



DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT MCCOY
2171 SOUTH 8TH AVENUE
FORT MCCOY, WI 54656-5136

November 29, 2017

Ms. Mae Willkom
Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
P.O. Box 4001
Eau Claire, Wisconsin 54702-4001

Dear Ms. Willkom:

Fort McCoy collected a third round of perfluorinated chemicals (PFCs) at Fire Training Burn Pit 1 (FTBP1; BRRTS No. 02-42-278852) on August 14 and 15, 2017. Results for perfluorooctanoic acid (PFOA) and perfluorooctanesulfonate (PFOS) for September and December 2016, and August 2017 are summarized in Table 1. Analytical reports for September 2017 are included in Attachment 1. The United States Environmental Protection Agency (USEPA) has established a Health Advisory (HA) level in drinking water for the concentration of PFOS + PFOA of 70 parts per trillion (ppt).

Figure 1 shows the location of FTBP1, the 23 monitoring wells present at the site, and the location of the nearest water body, Suukjak Sep Creek, more than 1,500 feet west (downgradient) of the former burn pit. As shown, there are 11 monitoring wells that have been included in the monitoring program since 2005. Based upon an agreement with the USEPA and the Wisconsin Department of Natural Resources (WDNR), the other 12 wells have not been monitored since 2005. However, well OW142 (the farthest downgradient well, which has not been included in the monitoring program since 2005) was sampled in August 2017.

Isoconcentration maps of combined PFOA + PFOS concentrations for each of the three sampling events are presented on Figures 2, 3, and 4. The data presented in Table 1 and on Figures 1, 2, and 3 show a good deal of fluctuation in concentrations at wells within the plume and at the downgradient plume margin. For six of the wells, the PFOS + PFOA concentrations were reported within the same order of magnitude during each of the sampling events. However, at four wells (OW141, P308, P308A, and OW145) reported concentrations fluctuated by an order of magnitude between sampling events. At well OW117, located closest to former FTBP1, reported concentrations fluctuated by two orders of magnitude during the three sampling events.

Exceedances of the HA were reported at seven of the 11 wells during December 2016, when the average groundwater elevation across that site was the lowest between the three sampling events. HA exceedances were reported at five wells during August

2017, when the average groundwater elevation was at its highest level for the three sampling rounds. HA exceedances were reported at six wells during September 2016, when the average groundwater elevation across the site was between the December 2016 and the August 2017 level.

The data show that the concentration of PFOS + PFOA at well OW141, located just west of West Thirteenth Avenue, was above in December 2017, and below the HA in September of 2016 and August of 2017. Well OW142 (the farthest downgradient well present at the site) was only sampled during August 2017, and the reported concentration of PFOS + PFOA was below the HA.

The data continue to show significant concentration fluctuations between sampling events for wells OW117, OW308, and OW141, located in the center of the groundwater plume flow path. Due to the fact that the level of concern (the HA) is 70 ppt, a very small fluctuation is significant. In most, if not all, groundwater plumes variability in concentrations between monitoring rounds at the same well can regularly be greater than 70 ppt, and often greater than 500 ppt. For most parameters, where the levels of concern (standards) are in parts per billion (ppb) or parts per million (ppm), a variation of 500 ppt (0.5 ppb/0.0005 ppm) is written off as representing the actual concentration variability present within the plume at each location, or just noise in the data. Therefore, when the standard is in ppb or ppm, that amount of variability is not significant. However, when the level of concern is 70 ppt and the typical concentration variability within a plume can be at least 5 times the concentration of concern, it complicates the process of defining the condition of the plume (stable, receding, expanding), along with the location of the downgradient plume margin.

Data collected so far has confirmed that PFC concentrations near and downgradient of former FTBP1 are present at levels exceeding the HA (in some cases by several orders of magnitude), and that concentrations exceeding the HA are restricted to the water table wells, as exceedances have not been reported in the piezometers. However, not enough data has been collected to determine the condition of the plume (stable, receding, expanding), or to define the downgradient plume margin. In addition, insufficient data has been obtained to determine if reported concentration fluctuations, in wells located in the center of the plume flow path, are a result of actual concentration variability within the plume, or are being caused by ongoing releases from former FTBP1. Other than the final remedial action conducted, which involved excavation and offsite disposal of 60 cubic yards of contaminated soil, it is not known if the ozone injection and bioremediation efforts implemented to remediate the chlorinated contamination did anything to reduce PFC concentrations at FTBP1.

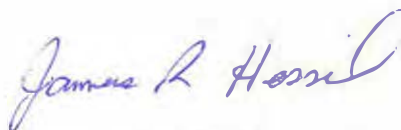
Unlike petroleum constituents and chlorinated compounds, that have been investigated and remediated at many sites for more than three decades and are well understood, PFCs are emerging contaminants. Behavior of PFCs in the subsurface (migration/degradation) is not well understood, and methods of definition and remediation for these parameters are still being developed. As a result of evaluating sites that formerly used Aqueous Film Forming Foam (AFFF) for fire training, the Army

has identified PFC groundwater contamination at several installations across the country. Some of these Army installations have PFC contamination present in drinking water wells. To investigate and remediate these PFC contaminated sites and minimize human health risks, Army Headquarters is addressing this problem utilizing a nationwide contract, instead of having the work performed by each installation. This approach will ensure that taxpayer fund allocations are prioritized based upon human health risks present at each facility. Thus, the sites with contaminated drinking water wells will be addressed first. In addition to efficient allocation of taxpayer resources, this approach will ensure that PFC investigation and remediation knowledge gained along the way will be applied at subsequent facilities. The contractor is currently drafting the schedule to identify the timeline for addressing all Army installations with potential PFC impacts.

The additional work required a FTBP1 will be conducted as part of the Army Headquarters nationwide contract. As Fort McCoy does not have contaminated drinking water wells, the additional investigation work at FTBP1 will benefit from lessons learned at Army installations with higher PFC risks. It is anticipated that the next phase of work at FTBP1 will begin in late 2018 following work at the installations with greater PFC risks.

If you have any questions, please contact Craig Bartholomew at (608) 388-8453.

Sincerely,



James R. Hessil
Environmental Division Chief

Enclosures

CC: Ms. Colleen Olsberg - USEPA

**TABLE 1
FIRE TRAINING BURN PIT 1
PFOA AND PFOS RESULTS
FORT MCCOY, WISCONSIN
(µg/L)**

Well ID	ELEVATION OF MEASURING POINT (MSL ¹)	DEPTH TO WATER			PFOA			PFOS			PARAMETER			PFOA +PFOS		Aug 2017	
		Sep 2016	Dec 2016	Aug 2017	Sep 2016	Dec 2016	Aug 2017	Sep 2016	Dec 2016	Aug 2017	RESULT	GW ELEVATION	RESULT	GW ELEVATION	RESULT	GW ELEVATION	
													Sep 2016	Dec 2016			
P-133A	891.22	12.19	12.58	10.63	0.0026	0.0049	0.0038	0.0055	0.0048	0.0029	0.0081	879.03	0.0097	878.64	0.0067	880.59	
OW-133B	891.12	12.11	12.49	10.53	0.0096	0.0086	0.010	0.044	0.085	0.043	0.0536	879.01	0.0936	878.63	0.053	880.59	
OW-133B (DUP)	891.12	12.11	12.49	10.53	0.0055	0.009	0.011	0.034	0.094	0.048	0.0395	879.01	0.103	878.63	0.059	880.59	
P-134A	891.78	12.27	12.71	10.74	<0.00062	<0.00073	<0.00068	0.0011	0.0053	<0.0012	0.0011	879.51	0.0053	879.07	<0.00188	881.04	
OW-134	892.19	12.75	13.19	11.19	0.0019	0.0020	0.0055	0.220	0.150	0.095	0.2219	879.44	0.152	879.00	0.1005	881.00	
OW-137	891.45	14.48	14.89	13.12	0.013	0.0058	0.012	0.190	0.130	0.230	0.203	876.97	0.1358	876.56	0.242	878.33	
OW-141	889.10	15.95	16.38	14.70	<0.00064	0.032	0.0025	0.0031	0.380	0.021	0.0031	873.15	0.412	872.72	0.0235	874.40	
P-308A	891.40	12.70	13.08	11.16	0.0063	0.0027	0.0021	0.0077	0.0019	0.0110	0.0140	878.70	0.0046	878.32	0.013	880.24	
OW-308	891.57	12.79	13.18	11.25	0.0040	0.0400	0.018	0.160	6.000	0.790	0.164	878.78	6.040	878.39	0.808	880.32	
OW-117	893.55	12.25	12.63	9.48	0.510	0.920	0.0093	23.000	31.000	0.220	23.510	881.30	31.920	880.92	0.2293	884.07	
OW-136B	892.17	11.81	12.21	NS	0.044	0.067	NS	1.400	1.900	NS	1.444	880.36	1.967	879.96	NS	NS	
OW-142	888.47	NS	NS	14.98	NS	NS	0.00069	NS	NS	0.019	NS	NS	NS	NS	0.01969	873.49	
OW-145	898.14	14.51	14.84	12.59	0.150	0.0250	0.150	0.029	0.0360	0.140	0.179	883.63	0.0610	883.30	0.290	885.55	
Equipment Blank					<0.00065	<0.00076	<0.00068	0.0017	<0.0013	<0.0012	0.0017		<0.00206		<0.00068		
USEPA HA ²											0.070		0.070		0.070		
Mean Groundwater Elevation												879.08		878.68		879.97	

Notes:

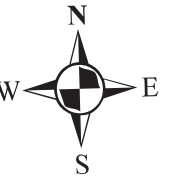
¹MSL= Mean Sea Level

²USEPA HA: Health Advisory for PFOA + PFOS and is 70 parts per trillion = 0.070 (µg/L).

Bold results show exceedances of USEPA HA.

NS = Not Sampled.

FIGURE 1
FORT MCCOY
SITE SETTING
FIRE TRAINING BURN PIT 1
FORT MCCOY

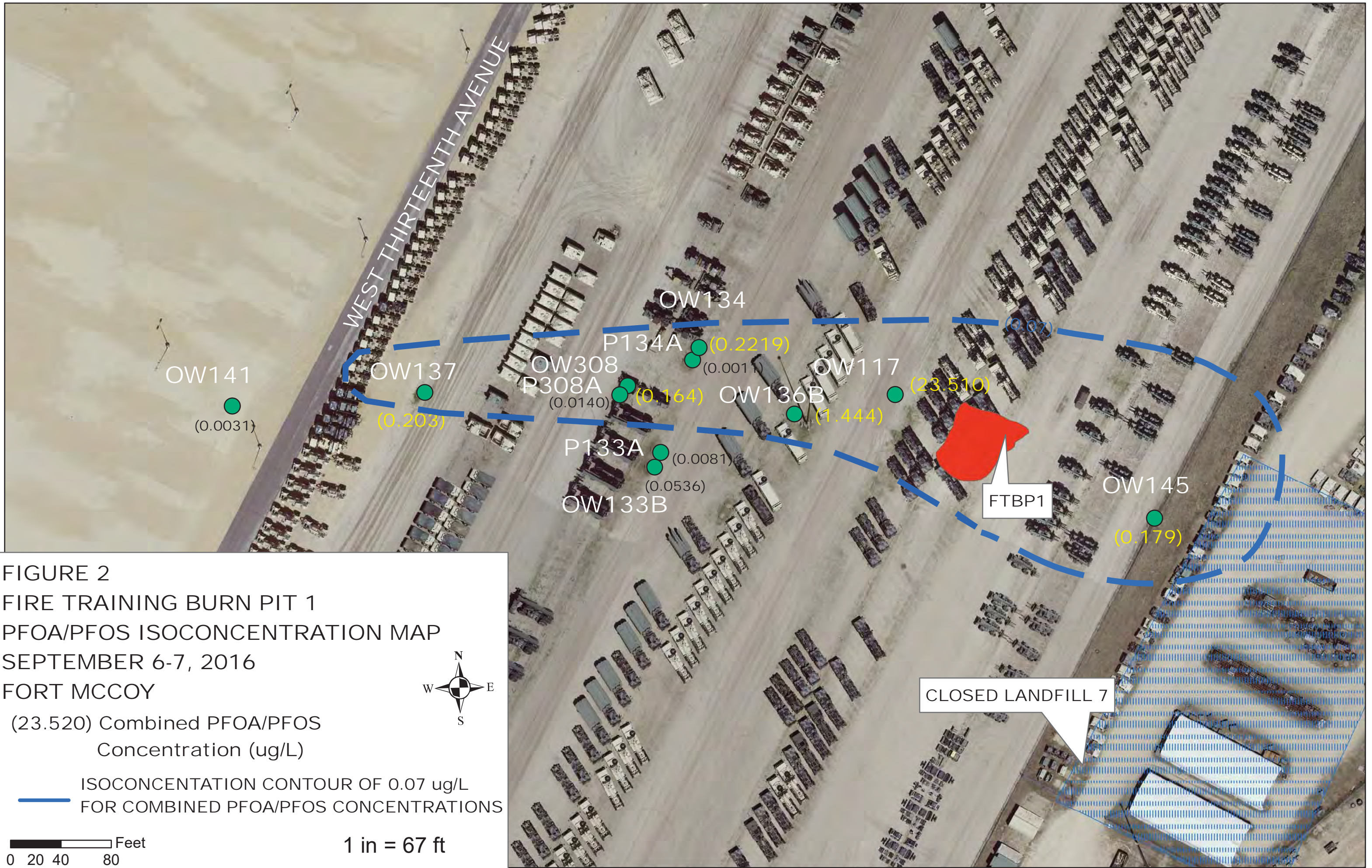


Monitoring Wells Included in Approved Monitoring Program After 2005.

Monitoring Wells Not Monitored Since 2005.

1 in = 150 ft 0 100 200 400 Feet

FIRE TRAINING BURN PIT 1



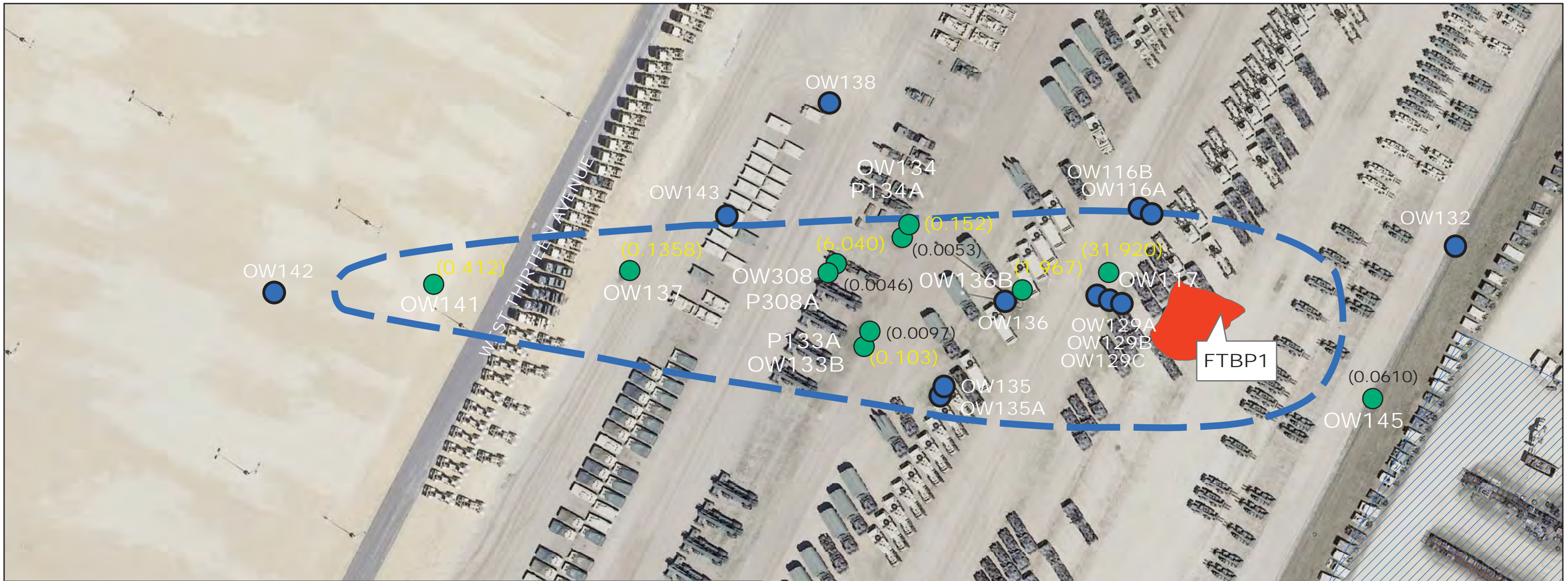
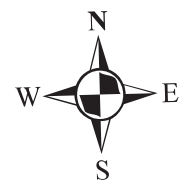


FIGURE 3
 FIRE TRAINING BURN PIT 1
 PFOA/PFOS ISOCONCENTRATION MAP
 DECEMBER 20 & 21, 2016
 FORT MCCOY



(31.920) Combined PFOA/PFOS Concentration (ug/L)
 ———— ISOCONCENTRATION CONTOUR OF 0.07 ug/L
 FOR COMBINED PFOA/PFOS CONCENTRATIONS

- Monitoring Wells Included in Approved Monitoring Program After 2005.
- Monitoring Wells Not Monitored Since 2005.

1 inch = 75 feet
 0 50 100 200
 Feet

CLOSED LANDFILL 7

FTBP1

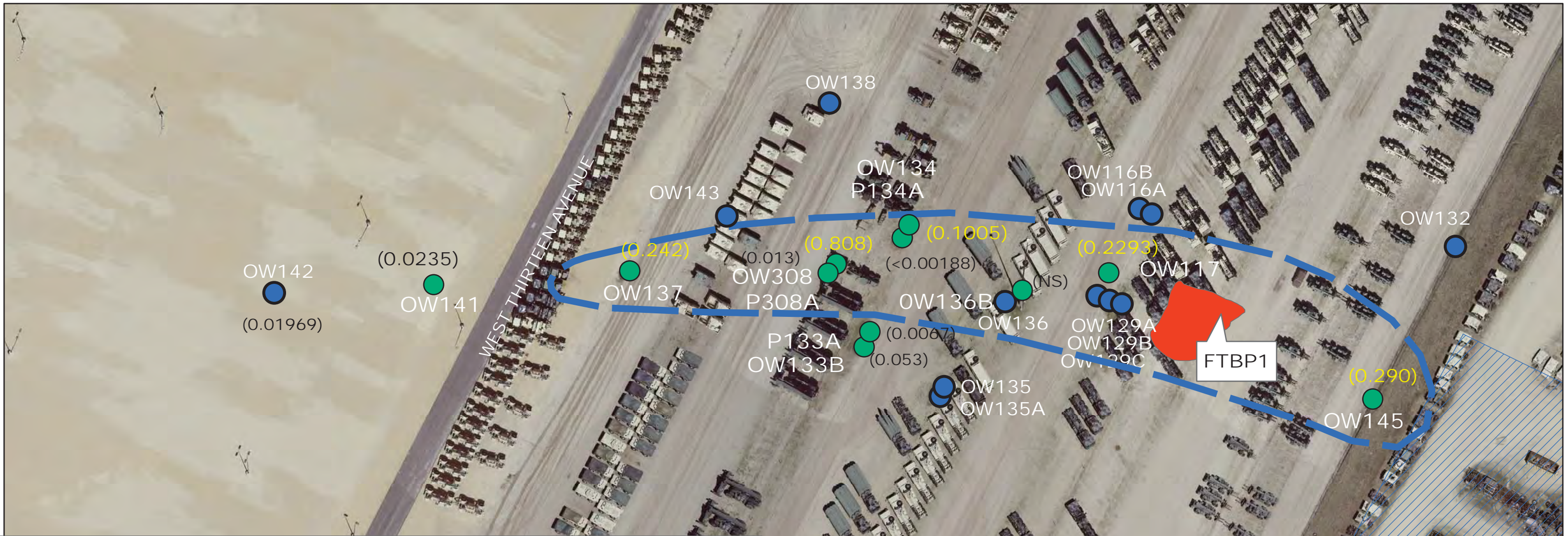


FIGURE 4
 FIRE TRAINING BURN PIT 1
 PFOA/PFOS ISOCONCENTRATION MAP
 AUGUST 14 & 15, 2017
 FORT MCCOY

(0.2293) Combined PFOA/PFOS Concentration (ug/L)

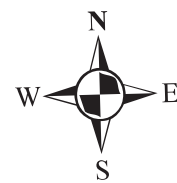
ISOCONCENTRATION CONTOUR OF 0.07 ug/L
 FOR COMBINED PFOA/PFOS CONCENTRATIONS

NS = NOT SAMPLED

Monitoring Wells Included in Approved Monitoring Program After 2005.

Monitoring Wells Not Monitored Since 2005.

Well OW 142 was sampled in August 2017.



1 inch = 75 feet

ATTACHMENT 1
ANALYTICAL REPORTS

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-30853-1
Client Project/Site: Fort McCoy PFAS

For:
Hyde Environmental, Inc.
W175 N11163 Stonewood Drive
Suite 110
Germantown, Wisconsin 53022

Attn: Jim Lindemann



Authorized for release by:
9/7/2017 2:03:37 PM

Sandie Fredrick, Project Manager II
(920)261-1660
sandie.fredrick@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

- 1
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Definitions/Glossary

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Qualifiers

LCMS

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F1	MS and/or MSD Recovery is outside acceptance limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Job ID: 320-30853-1

Laboratory: TestAmerica Sacramento

Narrative

Job Narrative 320-30853-1

Comments

No additional comments.

Receipt

The samples were received on 8/17/2017 9:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.4° C.

Receipt Exceptions

A Chain-of-Custody (COC) was not received with these samples: OW-145 (320-30853-1), OW-117 (320-30853-2), P-134A (320-30853-3), OW-134 (320-30853-4), P-133A (320-30853-5), OW-133B (320-30853-6), OW-133B DUP (320-30853-7), OW-308 (320-30853-8), OW-308 (320-30853-8[MS]), OW-308 (320-30853-8[MSD]), P-308A (320-30853-9), OW-137 (320-30853-10), OW-141 (320-30853-11), OW-142 (320-30853-12) and EQ Blank (320-30853-13). A copy of the COC was received from the project manager in order to log the samples in.

LCMS

Method(s) 537 (modified): The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 320-181076 and analytical batch 320-181949 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Client Sample ID: OW-145

Lab Sample ID: 320-30853-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	6.8		1.8	0.41	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	8.9		1.8	0.88	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	11		1.8	0.70	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.6		1.8	0.71	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	150		1.8	0.66	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.1		1.8	0.81	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	130		1.8	0.77	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	140		1.8	1.1	ng/L	1		537 (modified)	Total/NA

Client Sample ID: OW-117

Lab Sample ID: 320-30853-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.4		1.8	0.41	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	2.3		1.8	0.89	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	4.1		1.8	0.71	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.0		1.8	0.72	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	9.3		1.8	0.67	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.6	J	1.8	0.82	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	44		1.8	0.78	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	220		1.8	1.1	ng/L	1		537 (modified)	Total/NA

Client Sample ID: P-134A

Lab Sample ID: 320-30853-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	1.0	J	1.8	0.41	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	3.3		1.8	0.79	ng/L	1		537 (modified)	Total/NA

Client Sample ID: OW-134

Lab Sample ID: 320-30853-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	7.7		1.8	0.41	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	1.9		1.8	0.88	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	3.1		1.8	0.70	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.6		1.8	0.71	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	5.5		1.8	0.66	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.8		1.8	0.81	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	46		1.8	0.77	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	95		1.8	1.1	ng/L	1		537 (modified)	Total/NA

Client Sample ID: P-133A

Lab Sample ID: 320-30853-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	5.7		1.8	0.42	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	3.8		1.8	0.68	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	9.4		1.8	0.84	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	19		1.8	0.79	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.9		1.8	1.2	ng/L	1		537 (modified)	Total/NA

Client Sample ID: OW-133B

Lab Sample ID: 320-30853-6

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Client Sample ID: OW-133B (Continued)

Lab Sample ID: 320-30853-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.3		1.8	0.42	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	4.4		1.8	0.90	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	4.8		1.8	0.72	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.3		1.8	0.73	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	10		1.8	0.68	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.9		1.8	0.84	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	48		1.8	0.79	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	43		1.8	1.2	ng/L	1		537 (modified)	Total/NA

Client Sample ID: OW-133B DUP

Lab Sample ID: 320-30853-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.6		1.7	0.39	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	4.8		1.7	0.83	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	5.1		1.7	0.66	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.3		1.7	0.67	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	11		1.7	0.63	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.4		1.7	0.77	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	48		1.7	0.73	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	48		1.7	1.1	ng/L	1		537 (modified)	Total/NA

Client Sample ID: OW-308

Lab Sample ID: 320-30853-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	13		1.9	0.43	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	25	F1	1.9	0.92	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	41	F1	1.9	0.73	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	21	F1	1.9	0.75	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	18		1.9	0.70	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	5.3		1.9	0.86	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	100	F1	1.9	0.81	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	790		19	12	ng/L	10		537 (modified)	Total/NA

Client Sample ID: P-308A

Lab Sample ID: 320-30853-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.6		1.8	0.42	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.89	J	1.8	0.72	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	2.1		1.8	0.68	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.8		1.8	0.84	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	8.3		1.8	0.79	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	11		1.8	1.2	ng/L	1		537 (modified)	Total/NA

Client Sample ID: OW-137

Lab Sample ID: 320-30853-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	30		1.9	0.43	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	29		1.9	0.93	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	39		1.9	0.74	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	22		1.9	0.76	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Client Sample ID: OW-137 (Continued)

Lab Sample ID: 320-30853-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	12		1.9	0.71	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	5.6		1.9	0.87	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	88		1.9	0.82	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	230		1.9	1.2	ng/L	1		537 (modified)	Total/NA

Client Sample ID: OW-141

Lab Sample ID: 320-30853-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	2.3		1.8	0.42	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	1.1	J	1.8	0.91	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	1.5	J	1.8	0.73	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	1.3	J	1.8	0.74	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	2.5		1.8	0.69	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.9		1.8	0.85	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	26		1.8	0.80	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	21		1.8	1.2	ng/L	1		537 (modified)	Total/NA

Client Sample ID: OW-142

Lab Sample ID: 320-30853-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.0		1.8	0.42	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	0.69	J	1.8	0.69	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	1.0	J	1.8	0.84	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	10		1.8	0.80	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	19		1.8	1.2	ng/L	1		537 (modified)	Total/NA

Client Sample ID: EQ Blank

Lab Sample ID: 320-30853-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	1.6	J	1.8	0.71	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Client Sample ID: OW-145

Date Collected: 08/14/17 10:25

Date Received: 08/18/17 09:55

Lab Sample ID: 320-30853-1

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	6.8		1.8	0.41	ng/L		08/24/17 14:39	08/29/17 22:34	1
Perfluoropentanoic acid (PFPeA)	8.9		1.8	0.88	ng/L		08/24/17 14:39	08/29/17 22:34	1
Perfluorohexanoic acid (PFHxA)	11		1.8	0.70	ng/L		08/24/17 14:39	08/29/17 22:34	1
Perfluoroheptanoic acid (PFHpA)	7.6		1.8	0.71	ng/L		08/24/17 14:39	08/29/17 22:34	1
Perfluorooctanoic acid (PFOA)	150		1.8	0.66	ng/L		08/24/17 14:39	08/29/17 22:34	1
Perfluorobutanesulfonic acid (PFBS)	3.1		1.8	0.81	ng/L		08/24/17 14:39	08/29/17 22:34	1
Perfluorohexanesulfonic acid (PFHxS)	130		1.8	0.77	ng/L		08/24/17 14:39	08/29/17 22:34	1
Perfluorooctanesulfonic acid (PFOS)	140		1.8	1.1	ng/L		08/24/17 14:39	08/29/17 22:34	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	52		25 - 150				08/24/17 14:39	08/29/17 22:34	1
13C2 PFHxA	77		25 - 150				08/24/17 14:39	08/29/17 22:34	1
13C4 PFOA	94		25 - 150				08/24/17 14:39	08/29/17 22:34	1
18O2 PFHxS	87		25 - 150				08/24/17 14:39	08/29/17 22:34	1
13C4 PFOS	94		25 - 150				08/24/17 14:39	08/29/17 22:34	1
13C4-PFHpA	97		25 - 150				08/24/17 14:39	08/29/17 22:34	1
13C5 PFPeA	71		25 - 150				08/24/17 14:39	08/29/17 22:34	1
13C3-PFBS	80		25 - 150				08/24/17 14:39	08/29/17 22:34	1

Client Sample Results

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Client Sample ID: OW-117

Date Collected: 08/14/17 11:25

Date Received: 08/18/17 09:55

Lab Sample ID: 320-30853-2

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.4		1.8	0.41	ng/L		08/24/17 14:39	08/29/17 22:41	1
Perfluoropentanoic acid (PFPeA)	2.3		1.8	0.89	ng/L		08/24/17 14:39	08/29/17 22:41	1
Perfluorohexanoic acid (PFHxA)	4.1		1.8	0.71	ng/L		08/24/17 14:39	08/29/17 22:41	1
Perfluoroheptanoic acid (PFHpA)	3.0		1.8	0.72	ng/L		08/24/17 14:39	08/29/17 22:41	1
Perfluorooctanoic acid (PFOA)	9.3		1.8	0.67	ng/L		08/24/17 14:39	08/29/17 22:41	1
Perfluorobutanesulfonic acid (PFBS)	1.6	J	1.8	0.82	ng/L		08/24/17 14:39	08/29/17 22:41	1
Perfluorohexanesulfonic acid (PFHxS)	44		1.8	0.78	ng/L		08/24/17 14:39	08/29/17 22:41	1
Perfluorooctanesulfonic acid (PFOS)	220		1.8	1.1	ng/L		08/24/17 14:39	08/29/17 22:41	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	43		25 - 150				08/24/17 14:39	08/29/17 22:41	1
13C2 PFHxA	60		25 - 150				08/24/17 14:39	08/29/17 22:41	1
13C4 PFOA	73		25 - 150				08/24/17 14:39	08/29/17 22:41	1
18O2 PFHxS	84		25 - 150				08/24/17 14:39	08/29/17 22:41	1
13C4 PFOS	82		25 - 150				08/24/17 14:39	08/29/17 22:41	1
13C4-PFHpA	75		25 - 150				08/24/17 14:39	08/29/17 22:41	1
13C5 PFPeA	59		25 - 150				08/24/17 14:39	08/29/17 22:41	1
13C3-PFBS	71		25 - 150				08/24/17 14:39	08/29/17 22:41	1

Client Sample Results

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Client Sample ID: P-134A
Date Collected: 08/14/17 12:45
Date Received: 08/18/17 09:55

Lab Sample ID: 320-30853-3
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1.0	J	1.8	0.41	ng/L		08/24/17 14:39	08/29/17 22:48	1
Perfluoropentanoic acid (PFPeA)	<0.89		1.8	0.89	ng/L		08/24/17 14:39	08/29/17 22:48	1
Perfluorohexanoic acid (PFHxA)	<0.71		1.8	0.71	ng/L		08/24/17 14:39	08/29/17 22:48	1
Perfluoroheptanoic acid (PFHpA)	<0.72		1.8	0.72	ng/L		08/24/17 14:39	08/29/17 22:48	1
Perfluorooctanoic acid (PFOA)	<0.68		1.8	0.68	ng/L		08/24/17 14:39	08/29/17 22:48	1
Perfluorobutanesulfonic acid (PFBS)	<0.83		1.8	0.83	ng/L		08/24/17 14:39	08/29/17 22:48	1
Perfluorohexanesulfonic acid (PFHxS)	3.3		1.8	0.79	ng/L		08/24/17 14:39	08/29/17 22:48	1
Perfluorooctanesulfonic acid (PFOS)	<1.2		1.8	1.2	ng/L		08/24/17 14:39	08/29/17 22:48	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	40		25 - 150				08/24/17 14:39	08/29/17 22:48	1
13C2 PFHxA	67		25 - 150				08/24/17 14:39	08/29/17 22:48	1
13C4 PFOA	56		25 - 150				08/24/17 14:39	08/29/17 22:48	1
18O2 PFHxS	94		25 - 150				08/24/17 14:39	08/29/17 22:48	1
13C4 PFOS	98		25 - 150				08/24/17 14:39	08/29/17 22:48	1
13C4-PFHpA	77		25 - 150				08/24/17 14:39	08/29/17 22:48	1
13C5 PFPeA	60		25 - 150				08/24/17 14:39	08/29/17 22:48	1
13C3-PFBS	74		25 - 150				08/24/17 14:39	08/29/17 22:48	1

Client Sample Results

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Client Sample ID: OW-134

Lab Sample ID: 320-30853-4

Date Collected: 08/14/17 13:05

Matrix: Water

Date Received: 08/18/17 09:55

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	7.7		1.8	0.41	ng/L		08/24/17 14:39	08/29/17 22:55	1
Perfluoropentanoic acid (PFPeA)	1.9		1.8	0.88	ng/L		08/24/17 14:39	08/29/17 22:55	1
Perfluorohexanoic acid (PFHxA)	3.1		1.8	0.70	ng/L		08/24/17 14:39	08/29/17 22:55	1
Perfluoroheptanoic acid (PFHpA)	2.6		1.8	0.71	ng/L		08/24/17 14:39	08/29/17 22:55	1
Perfluorooctanoic acid (PFOA)	5.5		1.8	0.66	ng/L		08/24/17 14:39	08/29/17 22:55	1
Perfluorobutanesulfonic acid (PFBS)	2.8		1.8	0.81	ng/L		08/24/17 14:39	08/29/17 22:55	1
Perfluorohexanesulfonic acid (PFHxS)	46		1.8	0.77	ng/L		08/24/17 14:39	08/29/17 22:55	1
Perfluorooctanesulfonic acid (PFOS)	95		1.8	1.1	ng/L		08/24/17 14:39	08/29/17 22:55	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	48		25 - 150				08/24/17 14:39	08/29/17 22:55	1
13C2 PFHxA	80		25 - 150				08/24/17 14:39	08/29/17 22:55	1
13C4 PFOA	93		25 - 150				08/24/17 14:39	08/29/17 22:55	1
18O2 PFHxS	99		25 - 150				08/24/17 14:39	08/29/17 22:55	1
13C4 PFOS	99		25 - 150				08/24/17 14:39	08/29/17 22:55	1
13C4-PFHpA	96		25 - 150				08/24/17 14:39	08/29/17 22:55	1
13C5 PFPeA	72		25 - 150				08/24/17 14:39	08/29/17 22:55	1
13C3-PFBS	82		25 - 150				08/24/17 14:39	08/29/17 22:55	1

Client Sample Results

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Client Sample ID: P-133A

Date Collected: 08/14/17 13:50

Date Received: 08/18/17 09:55

Lab Sample ID: 320-30853-5

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	5.7		1.8	0.42	ng/L		08/24/17 14:39	08/29/17 23:02	1
Perfluoropentanoic acid (PFPeA)	<0.90		1.8	0.90	ng/L		08/24/17 14:39	08/29/17 23:02	1
Perfluorohexanoic acid (PFHxA)	<0.72		1.8	0.72	ng/L		08/24/17 14:39	08/29/17 23:02	1
Perfluoroheptanoic acid (PFHpA)	<0.73		1.8	0.73	ng/L		08/24/17 14:39	08/29/17 23:02	1
Perfluorooctanoic acid (PFOA)	3.8		1.8	0.68	ng/L		08/24/17 14:39	08/29/17 23:02	1
Perfluorobutanesulfonic acid (PFBS)	9.4		1.8	0.84	ng/L		08/24/17 14:39	08/29/17 23:02	1
Perfluorohexanesulfonic acid (PFHxS)	19		1.8	0.79	ng/L		08/24/17 14:39	08/29/17 23:02	1
Perfluorooctanesulfonic acid (PFOS)	2.9		1.8	1.2	ng/L		08/24/17 14:39	08/29/17 23:02	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFBA	47		25 - 150				08/24/17 14:39	08/29/17 23:02	1
13C2 PFHxA	61		25 - 150				08/24/17 14:39	08/29/17 23:02	1
13C4 PFOA	76		25 - 150				08/24/17 14:39	08/29/17 23:02	1
18O2 PFHxS	83		25 - 150				08/24/17 14:39	08/29/17 23:02	1
13C4 PFOS	82		25 - 150				08/24/17 14:39	08/29/17 23:02	1
13C4-PFHpA	80		25 - 150				08/24/17 14:39	08/29/17 23:02	1
13C5 PFPeA	55		25 - 150				08/24/17 14:39	08/29/17 23:02	1
13C3-PFBS	71		25 - 150				08/24/17 14:39	08/29/17 23:02	1

Client Sample Results

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Client Sample ID: OW-133B

Lab Sample ID: 320-30853-6

Date Collected: 08/14/17 14:15

Matrix: Water

Date Received: 08/18/17 09:55

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.3		1.8	0.42	ng/L		08/24/17 14:39	08/29/17 23:09	1
Perfluoropentanoic acid (PFPeA)	4.4		1.8	0.90	ng/L		08/24/17 14:39	08/29/17 23:09	1
Perfluorohexanoic acid (PFHxA)	4.8		1.8	0.72	ng/L		08/24/17 14:39	08/29/17 23:09	1
Perfluoroheptanoic acid (PFHpA)	3.3		1.8	0.73	ng/L		08/24/17 14:39	08/29/17 23:09	1
Perfluorooctanoic acid (PFOA)	10		1.8	0.68	ng/L		08/24/17 14:39	08/29/17 23:09	1
Perfluorobutanesulfonic acid (PFBS)	3.9		1.8	0.84	ng/L		08/24/17 14:39	08/29/17 23:09	1
Perfluorohexanesulfonic acid (PFHxS)	48		1.8	0.79	ng/L		08/24/17 14:39	08/29/17 23:09	1
Perfluorooctanesulfonic acid (PFOS)	43		1.8	1.2	ng/L		08/24/17 14:39	08/29/17 23:09	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	38		25 - 150				08/24/17 14:39	08/29/17 23:09	1
13C2 PFHxA	68		25 - 150				08/24/17 14:39	08/29/17 23:09	1
13C4 PFOA	79		25 - 150				08/24/17 14:39	08/29/17 23:09	1
18O2 PFHxS	96		25 - 150				08/24/17 14:39	08/29/17 23:09	1
13C4 PFOS	97		25 - 150				08/24/17 14:39	08/29/17 23:09	1
13C4-PFHpA	83		25 - 150				08/24/17 14:39	08/29/17 23:09	1
13C5 PFPeA	60		25 - 150				08/24/17 14:39	08/29/17 23:09	1
13C3-PFBS	79		25 - 150				08/24/17 14:39	08/29/17 23:09	1

Client Sample Results

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Client Sample ID: OW-133B DUP

Lab Sample ID: 320-30853-7

Date Collected: 08/14/17 00:00

Matrix: Water

Date Received: 08/18/17 09:55

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.6		1.7	0.39	ng/L		08/24/17 14:39	08/29/17 23:15	1
Perfluoropentanoic acid (PFPeA)	4.8		1.7	0.83	ng/L		08/24/17 14:39	08/29/17 23:15	1
Perfluorohexanoic acid (PFHxA)	5.1		1.7	0.66	ng/L		08/24/17 14:39	08/29/17 23:15	1
Perfluoroheptanoic acid (PFHpA)	3.3		1.7	0.67	ng/L		08/24/17 14:39	08/29/17 23:15	1
Perfluorooctanoic acid (PFOA)	11		1.7	0.63	ng/L		08/24/17 14:39	08/29/17 23:15	1
Perfluorobutanesulfonic acid (PFBS)	3.4		1.7	0.77	ng/L		08/24/17 14:39	08/29/17 23:15	1
Perfluorohexanesulfonic acid (PFHxS)	48		1.7	0.73	ng/L		08/24/17 14:39	08/29/17 23:15	1
Perfluorooctanesulfonic acid (PFOS)	48		1.7	1.1	ng/L		08/24/17 14:39	08/29/17 23:15	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	36		25 - 150				08/24/17 14:39	08/29/17 23:15	1
13C2 PFHxA	70		25 - 150				08/24/17 14:39	08/29/17 23:15	1
13C4 PFOA	73		25 - 150				08/24/17 14:39	08/29/17 23:15	1
18O2 PFHxS	101		25 - 150				08/24/17 14:39	08/29/17 23:15	1
13C4 PFOS	105		25 - 150				08/24/17 14:39	08/29/17 23:15	1
13C4-PFHpA	85		25 - 150				08/24/17 14:39	08/29/17 23:15	1
13C5 PFPeA	58		25 - 150				08/24/17 14:39	08/29/17 23:15	1
13C3-PFBS	83		25 - 150				08/24/17 14:39	08/29/17 23:15	1

Client Sample Results

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Client Sample ID: OW-308

Date Collected: 08/14/17 14:50

Date Received: 08/18/17 09:55

Lab Sample ID: 320-30853-8

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	13		1.9	0.43	ng/L		08/24/17 14:39	08/29/17 23:29	1
Perfluoropentanoic acid (PFPeA)	25	F1	1.9	0.92	ng/L		08/24/17 14:39	08/29/17 23:29	1
Perfluorohexanoic acid (PFHxA)	41	F1	1.9	0.73	ng/L		08/24/17 14:39	08/29/17 23:29	1
Perfluoroheptanoic acid (PFHpA)	21	F1	1.9	0.75	ng/L		08/24/17 14:39	08/29/17 23:29	1
Perfluorooctanoic acid (PFOA)	18		1.9	0.70	ng/L		08/24/17 14:39	08/29/17 23:29	1
Perfluorobutanesulfonic acid (PFBS)	5.3		1.9	0.86	ng/L		08/24/17 14:39	08/29/17 23:29	1
Perfluorohexanesulfonic acid (PFHxS)	100	F1	1.9	0.81	ng/L		08/24/17 14:39	08/29/17 23:29	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	44		25 - 150				08/24/17 14:39	08/29/17 23:29	1
13C2 PFHxA	79		25 - 150				08/24/17 14:39	08/29/17 23:29	1
13C4 PFOA	92		25 - 150				08/24/17 14:39	08/29/17 23:29	1
18O2 PFHxS	96		25 - 150				08/24/17 14:39	08/29/17 23:29	1
13C4-PFHpA	95		25 - 150				08/24/17 14:39	08/29/17 23:29	1
13C5 PFPeA	70		25 - 150				08/24/17 14:39	08/29/17 23:29	1
13C3-PFBS	78		25 - 150				08/24/17 14:39	08/29/17 23:29	1

Method: 537 (modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	790		19	12	ng/L		08/24/17 14:39	08/31/17 15:01	10
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFOS	114		25 - 150				08/24/17 14:39	08/31/17 15:01	10

Client Sample Results

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Client Sample ID: P-308A

Date Collected: 08/14/17 15:32

Date Received: 08/18/17 09:55

Lab Sample ID: 320-30853-9

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.6		1.8	0.42	ng/L		08/24/17 14:39	08/29/17 23:50	1
Perfluoropentanoic acid (PFPeA)	<0.90		1.8	0.90	ng/L		08/24/17 14:39	08/29/17 23:50	1
Perfluorohexanoic acid (PFHxA)	0.89	J	1.8	0.72	ng/L		08/24/17 14:39	08/29/17 23:50	1
Perfluoroheptanoic acid (PFHpA)	<0.73		1.8	0.73	ng/L		08/24/17 14:39	08/29/17 23:50	1
Perfluorooctanoic acid (PFOA)	2.1		1.8	0.68	ng/L		08/24/17 14:39	08/29/17 23:50	1
Perfluorobutanesulfonic acid (PFBS)	3.8		1.8	0.84	ng/L		08/24/17 14:39	08/29/17 23:50	1
Perfluorohexanesulfonic acid (PFHxS)	8.3		1.8	0.79	ng/L		08/24/17 14:39	08/29/17 23:50	1
Perfluorooctanesulfonic acid (PFOS)	11		1.8	1.2	ng/L		08/24/17 14:39	08/29/17 23:50	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFBA	46		25 - 150				08/24/17 14:39	08/29/17 23:50	1
13C2 PFHxA	80		25 - 150				08/24/17 14:39	08/29/17 23:50	1
13C4 PFOA	81		25 - 150				08/24/17 14:39	08/29/17 23:50	1
18O2 PFHxS	100		25 - 150				08/24/17 14:39	08/29/17 23:50	1
13C4 PFOS	103		25 - 150				08/24/17 14:39	08/29/17 23:50	1
13C4-PFHpA	101		25 - 150				08/24/17 14:39	08/29/17 23:50	1
13C5 PFPeA	72		25 - 150				08/24/17 14:39	08/29/17 23:50	1
13C3-PFBS	86		25 - 150				08/24/17 14:39	08/29/17 23:50	1

Client Sample Results

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Client Sample ID: OW-137

Date Collected: 08/15/17 09:20

Date Received: 08/18/17 09:55

Lab Sample ID: 320-30853-10

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	30		1.9	0.43	ng/L		08/24/17 14:39	08/29/17 23:57	1
Perfluoropentanoic acid (PFPeA)	29		1.9	0.93	ng/L		08/24/17 14:39	08/29/17 23:57	1
Perfluorohexanoic acid (PFHxA)	39		1.9	0.74	ng/L		08/24/17 14:39	08/29/17 23:57	1
Perfluoroheptanoic acid (PFHpA)	22		1.9	0.76	ng/L		08/24/17 14:39	08/29/17 23:57	1
Perfluorooctanoic acid (PFOA)	12		1.9	0.71	ng/L		08/24/17 14:39	08/29/17 23:57	1
Perfluorobutanesulfonic acid (PFBS)	5.6		1.9	0.87	ng/L		08/24/17 14:39	08/29/17 23:57	1
Perfluorohexanesulfonic acid (PFHxS)	88		1.9	0.82	ng/L		08/24/17 14:39	08/29/17 23:57	1
Perfluorooctanesulfonic acid (PFOS)	230		1.9	1.2	ng/L		08/24/17 14:39	08/29/17 23:57	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	33		25 - 150				08/24/17 14:39	08/29/17 23:57	1
13C2 PFHxA	70		25 - 150				08/24/17 14:39	08/29/17 23:57	1
13C4 PFOA	91		25 - 150				08/24/17 14:39	08/29/17 23:57	1
18O2 PFHxS	92		25 - 150				08/24/17 14:39	08/29/17 23:57	1
13C4 PFOS	102		25 - 150				08/24/17 14:39	08/29/17 23:57	1
13C4-PFHpA	91		25 - 150				08/24/17 14:39	08/29/17 23:57	1
13C5 PFPeA	56		25 - 150				08/24/17 14:39	08/29/17 23:57	1
13C3-PFBS	69		25 - 150				08/24/17 14:39	08/29/17 23:57	1

Client Sample Results

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Client Sample ID: OW-141
Date Collected: 08/15/17 09:15
Date Received: 08/18/17 09:55

Lab Sample ID: 320-30853-11
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	2.3		1.8	0.42	ng/L		08/24/17 14:39	08/30/17 00:04	1
Perfluoropentanoic acid (PFPeA)	1.1	J	1.8	0.91	ng/L		08/24/17 14:39	08/30/17 00:04	1
Perfluorohexanoic acid (PFHxA)	1.5	J	1.8	0.73	ng/L		08/24/17 14:39	08/30/17 00:04	1
Perfluoroheptanoic acid (PFHpA)	1.3	J	1.8	0.74	ng/L		08/24/17 14:39	08/30/17 00:04	1
Perfluorooctanoic acid (PFOA)	2.5		1.8	0.69	ng/L		08/24/17 14:39	08/30/17 00:04	1
Perfluorobutanesulfonic acid (PFBS)	1.9		1.8	0.85	ng/L		08/24/17 14:39	08/30/17 00:04	1
Perfluorohexanesulfonic acid (PFHxS)	26		1.8	0.80	ng/L		08/24/17 14:39	08/30/17 00:04	1
Perfluorooctanesulfonic acid (PFOS)	21		1.8	1.2	ng/L		08/24/17 14:39	08/30/17 00:04	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	38		25 - 150				08/24/17 14:39	08/30/17 00:04	1
13C2 PFHxA	72		25 - 150				08/24/17 14:39	08/30/17 00:04	1
13C4 PFOA	87		25 - 150				08/24/17 14:39	08/30/17 00:04	1
18O2 PFHxS	96		25 - 150				08/24/17 14:39	08/30/17 00:04	1
13C4 PFOS	103		25 - 150				08/24/17 14:39	08/30/17 00:04	1
13C4-PFHpA	93		25 - 150				08/24/17 14:39	08/30/17 00:04	1
13C5 PFPeA	62		25 - 150				08/24/17 14:39	08/30/17 00:04	1
13C3-PFBS	74		25 - 150				08/24/17 14:39	08/30/17 00:04	1

Client Sample Results

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Client Sample ID: OW-142

Date Collected: 08/15/17 10:15

Date Received: 08/18/17 09:55

Lab Sample ID: 320-30853-12

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.0		1.8	0.42	ng/L		08/24/17 14:39	08/30/17 00:11	1
Perfluoropentanoic acid (PFPeA)	<0.91		1.8	0.91	ng/L		08/24/17 14:39	08/30/17 00:11	1
Perfluorohexanoic acid (PFHxA)	<0.72		1.8	0.72	ng/L		08/24/17 14:39	08/30/17 00:11	1
Perfluoroheptanoic acid (PFHpA)	<0.74		1.8	0.74	ng/L		08/24/17 14:39	08/30/17 00:11	1
Perfluorooctanoic acid (PFOA)	0.69 J		1.8	0.69	ng/L		08/24/17 14:39	08/30/17 00:11	1
Perfluorobutanesulfonic acid (PFBS)	1.0 J		1.8	0.84	ng/L		08/24/17 14:39	08/30/17 00:11	1
Perfluorohexanesulfonic acid (PFHxS)	10		1.8	0.80	ng/L		08/24/17 14:39	08/30/17 00:11	1
Perfluorooctanesulfonic acid (PFOS)	19		1.8	1.2	ng/L		08/24/17 14:39	08/30/17 00:11	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFBA	34		25 - 150				08/24/17 14:39	08/30/17 00:11	1
13C2 PFHxA	64		25 - 150				08/24/17 14:39	08/30/17 00:11	1
13C4 PFOA	67		25 - 150				08/24/17 14:39	08/30/17 00:11	1
18O2 PFHxS	83		25 - 150				08/24/17 14:39	08/30/17 00:11	1
13C4 PFOS	87		25 - 150				08/24/17 14:39	08/30/17 00:11	1
13C4-PFHpA	81		25 - 150				08/24/17 14:39	08/30/17 00:11	1
13C5 PFPeA	57		25 - 150				08/24/17 14:39	08/30/17 00:11	1
13C3-PFBS	70		25 - 150				08/24/17 14:39	08/30/17 00:11	1

Client Sample Results

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Client Sample ID: EQ Blank

Lab Sample ID: 320-30853-13

Date Collected: 08/15/17 10:30

Matrix: Water

Date Received: 08/18/17 09:55

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<0.41		1.8	0.41	ng/L		08/24/17 14:39	08/30/17 00:18	1
Perfluoropentanoic acid (PFPeA)	<0.89		1.8	0.89	ng/L		08/24/17 14:39	08/30/17 00:18	1
Perfluorohexanoic acid (PFHxA)	1.6	J	1.8	0.71	ng/L		08/24/17 14:39	08/30/17 00:18	1
Perfluoroheptanoic acid (PFHpA)	<0.73		1.8	0.73	ng/L		08/24/17 14:39	08/30/17 00:18	1
Perfluorooctanoic acid (PFOA)	<0.68		1.8	0.68	ng/L		08/24/17 14:39	08/30/17 00:18	1
Perfluorobutanesulfonic acid (PFBS)	<0.83		1.8	0.83	ng/L		08/24/17 14:39	08/30/17 00:18	1
Perfluorohexanesulfonic acid (PFHxS)	<0.79		1.8	0.79	ng/L		08/24/17 14:39	08/30/17 00:18	1
Perfluorooctanesulfonic acid (PFOS)	<1.2		1.8	1.2	ng/L		08/24/17 14:39	08/30/17 00:18	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFBA	92		25 - 150				08/24/17 14:39	08/30/17 00:18	1
13C2 PFHxA	108		25 - 150				08/24/17 14:39	08/30/17 00:18	1
13C4 PFOA	121		25 - 150				08/24/17 14:39	08/30/17 00:18	1
18O2 PFHxS	91		25 - 150				08/24/17 14:39	08/30/17 00:18	1
13C4 PFOS	93		25 - 150				08/24/17 14:39	08/30/17 00:18	1
13C4-PFHpA	130		25 - 150				08/24/17 14:39	08/30/17 00:18	1
13C5 PFPeA	104		25 - 150				08/24/17 14:39	08/30/17 00:18	1
13C3-PFBS	87		25 - 150				08/24/17 14:39	08/30/17 00:18	1

Isotope Dilution Summary

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Method: 537 (modified) - Perfluorinated Hydrocarbons

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Isotope Dilution Recovery (Acceptance Limits)							
		¹³ C4 PFB/ (25-150)	¹³ C2 PFHx/ (25-150)	¹³ C4 PFO/ (25-150)	¹⁸ O2 PFHx/ (25-150)	¹³ C4 PFO/ (25-150)	¹³ C4-PFHp/ (25-150)	¹³ C5 PFPe/ (25-150)	¹³ C3-PFB/ (25-150)
320-30853-1	OW-145	52	77	94	87	94	97	71	80
320-30853-2	OW-117	43	60	73	84	82	75	59	71
320-30853-3	P-134A	40	67	56	94	98	77	60	74
320-30853-4	OW-134	48	80	93	99	99	96	72	82
320-30853-5	P-133A	47	61	76	83	82	80	55	71
320-30853-6	OW-133B	38	68	79	96	97	83	60	79
320-30853-7	OW-133B DUP	36	70	73	101	105	85	58	83
320-30853-8	OW-308	44	79	92	96		95	70	78
320-30853-8 - DL	OW-308					114			
320-30853-8 MS	OW-308	42	75	87	92		91	65	83
320-30853-8 MS - DL	OW-308					112			
320-30853-8 MSD	OW-308	42	72	88	95		91	65	85
320-30853-8 MSD - DL	OW-308					114			
320-30853-9	P-308A	46	80	81	100	103	101	72	86
320-30853-10	OW-137	33	70	91	92	102	91	56	69
320-30853-11	OW-141	38	72	87	96	103	93	62	74
320-30853-12	OW-142	34	64	67	83	87	81	57	70
320-30853-13	EQ Blank	92	108	121	91	93	130	104	87
LCS 320-181076/2-A	Lab Control Sample	86	105	118	91	89	125	100	84
MB 320-181076/1-A	Method Blank	98	113	128	101	99	132	110	94

Surrogate Legend

- ¹³C4 PFBA = ¹³C4 PFBA
- ¹³C2 PFHxA = ¹³C2 PFHxA
- ¹³C4 PFOA = ¹³C4 PFOA
- ¹⁸O2 PFHxS = ¹⁸O2 PFHxS
- ¹³C4 PFOS = ¹³C4 PFOS
- ¹³C4-PFHpA = ¹³C4-PFHpA
- ¹³C5 PFPeA = ¹³C5 PFPeA
- ¹³C3-PFBS = ¹³C3-PFBS

QC Sample Results

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Method: 537 (modified) - Perfluorinated Hydrocarbons

Lab Sample ID: MB 320-181076/1-A
Matrix: Water
Analysis Batch: 181949

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 181076

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<0.46		2.0	0.46	ng/L		08/24/17 14:39	08/29/17 22:20	1
Perfluoropentanoic acid (PFPeA)	<0.99		2.0	0.99	ng/L		08/24/17 14:39	08/29/17 22:20	1
Perfluorohexanoic acid (PFHxA)	<0.79		2.0	0.79	ng/L		08/24/17 14:39	08/29/17 22:20	1
Perfluoroheptanoic acid (PFHpA)	<0.80		2.0	0.80	ng/L		08/24/17 14:39	08/29/17 22:20	1
Perfluorooctanoic acid (PFOA)	<0.75		2.0	0.75	ng/L		08/24/17 14:39	08/29/17 22:20	1
Perfluorobutanesulfonic acid (PFBS)	<0.92		2.0	0.92	ng/L		08/24/17 14:39	08/29/17 22:20	1
Perfluorohexanesulfonic acid (PFHxS)	<0.87		2.0	0.87	ng/L		08/24/17 14:39	08/29/17 22:20	1
Perfluorooctanesulfonic acid (PFOS)	<1.3		2.0	1.3	ng/L		08/24/17 14:39	08/29/17 22:20	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	98		25 - 150	08/24/17 14:39	08/29/17 22:20	1
13C2 PFHxA	113		25 - 150	08/24/17 14:39	08/29/17 22:20	1
13C4 PFOA	128		25 - 150	08/24/17 14:39	08/29/17 22:20	1
18O2 PFHxS	101		25 - 150	08/24/17 14:39	08/29/17 22:20	1
13C4 PFOS	99		25 - 150	08/24/17 14:39	08/29/17 22:20	1
13C4-PFHpA	132		25 - 150	08/24/17 14:39	08/29/17 22:20	1
13C5 PFPeA	110		25 - 150	08/24/17 14:39	08/29/17 22:20	1
13C3-PFBS	94		25 - 150	08/24/17 14:39	08/29/17 22:20	1

Lab Sample ID: LCS 320-181076/2-A
Matrix: Water
Analysis Batch: 181949

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 181076

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Perfluorobutanoic acid (PFBA)	40.0	42.5		ng/L		106	74 - 138
Perfluoropentanoic acid (PFPeA)	40.0	40.1		ng/L		100	69 - 134
Perfluorohexanoic acid (PFHxA)	40.0	41.6		ng/L		104	70 - 136
Perfluoroheptanoic acid (PFHpA)	40.0	42.5		ng/L		106	63 - 135
Perfluorooctanoic acid (PFOA)	40.0	39.5		ng/L		99	63 - 141
Perfluorobutanesulfonic acid (PFBS)	35.4	38.3		ng/L		108	55 - 147
Perfluorohexanesulfonic acid (PFHxS)	36.4	37.3		ng/L		102	58 - 138
Perfluorooctanesulfonic acid (PFOS)	37.1	39.0		ng/L		105	47 - 162

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFBA	86		25 - 150
13C2 PFHxA	105		25 - 150
13C4 PFOA	118		25 - 150
18O2 PFHxS	91		25 - 150
13C4 PFOS	89		25 - 150
13C4-PFHpA	125		25 - 150
13C5 PFPeA	100		25 - 150
13C3-PFBS	84		25 - 150

QC Sample Results

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: 320-30853-8 MS
Matrix: Water
Analysis Batch: 181949

Client Sample ID: OW-308
Prep Type: Total/NA
Prep Batch: 181076

Analyte	Sample	Sample	Spike	MS MS		Unit	D	%Rec	Limits
	Result	Qualifier		Result	Qualifier				
Perfluorobutanoic acid (PFBA)	13		37.8	55.5		ng/L		113	74 - 138
Perfluoropentanoic acid (PFPeA)	25	F1	37.8	76.5	F1	ng/L		137	69 - 134
Perfluorohexanoic acid (PFHxA)	41	F1	37.8	104	F1	ng/L		165	70 - 136
Perfluoroheptanoic acid (PFHpA)	21	F1	37.8	70.6		ng/L		131	63 - 135
Perfluorooctanoic acid (PFOA)	18		37.8	63.3		ng/L		120	63 - 141
Perfluorobutanesulfonic acid (PFBS)	5.3		33.4	42.7		ng/L		112	55 - 147
Perfluorohexanesulfonic acid (PFHxS)	100	F1	34.4	170	F1	ng/L		196	58 - 138

Isotope Dilution	MS MS		Limits
	%Recovery	Qualifier	
13C4 PFBA	42		25 - 150
13C2 PFHxA	75		25 - 150
13C4 PFOA	87		25 - 150
18O2 PFHxS	92		25 - 150
13C4-PFHpA	91		25 - 150
13C5 PFPeA	65		25 - 150
13C3-PFBS	83		25 - 150

Lab Sample ID: 320-30853-8 MSD
Matrix: Water
Analysis Batch: 181949

Client Sample ID: OW-308
Prep Type: Total/NA
Prep Batch: 181076

Analyte	Sample	Sample	Spike	MSD MSD		Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier						
Perfluorobutanoic acid (PFBA)	13		38.2	58.4		ng/L		119	74 - 138	5	30
Perfluoropentanoic acid (PFPeA)	25	F1	38.2	88.1	F1	ng/L		165	69 - 134	14	30
Perfluorohexanoic acid (PFHxA)	41	F1	38.2	126	F1	ng/L		222	70 - 136	20	30
Perfluoroheptanoic acid (PFHpA)	21	F1	38.2	77.4	F1	ng/L		147	63 - 135	9	30
Perfluorooctanoic acid (PFOA)	18		38.2	67.0		ng/L		128	63 - 141	6	30
Perfluorobutanesulfonic acid (PFBS)	5.3		33.8	43.7		ng/L		114	55 - 147	2	30
Perfluorohexanesulfonic acid (PFHxS)	100	F1	34.8	202	F1	ng/L		287	58 - 138	17	30

Isotope Dilution	MSD MSD		Limits
	%Recovery	Qualifier	
13C4 PFBA	42		25 - 150
13C2 PFHxA	72		25 - 150
13C4 PFOA	88		25 - 150
18O2 PFHxS	95		25 - 150
13C4-PFHpA	91		25 - 150
13C5 PFPeA	65		25 - 150
13C3-PFBS	85		25 - 150

QC Sample Results

Client: Hyde Environmental, Inc.
 Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Method: 537 (modified) - Perfluorinated Hydrocarbons - DL

Lab Sample ID: 320-30853-8 MS
Matrix: Water
Analysis Batch: 182313

Client Sample ID: OW-308
Prep Type: Total/NA
Prep Batch: 181076

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Perfluorooctanesulfonic acid (PFOS) - DL	790		35.1	1250	4	ng/L		1321	47 - 162
MS MS									
Isotope Dilution	%Recovery	Qualifier	Limits						
13C4 PFOS - DL	112		25 - 150						

Lab Sample ID: 320-30853-8 MSD
Matrix: Water
Analysis Batch: 182313

Client Sample ID: OW-308
Prep Type: Total/NA
Prep Batch: 181076

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Perfluorooctanesulfonic acid (PFOS) - DL	790		35.5	1680	4	ng/L		2495	47 - 162	29	30
MSD MSD											
Isotope Dilution	%Recovery	Qualifier	Limits								
13C4 PFOS - DL	114		25 - 150								



QC Association Summary

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

LCMS

Prep Batch: 181076

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-30853-1	OW-145	Total/NA	Water	3535	
320-30853-2	OW-117	Total/NA	Water	3535	
320-30853-3	P-134A	Total/NA	Water	3535	
320-30853-4	OW-134	Total/NA	Water	3535	
320-30853-5	P-133A	Total/NA	Water	3535	
320-30853-6	OW-133B	Total/NA	Water	3535	
320-30853-7	OW-133B DUP	Total/NA	Water	3535	
320-30853-8 - DL	OW-308	Total/NA	Water	3535	
320-30853-8	OW-308	Total/NA	Water	3535	
320-30853-9	P-308A	Total/NA	Water	3535	
320-30853-10	OW-137	Total/NA	Water	3535	
320-30853-11	OW-141	Total/NA	Water	3535	
320-30853-12	OW-142	Total/NA	Water	3535	
320-30853-13	EQ Blank	Total/NA	Water	3535	
MB 320-181076/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-181076/2-A	Lab Control Sample	Total/NA	Water	3535	
320-30853-8 MS - DL	OW-308	Total/NA	Water	3535	
320-30853-8 MS	OW-308	Total/NA	Water	3535	
320-30853-8 MSD	OW-308	Total/NA	Water	3535	
320-30853-8 MSD - DL	OW-308	Total/NA	Water	3535	

Analysis Batch: 181949

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-30853-1	OW-145	Total/NA	Water	537 (modified)	181076
320-30853-2	OW-117	Total/NA	Water	537 (modified)	181076
320-30853-3	P-134A	Total/NA	Water	537 (modified)	181076
320-30853-4	OW-134	Total/NA	Water	537 (modified)	181076
320-30853-5	P-133A	Total/NA	Water	537 (modified)	181076
320-30853-6	OW-133B	Total/NA	Water	537 (modified)	181076
320-30853-7	OW-133B DUP	Total/NA	Water	537 (modified)	181076
320-30853-8	OW-308	Total/NA	Water	537 (modified)	181076
320-30853-9	P-308A	Total/NA	Water	537 (modified)	181076
320-30853-10	OW-137	Total/NA	Water	537 (modified)	181076
320-30853-11	OW-141	Total/NA	Water	537 (modified)	181076
320-30853-12	OW-142	Total/NA	Water	537 (modified)	181076
320-30853-13	EQ Blank	Total/NA	Water	537 (modified)	181076
MB 320-181076/1-A	Method Blank	Total/NA	Water	537 (modified)	181076
LCS 320-181076/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	181076
320-30853-8 MS	OW-308	Total/NA	Water	537 (modified)	181076
320-30853-8 MSD	OW-308	Total/NA	Water	537 (modified)	181076

Analysis Batch: 182313

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-30853-8 - DL	OW-308	Total/NA	Water	537 (modified)	181076
320-30853-8 MS - DL	OW-308	Total/NA	Water	537 (modified)	181076
320-30853-8 MSD - DL	OW-308	Total/NA	Water	537 (modified)	181076

TestAmerica Sacramento

Lab Chronicle

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Client Sample ID: OW-145

Date Collected: 08/14/17 10:25

Date Received: 08/18/17 09:55

Lab Sample ID: 320-30853-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			282.1 mL	0.50 mL	181076	08/24/17 14:39	TWL	TAL SAC
Total/NA	Analysis	537 (modified)		1			181949	08/29/17 22:34	JRB	TAL SAC

Client Sample ID: OW-117

Date Collected: 08/14/17 11:25

Date Received: 08/18/17 09:55

Lab Sample ID: 320-30853-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			278.6 mL	0.50 mL	181076	08/24/17 14:39	TWL	TAL SAC
Total/NA	Analysis	537 (modified)		1			181949	08/29/17 22:41	JRB	TAL SAC

Client Sample ID: P-134A

Date Collected: 08/14/17 12:45

Date Received: 08/18/17 09:55

Lab Sample ID: 320-30853-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			276.8 mL	0.50 mL	181076	08/24/17 14:39	TWL	TAL SAC
Total/NA	Analysis	537 (modified)		1			181949	08/29/17 22:48	JRB	TAL SAC

Client Sample ID: OW-134

Date Collected: 08/14/17 13:05

Date Received: 08/18/17 09:55

Lab Sample ID: 320-30853-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			281.6 mL	0.50 mL	181076	08/24/17 14:39	TWL	TAL SAC
Total/NA	Analysis	537 (modified)		1			181949	08/29/17 22:55	JRB	TAL SAC

Client Sample ID: P-133A

Date Collected: 08/14/17 13:50

Date Received: 08/18/17 09:55

Lab Sample ID: 320-30853-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			274.5 mL	0.50 mL	181076	08/24/17 14:39	TWL	TAL SAC
Total/NA	Analysis	537 (modified)		1			181949	08/29/17 23:02	JRB	TAL SAC

Client Sample ID: OW-133B

Date Collected: 08/14/17 14:15

Date Received: 08/18/17 09:55

Lab Sample ID: 320-30853-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			274.8 mL	0.50 mL	181076	08/24/17 14:39	TWL	TAL SAC
Total/NA	Analysis	537 (modified)		1			181949	08/29/17 23:09	JRB	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Client Sample ID: OW-133B DUP

Lab Sample ID: 320-30853-7

Date Collected: 08/14/17 00:00

Matrix: Water

Date Received: 08/18/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			297.1 mL	0.50 mL	181076	08/24/17 14:39	TWL	TAL SAC
Total/NA	Analysis	537 (modified)		1			181949	08/29/17 23:15	JRB	TAL SAC

Client Sample ID: OW-308

Lab Sample ID: 320-30853-8

Date Collected: 08/14/17 14:50

Matrix: Water

Date Received: 08/18/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			267.9 mL	0.50 mL	181076	08/24/17 14:39	TWL	TAL SAC
Total/NA	Analysis	537 (modified)		1			181949	08/29/17 23:29	JRB	TAL SAC
Total/NA	Prep	3535	DL		267.9 mL	0.50 mL	181076	08/24/17 14:39	TWL	TAL SAC
Total/NA	Analysis	537 (modified)	DL	10			182313	08/31/17 15:01	JRB	TAL SAC

Client Sample ID: P-308A

Lab Sample ID: 320-30853-9

Date Collected: 08/14/17 15:32

Matrix: Water

Date Received: 08/18/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			273.9 mL	0.50 mL	181076	08/24/17 14:39	TWL	TAL SAC
Total/NA	Analysis	537 (modified)		1			181949	08/29/17 23:50	JRB	TAL SAC

Client Sample ID: OW-137

Lab Sample ID: 320-30853-10

Date Collected: 08/15/17 09:20

Matrix: Water

Date Received: 08/18/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			265 mL	0.50 mL	181076	08/24/17 14:39	TWL	TAL SAC
Total/NA	Analysis	537 (modified)		1			181949	08/29/17 23:57	JRB	TAL SAC

Client Sample ID: OW-141

Lab Sample ID: 320-30853-11

Date Collected: 08/15/17 09:15

Matrix: Water

Date Received: 08/18/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			270.7 mL	0.50 mL	181076	08/24/17 14:39	TWL	TAL SAC
Total/NA	Analysis	537 (modified)		1			181949	08/30/17 00:04	JRB	TAL SAC

Client Sample ID: OW-142

Lab Sample ID: 320-30853-12

Date Collected: 08/15/17 10:15

Matrix: Water

Date Received: 08/18/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			272.1 mL	0.50 mL	181076	08/24/17 14:39	TWL	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Client Sample ID: OW-142

Lab Sample ID: 320-30853-12

Date Collected: 08/15/17 10:15

Matrix: Water

Date Received: 08/18/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	537 (modified)		1			181949	08/30/17 00:11	JRB	TAL SAC

Client Sample ID: EQ Blank

Lab Sample ID: 320-30853-13

Date Collected: 08/15/17 10:30

Matrix: Water

Date Received: 08/18/17 09:55

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			276.5 mL	0.50 mL	181076	08/24/17 14:39	TWL	TAL SAC
Total/NA	Analysis	537 (modified)		1			181949	08/30/17 00:18	JRB	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Laboratory: TestAmerica Sacramento

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Oregon	NELAP	10	4040	01-28-18

1

2

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Method Summary

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Perfluorinated Hydrocarbons	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

- 1
- 2
- 3
- 4
- 5
- 6
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- 10
- 11
- 12
- 13
- 14
- 15

Sample Summary

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS

TestAmerica Job ID: 320-30853-1

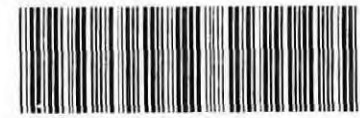
Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-30853-1	OW-145	Water	08/14/17 10:25	08/18/17 09:55
320-30853-2	OW-117	Water	08/14/17 11:25	08/18/17 09:55
320-30853-3	P-134A	Water	08/14/17 12:45	08/18/17 09:55
320-30853-4	OW-134	Water	08/14/17 13:05	08/18/17 09:55
320-30853-5	P-133A	Water	08/14/17 13:50	08/18/17 09:55
320-30853-6	OW-133B	Water	08/14/17 14:15	08/18/17 09:55
320-30853-7	OW-133B DUP	Water	08/14/17 00:00	08/18/17 09:55
320-30853-8	OW-308	Water	08/14/17 14:50	08/18/17 09:55
320-30853-9	P-308A	Water	08/14/17 15:32	08/18/17 09:55
320-30853-10	OW-137	Water	08/15/17 09:20	08/18/17 09:55
320-30853-11	OW-141	Water	08/15/17 09:15	08/18/17 09:55
320-30853-12	OW-142	Water	08/15/17 10:15	08/18/17 09:55
320-30853-13	EQ Blank	Water	08/15/17 10:30	08/18/17 09:55

Chain of Custody Record

230342

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager: <u>J. L. [Signature]</u>		Site Contact:		Date: <u>11/17</u>		COC No:	
Company Name: <u>Huber Environmental</u>		Tel/Fax:		Lab Contact:		Carrier:		of COCs	
Address: <u>1075 Hilltop - Sacramento</u>		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS, MSD, Y, N		[Handwritten notes]		Sampler	
City/State/Zip: <u>Sacramento, CA</u>		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS						For Lab Use Only:	
Phone: <u>(916) 550-1226</u>		TAT if different from Below						Walk-in Client:	
Fax:		<input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						Lab Sampling:	
Project Name: <u>Test A. Co. FRP-2</u>		Matrix:		Job / SDG No.:		Sample Specific Notes:			
Site:		Sample Date		Sample Time		Sample Type (C=Cont, G=Grb)		# of Cont.	
P.O.#:		Sample Date		Sample Time		Sample Type (C=Cont, G=Grb)		# of Cont.	
Sample Identification		Sample Date		Sample Time		Sample Type (C=Cont, G=Grb)		# of Cont.	
DW 117		11/17		11:25		C		3	
D-1211A		11/17		12:10		C		3	
DW 1311		11/17		13:15		C		3	
F-133A		11/17		13:50		C		2	
DW 131B		11/17		14:15		C		3	
DW 131B: DUP		11/17		14:15		C		3	
DW 308		11/17		14:50		C		6	
F308A		11/17		15:30		C		2	
DW 137		11/17		16:20		C		2	
DW 141		11/17		16:15		C		3	
DW 143		11/17		16:15		C		2	
Preservation Used: 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other		Possible Hazard Identification:		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		Return to Client		Disposal by Lab	
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.		<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown		<input type="checkbox"/> Archive for _____ Months		Special Instructions/QC Requirements & Comments:			
Custody Seals intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd <u>2.4</u> Cor'd _____		Therm ID No.: <u>AK-2</u>			
Relinquished by: <u>[Signature]</u>		Company: <u>Huber</u>		Date/Time: <u>11/17 11:25</u>		Received by: <u>[Signature]</u>		Company: <u>Huber</u>	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received In Laboratory by:		Company:	



320-30853 Chain of Custody

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9/7/2017



1875 Riverfront Parkway

West Sacramento, CA 95605
Phone: 916.379.5009 Fax: 916.379.5008

1-800-LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-0210 (0713)

Regulatory Program: DW NPDES RCRA Other:

Client Contact		Project Manager:		Site Contact:		Date:		COC No:			
Company Name:		Tel/Fax:		Lab Contact:		Carrier:		_____ of _____ COCs			
Address:		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS TAT if different from Below <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day						Sampler:			
City/State/Zip:								For Lab Use Only:			
Phone:								Walk-in Client:			
Fax:								Lab Sampling:			
Project Name:		Job / SDG No.:		Filtered Sample (Y/N) Perform MS / MSD (Y/N)							
Site:		Sample Specific Notes:									
P O #		Sample Date		Sample Time		Sample Type (C=Comp, G=Grab)		Matrix		# of Cont.	
Eq. #		7/17/17 10:30		10		L		W		2	
Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4= HNO3, 5= NaOH, 6= Other						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.						<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months					
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown						Special Instructions/QC Requirements & Comments:					
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No				Custody Seal No.:		Cooler Temp (°C): Obs'd:		Corr'd:		Therm ID No.:	
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:	
[Signature]		[Company]		7/17/17 10:30		[Signature]		[Company]		8-17-17 955	
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:		Date/Time:	

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9/7/2017



Login Sample Receipt Checklist

Client: Hyde Environmental, Inc.

Job Number: 320-30853-1

Login Number: 30853

List Source: TestAmerica Sacramento

List Number: 1

Creator: Edman, Connor M

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	False	Refer to Job Narrative for details.
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	