	NA
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?			✓
Airbill ✓ Trk # 2839 8305 5536	✓		
Shipping Documentation Present?	✓		
Shipping Container: (Vista) / Client / <Retain> / Return / Dispose			
Chain of Custody / Sample Documentation Present?	✓		
Chain of Custody / Sample Documentation Complete?	✓		
Holding Time Acceptable?	✓		

Logged In:	**Date/Time** 09/24/21 14:55	**Initials:** KR	**Location:** R-13, WR-2 **Shelf/Rack:** A-2, E-4
COC Anomaly/Sample Acceptance Form completed?	X	✓	✓

Comments: KR 09/27/21

CoC/Label Reconciliation Report WO# 2109230

LabNumber	CoC Sample ID		SampleAlias	Sample Date/Time		Container	BaseMatrix	Sample Comments
2109230-01	A TB-01 MATES 21921	☐	(A)	21-Sep-21 08:00	☑	Polypropylene, 250mL	Aqueous	
2109230-01	B TB-01 MATES 21921	☐		21-Sep-21 08:00	☑	Polypropylene, 250mL	Aqueous	
2109230-02	A FB-01 MATES 21921	☐	(C)	21-Sep-21 09:10	☑	Polypropylene, 250mL	Aqueous	
2109230-03	A Wastewater Effluent MATES 21921	☑		21-Sep-21 09:05	☑	Polypropylene, 250mL	Aqueous	
2109230-03	B Wastewater Effluent MATES 21921	☑		21-Sep-21 09:05	☑	Polypropylene, 250mL	Aqueous	
2109230-04	A Wastewater Influent 21921	☐	Waste water Influent - MATES 21921	21-Sep-21 09:00	☑	Polypropylene, 250mL	Aqueous	
2109230-04	B Wastewater Influent 21921	☐		21-Sep-21 09:00	☑	Polypropylene, 250mL	Aqueous	
2109230-05	A Separation tank pond 1 MATES 21921	☑		21-Sep-21 09:15	☑	Polypropylene, 250mL	Aqueous	
2109230-05	B Separation tank pond 1 MATES 21921	☑		21-Sep-21 09:15	☑	Polypropylene, 250mL	Aqueous	
2109230-06	A Holding pond-pond 2 MATES 21921	☑		21-Sep-21 09:20	☑	Polypropylene, 250mL	Aqueous	
2109230-06	B Holding pond-pond 2 MATES 21921	☑		21-Sep-21 09:20	☑	Polypropylene, 250mL	Aqueous	
2109230-07	A Seepage beds discharge MATES 21921	☑		21-Sep-21 09:25	☑	Polypropylene, 250mL	Aqueous	
2109230-07	B Seepage beds discharge MATES 21921	☑		21-Sep-21 09:25	☑	Polypropylene, 250mL	Aqueous	
2109230-08	A BD-01 MATES 21921	☐	(A)	21-Sep-21 00:00	☐ (B)	Polypropylene, 250mL	Aqueous	
2109230-08	B BD-01 MATES 21921	☐		21-Sep-21 00:00	☐	Polypropylene, 250mL	Aqueous	

Checkmarks indicate that information on the COC reconciled with the sample label.
Any discrepancies are noted in the following columns

	Yes	No	NA
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Adequate Sample Volume?	✓		
Container Type Appropriate for Analysis(es)	✓		

Comments:
(A) Missing undertind portion
(B) No sample time listed on sample label
(C) No back up volume

Preservation Documented: Na2S2O3 Trizma (Tz 4th) NH4CH3CO2 None Other

Originally labeled & recon. on 09/24/21 by CHT

Verified by/Date: CHT 09/27/21