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: 320-21576-2
Client Project/Site: Fort McCoy PFAS FTBP3

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

(b) (6) [redacted]

Authorized for release by:
10/3/2016 2:53:28 PM

(b) (6) [redacted]

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Definitions/Glossary

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS FTBP3

TestAmerica Job ID: 320-21576-2

Qualifiers

LCMS

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
*	Isotope Dilution analyte is outside acceptance limits.
E	Result exceeded calibration range.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

Job ID: 320-21576-2

Laboratory: TestAmerica Sacramento

Narrative

Job Narrative
320-21576-2

Comments
No additional comments.

Receipt
The samples were received on 9/8/2016 9:55 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 4.0º C and 5.1º C.

Dioxin
Method(s) 537 (Modified): The concentration of Perfluorooctanesulfonic acid (PFOS) in the following sample exceeded the instrument calibration range: MW-2R (320-21576-16) and MW-4R (320-21576-17). This analytes has been qualified; however, the peak did not saturate the instrument detector. Historical data indicate that for the isotope dilution method, dilution and re-analysis will not produce significantly different results from those reported above the calibration range. The maximum dilution was performed for the sample.

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

LCMS
Method(s) 537 (Modified): The first level standard from the initial calibration curve is used to evaluate the tune criteria. The instrument mass windows are set at +/- 0.5amu; therefore, detection of the analyte serves as verification that the assigned mass is within +/- 0.5amu of the true value, which meets the DoD/DOE QSM tune criterion.

Method(s) 537 (Modified): Isotope Dilution Analyte (IDA) recovery is above the method recommended limit for several analytes in the following samples: MW-1R (DUP) (320-21576-15), MW-4R (320-21576-17) and MW-3R (320-21576-18). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method(s) 537 (Modified): The injection times displayed in chrom/TALS do not match the injection times listed on A8 instrument printouts. The instrument printout listing the injection times can be found at the end of the run log section. MW-1R (320-21576-14), MW-1R (DUP) (320-21576-15), MW-2R (320-21576-16), MW-4R (320-21576-17), MW-3R (320-21576-18), (CCV 320-129688/19), (CCV 320-129688/20), (CCV 320-129688/6), (CCV 320-129688/7), (CCV 320-129688/4), (CCV 320-129688/5), (ICV 320-129364/12), (ICV 320-129364/22), (CCV 320-129481/30), (CCV 320-129481/31), (CCV 320-129481/59), (CCV 320-129481/60), (CCV 320-129481/63), (CCV 320-129481/64), (CCV 320-129481/70), (CCV 320-129481/15), (CCV 320-129481/5), (LCS 320-126548/2-A), (MB 320-126548/1-A), (320-21576-A-5-A), (320-21576-B-5-A MS), (320-21576-B-5-B MSD), (CCV 320-129691/16), (CCV 320-129691/17), (CCV 320-129691/26) and (CCV 320-129691/27)

Method(s) 537 (Modified): The closing continuing calibration verification (CCV) standard associated with batch 320-129481 failed to meet acceptance limits for Perfluorooctanesulfonic acid (PFOS). The CCV was out high due to carryover from high concentrations of PFOS in the preceding samples. The opening CCV was in control and so reanalysis of the following samples was not performed: (CCV 320-129481/63).

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 FTBP3

TestAmerica Job ID: 320-21576-2

Client Sample ID: MW-1R — Lab Sample ID: 320-21576-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	94	B	2.1	0.38	ng/L	1		537 (Modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	250		2.1	0.65	ng/L	1		537 (Modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	280		2.1	0.66	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA)	480		2.1	0.62	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	35		2.1	0.76	ng/L	1		537 (Modified)	Total/NA
Perfluoropentanoic acid (PFPeA) - DL	390		100	41	ng/L	50		537 (Modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - DL	1200		100	36	ng/L	50		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	6800		160	53	ng/L	50		537 (Modified)	Total/NA

Client Sample ID: MW-1R (DUP) — Lab Sample ID: 320-21576-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	98	B	2.1	0.38	ng/L	1		537 (Modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	260		2.1	0.65	ng/L	1		537 (Modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	300		2.1	0.66	ng/L	1		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA)	480		2.1	0.62	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	42		2.1	0.76	ng/L	1		537 (Modified)	Total/NA
Perfluoropentanoic acid (PFPeA) - DL	420		100	41	ng/L	50		537 (Modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - DL	1300		100	36	ng/L	50		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	6300		170	53	ng/L	50		537 (Modified)	Total/NA

Client Sample ID: MW-2R — Lab Sample ID: 320-21576-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA) - DL	1400	B	110	19	ng/L	50		537 (Modified)	Total/NA
Perfluorohexanoic acid (PFHxA) - DL	4900		110	33	ng/L	50		537 (Modified)	Total/NA
Perfluoroheptanoic acid (PFHpA) - DL	1200		110	34	ng/L	50		537 (Modified)	Total/NA
Perfluoropentanoic acid (PFPeA) - DL	5300		110	42	ng/L	50		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	720		110	31	ng/L	50		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - DL	380		110	39	ng/L	50		537 (Modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - DL	7800		110	37	ng/L	50		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL2	67000	E	340	110	ng/L	100		537 (Modified)	Total/NA

Client Sample ID: MW-4R — Lab Sample ID: 320-21576-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	200	B	2.1	0.38	ng/L	1		537 (Modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	230		2.1	0.67	ng/L	1		537 (Modified)	Total/NA
Perfluorohexanoic acid (PFHxA) - DL	1200		100	33	ng/L	50		537 (Modified)	Total/NA
Perfluoropentanoic acid (PFPeA) - DL	700		100	41	ng/L	50		537 (Modified)	Total/NA
Perfluorooctanoic acid (PFOA) - DL	650		100	31	ng/L	50		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - DL	250		100	39	ng/L	50		537 (Modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - DL	5500		100	37	ng/L	50		537 (Modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS FTBP3

TestAmerica Job ID: 320-21576-2

Client Sample ID: MW-4R (Continued)

Lab Sample ID: 320-21576-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS) - DL2	120000	E	340	110	ng/L	100		537 (Modified)	Total/NA

Client Sample ID: MW-3R

Lab Sample ID: 320-21576-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	510		2.1	0.63	ng/L	1		537 (Modified)	Total/NA
Perfluorobutanoic acid (PFBA) - DL	750	B	110	19	ng/L	50		537 (Modified)	Total/NA
Perfluorohexanoic acid (PFHxA) - DL	2000		110	33	ng/L	50		537 (Modified)	Total/NA
Perfluoroheptanoic acid (PFHpA) - DL	530		110	34	ng/L	50		537 (Modified)	Total/NA
Perfluoropentanoic acid (PFPeA) - DL	3000		110	42	ng/L	50		537 (Modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS) - DL	1200		110	39	ng/L	50		537 (Modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - DL	2600		110	37	ng/L	50		537 (Modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	2100		170	54	ng/L	50		537 (Modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: MW-1R

Date Collected: 09/06/16 16:20
Date Received: 09/08/16 09:55

Lab Sample ID: 320-21576-14

Matrix: Water

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	94	B	2.1	0.38	ng/L		09/10/16 09:06	09/27/16 18:24	1
Perfluorohexanoic acid (PFHxA)	250		2.1	0.65	ng/L		09/10/16 09:06	09/27/16 18:24	1
Perfluoroheptanoic acid (PFHpA)	280		2.1	0.66	ng/L		09/10/16 09:06	09/27/16 18:24	1
Perfluorooctanoic acid (PFOA)	480		2.1	0.62	ng/L		09/10/16 09:06	09/27/16 18:24	1
Perfluorobutanesulfonic acid (PFBS)	35		2.1	0.76	ng/L		09/10/16 09:06	09/27/16 18:24	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*64*		*25 - 150*	*09/10/16 09:06*	*09/27/16 18:24*	*1*
13C4 PFOA	*46*		*25 - 150*	*09/10/16 09:06*	*09/27/16 18:24*	*1*
18O2 PFHxS	*70*		*25 - 150*	*09/10/16 09:06*	*09/27/16 18:24*	*1*
13C4-PFHpA	*47*		*25 - 150*	*09/10/16 09:06*	*09/27/16 18:24*	*1*
13C4 PFBA	*35*		*25 - 150*	*09/10/16 09:06*	*09/27/16 18:24*	*1*

Method: 537 (Modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid (PFPeA)	390		100	41	ng/L		09/10/16 09:06	09/28/16 13:56	50
Perfluorohexanesulfonic acid (PFHxS)	1200		100	36	ng/L		09/10/16 09:06	09/28/16 13:56	50
Perfluorooctanesulfonic acid (PFOS)	6800		160	53	ng/L		09/10/16 09:06	09/28/16 13:56	50

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*135*		*25 - 150*	*09/10/16 09:06*	*09/28/16 13:56*	*50*
13C4 PFOS	*132*		*25 - 150*	*09/10/16 09:06*	*09/28/16 13:56*	*50*
13C5-PFPeA	*78*		*25 - 150*	*09/10/16 09:06*	*09/28/16 13:56*	*50*

Client Sample ID: MW-1R (DUP)

Date Collected: 09/06/16 16:20
Date Received: 09/08/16 09:55

Lab Sample ID: 320-21576-15

Matrix: Water

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	98	B	2.1	0.38	ng/L		09/10/16 09:06	09/27/16 18:31	1
Perfluorohexanoic acid (PFHxA)	260		2.1	0.65	ng/L		09/10/16 09:06	09/27/16 18:31	1
Perfluoroheptanoic acid (PFHpA)	300		2.1	0.66	ng/L		09/10/16 09:06	09/27/16 18:31	1
Perfluorooctanoic acid (PFOA)	480		2.1	0.62	ng/L		09/10/16 09:06	09/27/16 18:31	1
Perfluorobutanesulfonic acid (PFBS)	42		2.1	0.76	ng/L		09/10/16 09:06	09/27/16 18:31	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*65*		*25 - 150*	*09/10/16 09:06*	*09/27/16 18:31*	*1*
13C4 PFOA	*47*		*25 - 150*	*09/10/16 09:06*	*09/27/16 18:31*	*1*
18O2 PFHxS	*71*		*25 - 150*	*09/10/16 09:06*	*09/27/16 18:31*	*1*
13C4-PFHpA	*48*		*25 - 150*	*09/10/16 09:06*	*09/27/16 18:31*	*1*
13C4 PFBA	*36*		*25 - 150*	*09/10/16 09:06*	*09/27/16 18:31*	*1*

Method: 537 (Modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoropentanoic acid (PFPeA)	420		100	41	ng/L		09/10/16 09:06	09/28/16 14:04	50
Perfluorohexanesulfonic acid (PFHxS)	1300		100	36	ng/L		09/10/16 09:06	09/28/16 14:04	50
Perfluorooctanesulfonic acid (PFOS)	6300		170	53	ng/L		09/10/16 09:06	09/28/16 14:04	50

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
18O2 PFHxS	*286*	*	*25 - 150*	*09/10/16 09:06*	*09/28/16 14:04*	*50*
13C4 PFOS	*278*	*	*25 - 150*	*09/10/16 09:06*	*09/28/16 14:04*	*50*
13C5-PFPeA	*183*	*	*25 - 150*	*09/10/16 09:06*	*09/28/16 14:04*	*50*

Client Sample ID: MW-2R
Date Collected: 09/06/16 17:15
Date Received: 09/08/16 09:55

Lab Sample ID: 320-21576-16
Matrix: Water

Method: 537 (Modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	1400	B	110	19	ng/L		09/10/16 09:06	09/28/16 14:11	50
Perfluorohexanoic acid (PFHxA)	4900		110	33	ng/L		09/10/16 09:06	09/28/16 14:11	50
Perfluoroheptanoic acid (PFHpA)	1200		110	34	ng/L		09/10/16 09:06	09/28/16 14:11	50
Perfluoropentanoic acid (PFPeA)	5300		110	42	ng/L		09/10/16 09:06	09/28/16 14:11	50
Perfluorooctanoic acid (PFOA)	720		110	31	ng/L		09/10/16 09:06	09/28/16 14:11	50
Perfluorobutanesulfonic acid (PFBS)	380		110	39	ng/L		09/10/16 09:06	09/28/16 14:11	50
Perfluorohexanesulfonic acid (PFHxS)	7800		110	37	ng/L		09/10/16 09:06	09/28/16 14:11	50

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*95*		*25 - 150*	*09/10/16 09:06*	*09/28/16 14:11*	*50*
13C4 PFOA	*113*		*25 - 150*	*09/10/16 09:06*	*09/28/16 14:11*	*50*
18O2 PFHxS	*141*		*25 - 150*	*09/10/16 09:06*	*09/28/16 14:11*	*50*
13C4-PFHpA	*91*		*25 - 150*	*09/10/16 09:06*	*09/28/16 14:11*	*50*
13C5-PFPeA	*103*		*25 - 150*	*09/10/16 09:06*	*09/28/16 14:11*	*50*
13C4 PFBA	*100*		*25 - 150*	*09/10/16 09:06*	*09/28/16 14:11*	*50*

Method: 537 (Modified) - Perfluorinated Hydrocarbons - DL2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	67000	E	340	110	ng/L		09/10/16 09:06	09/28/16 18:33	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*138*		*25 - 150*	*09/10/16 09:06*	*09/28/16 18:33*	*100*

Client Sample ID: MW-4R

Date Collected: 09/06/16 18:00
Date Received: 09/08/16 09:55

Lab Sample ID: 320-21576-17

Matrix: Water

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	200	B	2.1	0.38	ng/L		09/10/16 09:06	09/27/16 19:16	1
Perfluoroheptanoic acid (PFHpA)	230		2.1	0.67	ng/L		09/10/16 09:06	09/27/16 19:16	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4-PFHpA	*34*		*25 - 150*	*09/10/16 09:06*	*09/27/16 19:16*	*1*
13C4 PFBA	*26*		*25 - 150*	*09/10/16 09:06*	*09/27/16 19:16*	*1*

Method: 537 (Modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	1200		100	33	ng/L		09/10/16 09:06	09/28/16 14:26	50
Perfluoropentanoic acid (PFPeA)	700		100	41	ng/L		09/10/16 09:06	09/28/16 14:26	50
Perfluorooctanoic acid (PFOA)	650		100	31	ng/L		09/10/16 09:06	09/28/16 14:26	50
Perfluorobutanesulfonic acid (PFBS)	250		100	39	ng/L		09/10/16 09:06	09/28/16 14:26	50
Perfluorohexanesulfonic acid (PFHxS)	5500		100	37	ng/L		09/10/16 09:06	09/28/16 14:26	50

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*180*	*	*25 - 150*	*09/10/16 09:06*	*09/28/16 14:26*	*50*
13C4 PFOA	*204*	*	*25 - 150*	*09/10/16 09:06*	*09/28/16 14:26*	*50*
18O2 PFHxS	*227*	*	*25 - 150*	*09/10/16 09:06*	*09/28/16 14:26*	*50*
13C5-PFPeA	*199*	*	*25 - 150*	*09/10/16 09:06*	*09/28/16 14:26*	*50*

Method: 537 (Modified) - Perfluorinated Hydrocarbons - DL2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	120000	E	340	110	ng/L		09/10/16 09:06	09/28/16 14:19	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*72*		*25 - 150*	*09/10/16 09:06*	*09/28/16 14:19*	*100*

Client Sample ID: MW-3R

Date Collected: 09/06/16 18:30
Date Received: 09/08/16 09:55

Lab Sample ID: 320-21576-18

Matrix: Water

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	510		2.1	0.63	ng/L		09/10/16 09:06	09/27/16 19:24	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOA	*48*		*25 - 150*	*09/10/16 09:06*	*09/27/16 19:24*	*1*

Method: 537 (Modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	750	B	110	19	ng/L		09/10/16 09:06	09/28/16 14:34	50
Perfluorohexanoic acid (PFHxA)	2000		110	33	ng/L		09/10/16 09:06	09/28/16 14:34	50
Perfluoroheptanoic acid (PFHpA)	530		110	34	ng/L		09/10/16 09:06	09/28/16 14:34	50
Perfluoropentanoic acid (PFPeA)	3000		110	42	ng/L		09/10/16 09:06	09/28/16 14:34	50
Perfluorobutanesulfonic acid (PFBS)	1200		110	39	ng/L		09/10/16 09:06	09/28/16 14:34	50
Perfluorohexanesulfonic acid (PFHxS)	2600		110	37	ng/L		09/10/16 09:06	09/28/16 14:34	50
Perfluorooctanesulfonic acid (PFOS)	2100		170	54	ng/L		09/10/16 09:06	09/28/16 14:34	50

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C2 PFHxA	*187*	*	*25 - 150*	*09/10/16 09:06*	*09/28/16 14:34*	*50*
18O2 PFHxS	*217*	*	*25 - 150*	*09/10/16 09:06*	*09/28/16 14:34*	*50*
13C4 PFOS	*215*	*	*25 - 150*	*09/10/16 09:06*	*09/28/16 14:34*	*50*
13C4-PFHpA	*174*	*	*25 - 150*	*09/10/16 09:06*	*09/28/16 14:34*	*50*
13C5-PFPeA	*194*	*	*25 - 150*	*09/10/16 09:06*	*09/28/16 14:34*	*50*
13C4 PFBA	*179*	*	*25 - 150*	*09/10/16 09:06*	*09/28/16 14:34*	*50*

Isotope Dilution Summary

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS FTBP3

TestAmerica Job ID: 320-21576-2

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)						
		3C2 PFHx	3C4 PFO/	3O2 PFHx	3C4 PFOS	3C4-PFHp	3C5-PFPe	3C4 PFBA
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)
320-21576-14	MW-1R	64	46	70		47		35
320-21576-15	MW-1R (DUP)	65	47	71		48		36
320-21576-16 - DL	MW-2R	95	113	141		91	103	100
320-21576-17	MW-4R					34		26
320-21576-17 - DL	MW-4R	180 *	204 *	227 *			199 *	
320-21576-18	MW-3R		48					

Surrogate Legend

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

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)		
		3O2 PFHx	3C4 PFOS	3C5-PFPe
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)
320-21576-14 - DL	MW-1R	135	132	78
320-21576-15 - DL	MW-1R (DUP)	286 *	278 *	183 *

Surrogate Legend

18O2 PFHxS = 18O2 PFHxS
13C4 PFOS = 13C4 PFOS
13C5-PFPeA = 13C5-PFPeA

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)
		3C4 PFOS
Lab Sample ID	Client Sample ID	(25-150)
320-21576-16 - DL2	MW-2R	138
320-21576-17 - DL2	MW-4R	72

Surrogate Legend

13C4 PFOS = 13C4 PFOS

Method: 537 (Modified) - Perfluorinated Hydrocarbons

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)					
		3C2 PFHx	3O2 PFHx	3C4 PFOS	3C4-PFHp	3C5-PFPe	3C4 PFBA
Lab Sample ID	Client Sample ID	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)	(25-150)
320-21576-18 - DL	MW-3R	187 *	217 *	215 *	174 *	194 *	179 *

Surrogate Legend

13C2 PFHxA = 13C2 PFHxA

Isotope Dilution Summary

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS FTBP3

TestAmerica Job ID: 320-21576-2

18O2 PFHxS = 18O2 PFHxS
13C4 PFOS = 13C4 PFOS
13C4-PFHpA = 13C4-PFHpA
13C5-PFPeA = 13C5-PFPeA
13C4 PFBA = 13C4 PFBA

LCMS

Prep Batch: 126548

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-21576-14 - DL	MW-1R	Total/NA	Water	3535	
320-21576-14	MW-1R	Total/NA	Water	3535	
320-21576-15 - DL	MW-1R (DUP)	Total/NA	Water	3535	
320-21576-15	MW-1R (DUP)	Total/NA	Water	3535	
320-21576-16 - DL	MW-2R	Total/NA	Water	3535	
320-21576-16 - DL2	MW-2R	Total/NA	Water	3535	
320-21576-17	MW-4R	Total/NA	Water	3535	
320-21576-17 - DL	MW-4R	Total/NA	Water	3535	
320-21576-17 - DL2	MW-4R	Total/NA	Water	3535	
320-21576-18 - DL	MW-3R	Total/NA	Water	3535	
320-21576-18	MW-3R	Total/NA	Water	3535	

Analysis Batch: 129481

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-21576-14	MW-1R	Total/NA	Water	537 (Modified)	126548
320-21576-15	MW-1R (DUP)	Total/NA	Water	537 (Modified)	126548
320-21576-17	MW-4R	Total/NA	Water	537 (Modified)	126548
320-21576-18	MW-3R	Total/NA	Water	537 (Modified)	126548

Analysis Batch: 129688

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-21576-14 - DL	MW-1R	Total/NA	Water	537 (Modified)	126548
320-21576-15 - DL	MW-1R (DUP)	Total/NA	Water	537 (Modified)	126548
320-21576-16 - DL	MW-2R	Total/NA	Water	537 (Modified)	126548
320-21576-17 - DL2	MW-4R	Total/NA	Water	537 (Modified)	126548
320-21576-17 - DL	MW-4R	Total/NA	Water	537 (Modified)	126548
320-21576-18 - DL	MW-3R	Total/NA	Water	537 (Modified)	126548

Analysis Batch: 129691

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-21576-16 - DL2	MW-2R	Total/NA	Water	537 (Modified)	126548

Lab Chronicle

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS FTBP3

TestAmerica Job ID: 320-21576-2

Client Sample ID: MW-1R
Date Collected: 09/06/16 16:20
Date Received: 09/08/16 09:55

Lab Sample ID: 320-21576-14
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			303.1 mL	0.5 mL	126548	09/10/16 09:06	(b)	TAL SAC
Total/NA	Analysis	537 (Modified)		1			129481	09/27/16 18:24	(b)	TAL SAC
Total/NA	Prep	3535	DL		303.1 mL	0.5 mL	126548	09/10/16 09:06	(b)	TAL SAC
Total/NA	Analysis	537 (Modified)	DL	50			129688	09/28/16 13:56	(b)	TAL SAC

Client Sample ID: MW-1R (DUP)
Date Collected: 09/06/16 16:20
Date Received: 09/08/16 09:55

Lab Sample ID: 320-21576-15
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			302.8 mL	0.5 mL	126548	09/10/16 09:06		TAL SAC
Total/NA	Analysis	537 (Modified)		1			129481	09/27/16 18:31	(b)	TAL SAC
Total/NA	Prep	3535	DL		302.8 mL	0.5 mL	126548	09/10/16 09:06	(b)	TAL SAC
Total/NA	Analysis	537 (Modified)	DL	50			129688	09/28/16 14:04	(b)	TAL SAC

Client Sample ID: MW-2R
Date Collected: 09/06/16 17:15
Date Received: 09/08/16 09:55

Lab Sample ID: 320-21576-16
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	DL		296.9 mL	0.5 mL	126548	09/10/16 09:06	(b)	TAL SAC
Total/NA	Analysis	537 (Modified)	DL	50			129688	09/28/16 14:11	(b)	TAL SAC
Total/NA	Prep	3535	DL2		296.9 mL	0.5 mL	126548	09/10/16 09:06	(b)	TAL SAC
Total/NA	Analysis	537 (Modified)	DL2	100			129691	09/28/16 18:33	(b)	TAL SAC

Client Sample ID: MW-4R
Date Collected: 09/06/16 18:00
Date Received: 09/08/16 09:55

Lab Sample ID: 320-21576-17
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			297.9 mL	0.5 mL	126548	09/10/16 09:06	(b)	TAL SAC
Total/NA	Analysis	537 (Modified)		1			129481	09/27/16 19:16	(b)	TAL SAC
Total/NA	Prep	3535	DL2		297.9 mL	0.5 mL	126548	09/10/16 09:06	(b)	TAL SAC
Total/NA	Analysis	537 (Modified)	DL2	100			129688	09/28/16 14:19	(b)	TAL SAC
Total/NA	Prep	3535	DL		297.9 mL	0.5 mL	126548	09/10/16 09:06	(b)	TAL SAC
Total/NA	Analysis	537 (Modified)	DL	50			129688	09/28/16 14:26	(b)	TAL SAC

Client Sample ID: MW-3R
Date Collected: 09/06/16 18:30
Date Received: 09/08/16 09:55

Lab Sample ID: 320-21576-18
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			295.3 mL	0.5 mL	126548	09/10/16 09:06	(b)	TAL SAC

Lab Chronicle

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS FTBP3

TestAmerica Job ID: 320-21576-2

Client Sample ID: MW-3R

Date Collected: 09/06/16 18:30
Date Received: 09/08/16 09:55

Lab Sample ID: 320-21576-18

Matrix: Water

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			129481	09/27/16 19:24	(b)	TAL SAC
Total/NA	Prep	3535	DL		295.3 mL	0.5 mL	126548	09/10/16 09:06	(b)	TAL SAC
Total/NA	Analysis	537 (Modified)	DL	50			129688	09/28/16 14:34	(b)	TAL SAC

Laboratory References:

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

Certification Summary

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS FTBP3

TestAmerica Job ID: 320-21576-2

Laboratory: TestAmerica Sacramento

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	DoD ELAP		2928-01	01-31-17
Oregon	NELAP	10	4040	01-29-17

Method Summary

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS FTBP3

TestAmerica Job ID: 320-21576-2

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

Sample Summary

Client: Hyde Environmental, Inc.
Project/Site: Fort McCoy PFAS FTBP3

TestAmerica Job ID: 320-21576-2

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-21576-14	MW-1R	Water	09/06/16 16:20	09/08/16 09:55
320-21576-15	MW-1R (DUP)	Water	09/06/16 16:20	09/08/16 09:55
320-21576-16	MW-2R	Water	09/06/16 17:15	09/08/16 09:55
320-21576-17	MW-4R	Water	09/06/16 18:00	09/08/16 09:55
320-21576-18	MW-3R	Water	09/06/16 18:30	09/08/16 09:55

TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone (916) 373-5600 Fax (916) 372-1059

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	(b) (6)	Lab PM: (b) (6)	Carrier Tracking No(s):	COC No: 320-12373-2794.3
Client Contact: (b) (6)	Phone:	E-Mail: (b) (6)		Page: Page 3 of 3
Company: Hyde Environmental, Inc.				Job #:
Address: W175 N11163 Stonewood Drive Suite 110	Due Date Requested:			
City: Germantown	TAT Requested (days):			
State, Zip: WI, 53022				
(b) (6)	PO #: Purchase Order Requested			
Email: (b) (6)	WO #:			
Project Name: Fort McCoy PFAS	Project #: 32008436			
Site: Fort McCoy ETBP3	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - Di Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA_DOD5 - PFAS, Method 537 Client Specific List	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
MW-1R	9/6/16	1620	G	Water			X	2	
MW-1R (DUP)	"	1620	"	Water			"	2	
MW-2R	"	1715	"	Water			"	2	
MW-4R	"	1600	"	"			"	2	
MW-3R	"	1530	"	"			"	2	

Possible Hazard Identification
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
(b) (6)			

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
(b) (6)	9/7/16; 1230 PM	HEI	(b) (6)	9/8/16 0955	TAMS
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: △ Yes △ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 4.0

Login Sample Receipt Checklist

Client: Hyde Environmental, Inc. Job Number: 320-21576-2

Login Number: 21576 **List Source: TestAmerica Sacramento**
List Number: 1
Creator: (b) (6)

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	ESS Seals
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.	True	
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 <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	