July 19, 2021

Ms. Karen Cahill
Project Manager
New York State Department of Environmental Conservation
615 Erie Boulevard
West Syracuse, New York 13204-2450

Re: Former Roth Steel BCP Site
City of Syracuse, Onondaga County
Emerging Contaminant Groundwater Sampling Results

Dear Ms. Cahill:

At the request of NYSDEC (April 10, 2018), and pursuant to subsequent correspondence with NYSDEC Region 7 personnel, JMT conducted emerging contaminant groundwater sampling at three monitoring wells on the Amended Roth Steel BCP Site. Attached please find the laboratory report and Data Usability Summary Report (DUSR) for the groundwater sampling results. Well sampling logs are also attached.

In accordance with JMT's February 22, 2021 proposal for emergent contaminant sampling, which was approved by the NYSDEC on April 13, 2021, supplemental groundwater sampling was performed to complete the remedial investigation activities at the Amended BCP site. All sampling was conducted following the proposed sampling plan; the protocol described in the Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs (January 2021); Sampling for 1,4-Dioxane and Per- and Polyfluoroalkyl Substances (PFAS) Under DEC's Part 375 Remedial Programs (June 2019); and the Department's stipulations in the sampling plan approval notice.

Prior to groundwater sampling and at the request of the DEC, well/water depth was measured on March 19, 2021, ensuring that less than one foot of sediment had accumulated in the base of each well. In addition, existing sampling tubing was removed from each well. See Table 1 for the well measurements that were taken prior to sampling. On May 21, 2021, monitoring wells MW-2A, MW-3R and MW-6 were sampled using low-flow sampling techniques. Groundwater was purged from each well using a peristaltic pump until water quality parameter stabilization was achieved. This also resulted in the removal of three or more well volumes, prior to sample collection. The groundwater samples were packaged separately and delivered to Alpha Analytical Service Center for transport to the laboratory for analysis of PFAS/PFOA constituents using EPA Method 537, and 1,4-Dioxane using EPA Modified Method 8270 SIM. A duplicate and MS/MSD sample was taken from MW-2A, as well as a field blank and an equipment blank. See Figure 1 for the monitoring well locations.

All three sampling locations (MW-2A, MW-3R and MW-6) had exceedances for 1,4-Dioxane, Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS), when compared to the NYSDEC/NYSDOH Guidance Values. PFOA was seen with concentrations ranging from 182 ng/L (MW-6) to 382 (MW-2A Duplicate), compared to the guidance value of 10 ng/L. PFOS was detected with concentrations ranging from 220 ng/L (MW-3R) to 1560 ng/L (MW-2A Duplicate), compared to the guidance value of 10 ng/L. 1,4-Dioxane had concentrations ranging from 2.1 µg/L (MW-6) to 2.59 µg/L (MW-2A Dup), compared to the guidance value of 1 µg/L.

Data validation, performed by Alpha Geoscience, found that all results are usable as reported or usable with minor issues that are identified and discussed in the validation summaries. No data were rejected or were unusable in the data set. Some contaminant detections were further qualified by Alpha Geoscience due to minor laboratory issues. These additional qualifiers are shown in red on Table 2 and are discussed in the attached Data Usability Report.

MW-2A, which exhibited the highest concentrations, is near the upgradient edge of the site, next to Hiawatha Boulevard. There are no discrete piles of automobile shredder residue (ASR) near this well but since miscellaneous surface debris are present in the area, it is possible that groundwater quality in MW-2A could be affected by prior site operations. However, due to its upgradient location, it is also possible that contamination could be from off-site sources. Wells MW-3R (located farther downgradient, near the middle of the site) and MW-6 (located near the northern perimeter) exhibit similar concentrations of 1,4-Dioxane but concentrations of PFOS and PFOA are lower when compared to MW-2A.

The presence of groundwater quality impacts in these three wells is consistent with prior sampling results. As presented in the Remedial Investigation Report (RIR, February 2019), all three wells had some groundwater quality exceedances for metals in the previous sampling event (December 2017). MW-3R and MW-6 also had exceedances for several volatile organic compounds during the same sampling round. OCIDA does not believe that these new results significantly alter the understanding of the groundwater conditions at the site and no additional investigation work is necessary. As indicated in the RIR, groundwater is not consumed in the area since the City provides drinking water from other sources. In addition, there are no groundwater users downgradient of the site. As such, groundwater does not present a significant threat to human health. As will be discussed in the forthcoming Remedial Work Plan, future development at the Site will include a restriction on groundwater usage and engineering controls to mitigate potential human health risks and environmental impacts.

If you have any questions on this information, do not hesitate to contact me at (518) 782-0882 or jciampa@jmt.com.

Sincerely,

JMT of New York, Inc.

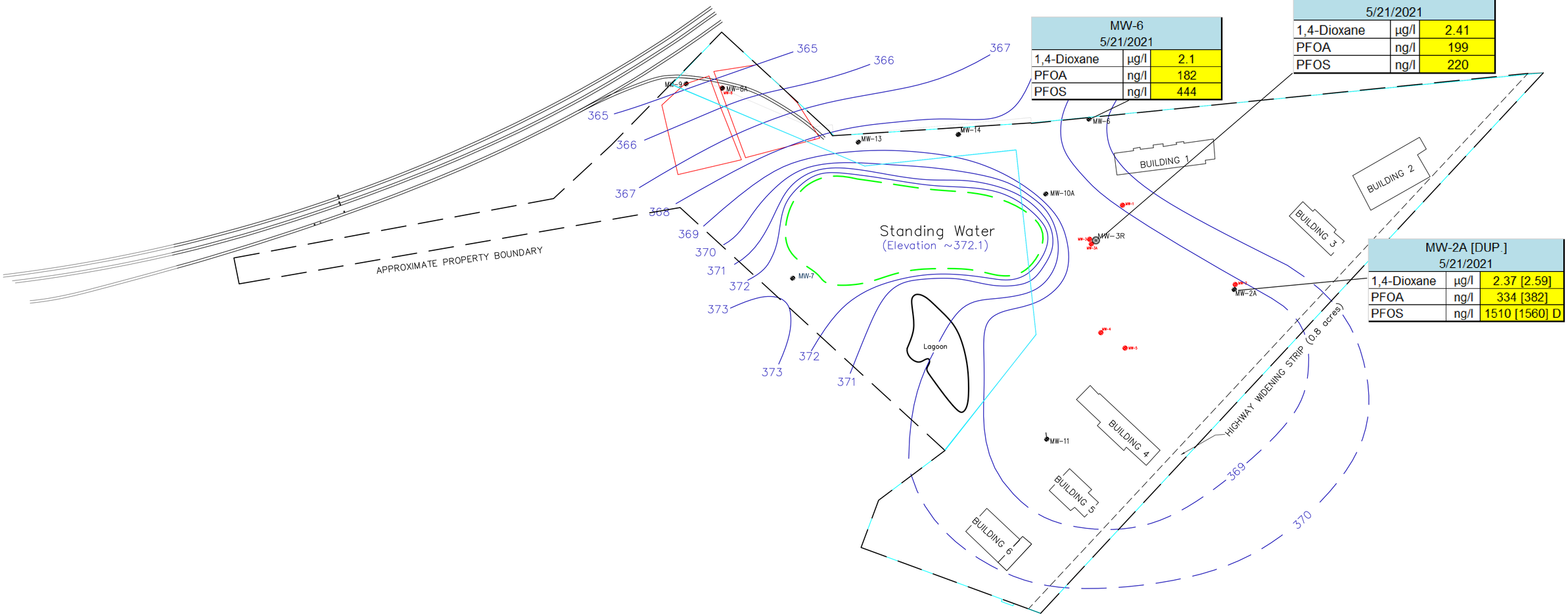
John D. Ciampa, P.G.

Project Manager

Attachments

cc w/ att: R. Petrovich, OCIDA
J. Davis, Esq., Barclay Damon Law
S. Wagh, NYSDOH
C. Vooris, NYSDOH
M. Sheen, Esq., NYSDEC
G. Priscott, NYSDEC
R.P. Kinchen Central Library

Figure 1



LEGEND

- ASR DISPOSAL CELL LOCATIONS
- PROPERTY BOUNDARY
- GROUNDWATER CONTOUR (ft. above mean sea level) - Based on December 2017 data
- APPROXIMATE EXTENT OF STANDING WATER (Fall 2017)
- EXISTING GROUNDWATER MONITORING WELL
- MONITORING WELL – DAMAGED OR MISSING
- AMMENDED BCP SITE BOUNDARY

NOTES:
1. All historic sample locations are approximate.
2. The buildings were removed in 2018. Only slabs remain.

0 50 100
1"=100'

19 British American Blvd.,Latham, New York 12110
P: (518) 782-0882 F: (518) 782-0973 www.jmt.com

Emerging Contaminants Groundwater Results

800 Hiawatha Blvd

Syracuse, New York

CITY OF SYRACUSE ONONDAGA CO., NY

PROJ. No.:	16140	DATE:	7/1/2021	SCALE:	As Shown	DWG. NO.	RWP	FIGURE	1

Tables

Table 1: Monitoring Well Status (Emerging Contaminant Sampling)

Monitoring Well	Installation Date	Original Stickup Length (ft.)	Screened Interval (ft bgs)	Original Installation Depth Below Top of Casing (ft)	2021 Depth to Bottom[1]	2021 Depth to Water[1]
MW-2A	2/13/2013	2.07	5-15	17.07	17.11	8.4
MW-3R	12/1/2017	3.95	4-12	15.95	15.98	7.8
MW-6 *	8/14/2008	2 *	5-15	17.00	16.00	6

Notes:

[1] Measurement on March 19, 2021. Reported in feet below top of casing.

[2] * A portion of the surface casing at MW-6 was cut during construction of the Lake Trail.

[3] bgs - below ground surface

Table 2: Emerging Contaminants Groundwater Results

LOCATION			MW-2A		MW-2A (DUPLICATE)		MW-3R		MW-6		FIELD BLANK		EQUIPMENT BLANK	
SAMPLING DATE			5/21/2021											
	NY Guidance Value[1]	Units	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual	Results	Qual
1,4 Dioxane by 8270D-SIM														
1,4-Dioxane	1	µg/l	2.37		2.59		2.41		2.1		0.144	U	0.144	U
Perfluorinated Alkyl Acids by Isotope Dilution														
Perfluorobutanoic Acid (PFBA)		ng/l	116		135		80.1		52.8		1.8	U	1.81	U
Perfluoropentanoic Acid (PFPeA)		ng/l	176	J	190	J	122		79.5		1.8	U	1.81	U
Perfluorobutanesulfonic Acid (PFBS)		ng/l	39.9		36.3		31.9		37		1.8	U	1.81	U
Perfluorohexanoic Acid (PFHxA)		ng/l	174	J	193	J	134		90.2		0.439	J	0.41	J
Perfluoroheptanoic Acid (PFHpA)		ng/l	80.9		88.1		63.6		52		1.8	U	1.81	U
Perfluorohexanesulfonic Acid (PFHxS)		ng/l	187		193		135		93.5		1.8	U	1.81	U
Perfluorooctanoic Acid (PFOA)	10	ng/l	334		382		199		182		1.8	U	1.81	U
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)		ng/l	56.9	J	59.6	J	58.6	J	45.8		1.8	U	1.81	U
Perfluoroheptanesulfonic Acid (PFHpS)		ng/l	19.4		22		6.17		7.31		1.8	U	1.81	U
Perfluorononanoic Acid (PFNA)		ng/l	21		23.5		10.8		12.2		1.8	U	1.81	U
Perfluorooctanesulfonic Acid (PFOS)	10	ng/l	1510	D	1560	D	220		444		1.8	U	1.81	U
Perfluorodecanoic Acid (PFDA)		ng/l	0.544	J	0.562	J	2.3		1.53	J	1.8	U	1.81	U
Perfluorooctanesulfonamide (FOSA)		ng/l	1.82	U	1.84	U	0.97	JF	1.86	U	1.8	U	1.81	U
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)		ng/l	1.82	U	1.84	U	1.2	JF	1.86	U	1.8	U	1.81	U
PFOA/PFOS, Total		ng/l	1840		1940		419		626		1.8	U	1.81	U

Notes:

1. Guidance Values based on Sampling, Analysis, and Assessment of Per- And Polyfluoroalkyl Substances (PFAS), January 2021; and Public Water Systems and NYS Drinking Water Standards for PFOA, PFOS and 1,4-Dioxane September 2020
2. Yellow Highlight Concentration exceeds NY Guidance Value
3. D: Concentration of analyte was quantified from diluted analysis.
4. U - Not detected at the reported detection limit for the sample. Reporting level is listed.
5. JF - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
6. J - Estimated Value. The target analyte concentration is below the quantintation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL)
7. Data qualifiers in black were provided by the laboratory, data qualifiers in red were provided by the Data Validation Firm (Alpha Geoscience)

Laboratory Report

ANALYTICAL REPORT

Lab Number:	L2127266
Client:	JMT, Inc. 19 British American Blvd. Latham, NY 12110
ATTN:	John Ciampa
Phone:	(518) 782-0882
Project Name:	ROTH STEEL
Project Number:	16-S0140N
Report Date:	06/21/21

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0141), DoD (L2474), FL (E87814), IL (200081), LA (85084), ME (MA00030), MD (350), NJ (MA015), NY (11627), NC (685), OH (CL106), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #P330-17-00150), USFWS (Permit #206964).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2127266-01	MW-2A	WATER	SYRACUSE NY	05/21/21 10:00	05/21/21
L2127266-02	MW-3R	WATER	SYRACUSE NY	05/21/21 11:40	05/21/21
L2127266-03	MW-6	WATER	SYRACUSE NY	05/21/21 13:00	05/21/21
L2127266-04	DUPLICATE	WATER	SYRACUSE NY	05/21/21 00:00	05/21/21
L2127266-05	FIELD BLANK	WATER	SYRACUSE NY	05/21/21 09:10	05/21/21
L2127266-06	EQUIPMENT BLANK	WATER	SYRACUSE NY	05/21/21 09:00	05/21/21
L2127266-07	DRUM SAMPLE	SOIL	SYRACUSE NY	05/21/21 08:30	05/21/21

Project Name:	ROTH STEEL	**Lab Number:**	L2127266
Project Number:	16-S0140N	**Report Date:**	06/21/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: ROTH STEEL
Project Number: 16-S0140N
Lab Number: L2127266
Report Date: 06/21/21

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Perfluorinated Alkyl Acids by Isotope Dilution

L2127266-01, -04, WG1505152-3 and WG1505152-4: The sample was centrifuged and decanted prior to extraction due to sample matrix.

L2127266-01 and -04: Please note the PFOS value is obtained from the dilution for the PFOA/FOS, Total calculation.

L2127266-01, -02, -04, WG1505152-3 and WG1505152-4: Extracted Internal Standard recoveries were outside the acceptance criteria for individual analytes. Please refer to the surrogate section of the report for details.

L2127266-01 and -04: The sample was re-extracted on dilution in order to quantify the results within the calibration range. The result(s) should be considered estimated, and are qualified with an E flag, for any compound(s) that exceeded the calibration range in the initial analysis. The re-extraction was performed only for the compound(s) that exceeded the calibration range.

L2127266-04RE was extracted with the method required holding time exceeded.

WG1505152-3 and WG1505152-4: The result(s) should be considered estimated, and are qualified with an E flag, for any compound(s) that exceeded the calibration range in the initial analysis.

The WG1505152-3/-4 MS/MSD recoveries, performed on L2127266-01, are outside the acceptance criteria for perfluorooctanoic acid (pfoa) (MS at 170%) and perfluorooctanesulfonic acid (pfos) (177%/0%). The unacceptable percent recoveries are attributed to the elevated concentrations of target compounds present in the native sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Cristin Walker

Title: Technical Director/Representative Date: 06/21/21

ORGANICS

SEMIVOLATILES

Project Name: ROTH STEEL
Project Number: 16-S0140N
Lab Number: L2127266
Report Date: 06/21/21

SAMPLE RESULTS

Lab ID: L2127266-01
Client ID: MW-2A
Sample Location: SYRACUSE NY

Date Collected: 05/21/21 10:00
Date Received: 05/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 06/01/21 09:44
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 05/27/21 21:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	2370		ng/l	144	32.6	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	39		15-110

Project Name: ROTH STEEL
Project Number: 16-S0140N
Lab Number: L2127266
Report Date: 06/21/21

SAMPLE RESULTS

Lab ID: L2127266-01
Client ID: MW-2A
Sample Location: SYRACUSE NY

Date Collected: 05/21/21 10:00
Date Received: 05/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 134,LCMSMS-ID
Analytical Date: 06/03/21 08:32
Analyst: HT

Extraction Method: ALPHA 23528
Extraction Date: 05/28/21 18:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	116		ng/l	1.82	0.372	1
Perfluoropentanoic Acid (PFPeA)	176		ng/l	1.82	0.362	1
Perfluorobutanesulfonic Acid (PFBS)	39.9		ng/l	1.82	0.217	1
Perfluorohexanoic Acid (PFHxA)	174		ng/l	1.82	0.299	1
Perfluoroheptanoic Acid (PFHpA)	80.9		ng/l	1.82	0.206	1
Perfluorohexanesulfonic Acid (PFHxS)	187		ng/l	1.82	0.343	1
Perfluorooctanoic Acid (PFOA)	334		ng/l	1.82	0.215	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	56.9		ng/l	1.82	1.22	1
Perfluoroheptanesulfonic Acid (PFHpS)	19.4		ng/l	1.82	0.628	1
Perfluorononanoic Acid (PFNA)	21.0		ng/l	1.82	0.285	1
Perfluorooctanesulfonic Acid (PFOS)	1530	E	ng/l	1.82	0.460	1
Perfluorodecanoic Acid (PFDA)	0.544	J	ng/l	1.82	0.278	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.82	1.11	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.82	0.592	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.82	0.237	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.82	0.895	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.82	0.530	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.82	0.734	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.82	0.340	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.82	0.299	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.82	0.226	1
PFOA/PFOS, Total	1840		ng/l	1.82	0.215	1

Project Name: ROTH STEEL **Lab Number:** L2127266

Project Number: 16-S0140N **Report Date:** 06/21/21

SAMPLE RESULTS

Lab ID: L2127266-01 Date Collected: 05/21/21 10:00

Client ID: MW-2A Date Received: 05/21/21

Sample Location: SYRACUSE NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	88		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	**54**	Q	62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	108		70-131
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	**47**	Q	57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	62		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	97		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	94		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	**286**	Q	14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	115		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	95		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	77		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	**190**	Q	10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	74		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	81		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	41		10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	82		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	77		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	91		22-136

Project Name: ROTH STEEL
Project Number: 16-S0140N
Lab Number: L2127266
Report Date: 06/21/21

SAMPLE RESULTS

Lab ID: L2127266-01 RE
Client ID: MW-2A
Sample Location: SYRACUSE NY

Sample Depth:
Matrix: Water
Analytical Method: 134,LCMSMS-ID
Analytical Date: 06/07/21 19:24
Analyst: RS

Date Collected: 05/21/21 10:00
Date Received: 05/21/21
Field Prep: Not Specified

Extraction Method: ALPHA 23528
Extraction Date: 06/04/21 09:40

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorooctanesulfonic Acid (PFOS)	1510		ng/l	20.0	5.04	1

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	101		69-131

Project Name: ROTH STEEL
Project Number: 16-S0140N
Lab Number: L2127266
Report Date: 06/21/21

SAMPLE RESULTS

Lab ID: L2127266-02
Client ID: MW-3R
Sample Location: SYRACUSE NY

Date Collected: 05/21/21 11:40
Date Received: 05/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 06/01/21 10:45
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 05/27/21 21:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	2410		ng/l	150	33.9	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	46		15-110

Project Name: ROTH STEEL
Project Number: 16-S0140N
Lab Number: L2127266
Report Date: 06/21/21

SAMPLE RESULTS

Lab ID: L2127266-02
Client ID: MW-3R
Sample Location: SYRACUSE NY

Date Collected: 05/21/21 11:40
Date Received: 05/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 134,LCMSMS-ID
Analytical Date: 06/07/21 21:04
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 05/28/21 18:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	80.1		ng/l	1.84	0.375	1
Perfluoropentanoic Acid (PFPeA)	122		ng/l	1.84	0.364	1
Perfluorobutanesulfonic Acid (PFBS)	31.9		ng/l	1.84	0.219	1
Perfluorohexanoic Acid (PFHxA)	134		ng/l	1.84	0.301	1
Perfluoroheptanoic Acid (PFHpA)	63.6		ng/l	1.84	0.207	1
Perfluorohexanesulfonic Acid (PFHxS)	135		ng/l	1.84	0.345	1
Perfluorooctanoic Acid (PFOA)	199		ng/l	1.84	0.217	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	58.6		ng/l	1.84	1.22	1
Perfluoroheptanesulfonic Acid (PFHpS)	6.17		ng/l	1.84	0.632	1
Perfluorononanoic Acid (PFNA)	10.8		ng/l	1.84	0.286	1
Perfluorooctanesulfonic Acid (PFOS)	220		ng/l	1.84	0.463	1
Perfluorodecanoic Acid (PFDA)	2.30		ng/l	1.84	0.279	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.84	1.11	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.84	0.595	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.84	0.239	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.84	0.900	1
Perfluorooctanesulfonamide (FOSA)	0.970	JF	ng/l	1.84	0.533	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	1.20	JF	ng/l	1.84	0.738	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.84	0.342	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.84	0.300	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.84	0.228	1
PFOA/PFOS, Total	419		ng/l	1.84	0.217	1

Project Name: ROTH STEEL **Lab Number:** L2127266

Project Number: 16-S0140N **Report Date:** 06/21/21

SAMPLE RESULTS

Lab ID: L2127266-02 Date Collected: 05/21/21 11:40

Client ID: MW-3R Date Received: 05/21/21

Sample Location: SYRACUSE NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	92		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	69		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	102		70-131
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	65		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	82		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	97		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	89		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	**176**	Q	14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	95		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	91		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	83		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	156		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	89		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	89		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	36		10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	104		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	92		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	73		22-136

Project Name: ROTH STEEL
Project Number: 16-S0140N
Lab Number: L2127266
Report Date: 06/21/21

SAMPLE RESULTS

Lab ID: L2127266-03
Client ID: MW-6
Sample Location: SYRACUSE NY

Date Collected: 05/21/21 13:00
Date Received: 05/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 06/01/21 11:06
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 05/27/21 21:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	2100		ng/l	144	32.6	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	38		15-110

Project Name: ROTH STEEL
Project Number: 16-S0140N
Lab Number: L2127266
Report Date: 06/21/21

SAMPLE RESULTS

Lab ID: L2127266-03
Client ID: MW-6
Sample Location: SYRACUSE NY

Date Collected: 05/21/21 13:00
Date Received: 05/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 134,LCMSMS-ID
Analytical Date: 06/07/21 21:20
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 05/28/21 18:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	52.8		ng/l	1.86	0.379	1
Perfluoropentanoic Acid (PFPeA)	79.5		ng/l	1.86	0.368	1
Perfluorobutanesulfonic Acid (PFBS)	37.0		ng/l	1.86	0.221	1
Perfluorohexanoic Acid (PFHxA)	90.2		ng/l	1.86	0.304	1
Perfluoroheptanoic Acid (PFHpA)	52.0		ng/l	1.86	0.209	1
Perfluorohexanesulfonic Acid (PFHxS)	93.5		ng/l	1.86	0.349	1
Perfluorooctanoic Acid (PFOA)	182		ng/l	1.86	0.219	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	45.8		ng/l	1.86	1.24	1
Perfluoroheptanesulfonic Acid (PFHpS)	7.31		ng/l	1.86	0.639	1
Perfluorononanoic Acid (PFNA)	12.2		ng/l	1.86	0.290	1
Perfluorooctanesulfonic Acid (PFOS)	444		ng/l	1.86	0.468	1
Perfluorodecanoic Acid (PFDA)	1.53	J	ng/l	1.86	0.282	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.86	1.12	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.86	0.601	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.86	0.241	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.86	0.910	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.86	0.538	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.86	0.746	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.86	0.345	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.86	0.304	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.86	0.230	1
PFOA/PFOS, Total	626		ng/l	1.86	0.219	1

Project Name: ROTH STEEL **Lab Number:** L2127266

Project Number: 16-S0140N **Report Date:** 06/21/21

SAMPLE RESULTS

Lab ID: L2127266-03 Date Collected: 05/21/21 13:00

Client ID: MW-6 Date Received: 05/21/21

Sample Location: SYRACUSE NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	94		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	83		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	109		70-131
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	75		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	90		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	110		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	92		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	139		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	93		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	98		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	83		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	139		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	89		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	90		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	39		10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	100		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	81		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	74		22-136

Project Name: ROTH STEEL
Project Number: 16-S0140N
Lab Number: L2127266
Report Date: 06/21/21

SAMPLE RESULTS

Lab ID: L2127266-04
Client ID: DUPLICATE
Sample Location: SYRACUSE NY

Date Collected: 05/21/21 00:00
Date Received: 05/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 06/01/21 11:28
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 05/27/21 21:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	2590		ng/l	144	32.6	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	36		15-110

Project Name: ROTH STEEL
Project Number: 16-S0140N
Lab Number: L2127266
Report Date: 06/21/21

SAMPLE RESULTS

Lab ID: L2127266-04
Client ID: DUPLICATE
Sample Location: SYRACUSE NY

Date Collected: 05/21/21 00:00
Date Received: 05/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 134,LCMSMS-ID
Analytical Date: 06/07/21 21:37
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 05/28/21 18:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	135		ng/l	1.84	0.375	1
Perfluoropentanoic Acid (PFPeA)	190		ng/l	1.84	0.364	1
Perfluorobutanesulfonic Acid (PFBS)	36.3		ng/l	1.84	0.219	1
Perfluorohexanoic Acid (PFHxA)	193		ng/l	1.84	0.302	1
Perfluoroheptanoic Acid (PFHpA)	88.1		ng/l	1.84	0.207	1
Perfluorohexanesulfonic Acid (PFHxS)	193		ng/l	1.84	0.346	1
Perfluorooctanoic Acid (PFOA)	382		ng/l	1.84	0.217	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	59.6		ng/l	1.84	1.22	1
Perfluoroheptanesulfonic Acid (PFHpS)	22.0		ng/l	1.84	0.632	1
Perfluorononanoic Acid (PFNA)	23.5		ng/l	1.84	0.287	1
Perfluorooctanesulfonic Acid (PFOS)	1760	E	ng/l	1.84	0.463	1
Perfluorodecanoic Acid (PFDA)	0.562	J	ng/l	1.84	0.279	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.84	1.11	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.84	0.596	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.84	0.239	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.84	0.901	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.84	0.533	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.84	0.739	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.84	0.342	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.84	0.301	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.84	0.228	1
PFOA/PFOS, Total	1940		ng/l	1.84	0.217	1

Project Name: ROTH STEEL **Lab Number:** L2127266

Project Number: 16-S0140N **Report Date:** 06/21/21

SAMPLE RESULTS

Lab ID: L2127266-04 Date Collected: 05/21/21 00:00

Client ID: DUPLICATE Date Received: 05/21/21

Sample Location: SYRACUSE NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	94		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	**59**	Q	62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	111		70-131
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	**48**	Q	57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	64		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	106		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	90		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	**366**	Q	14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	110		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	95		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	84		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	**258**	Q	10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	91		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	91		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	41		10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	102		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	89		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	82		22-136

Project Name: ROTH STEEL
Project Number: 16-S0140N
Lab Number: L2127266
Report Date: 06/21/21

SAMPLE RESULTS

Lab ID: L2127266-04 RE
Client ID: DUPLICATE
Sample Location: SYRACUSE NY

Sample Depth:
Matrix: Water
Analytical Method: 134,LCMSMS-ID
Analytical Date: 06/09/21 10:58
Analyst: RS

Date Collected: 05/21/21 00:00
Date Received: 05/21/21
Field Prep: Not Specified

Extraction Method: ALPHA 23528
Extraction Date: 06/08/21 17:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorooctanesulfonic Acid (PFOS)	1560		ng/l	20.0	5.04	1

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	95		69-131

Project Name: ROTH STEEL
Project Number: 16-S0140N
Lab Number: L2127266
Report Date: 06/21/21

SAMPLE RESULTS

Lab ID: L2127266-05
Client ID: FIELD BLANK
Sample Location: SYRACUSE NY

Date Collected: 05/21/21 09:10
Date Received: 05/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 06/01/21 11:48
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 05/27/21 21:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	144	32.6	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	39		15-110

Project Name: ROTH STEEL
Project Number: 16-S0140N
Lab Number: L2127266
Report Date: 06/21/21

SAMPLE RESULTS

Lab ID: L2127266-05
Client ID: FIELD BLANK
Sample Location: SYRACUSE NY

Date Collected: 05/21/21 09:10
Date Received: 05/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 134,LCMSMS-ID
Analytical Date: 06/07/21 21:53
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 05/28/21 18:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	1.80	0.367	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	1.80	0.356	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.80	0.214	1
Perfluorohexanoic Acid (PFHxA)	0.439	J	ng/l	1.80	0.295	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.80	0.202	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.80	0.338	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.80	0.212	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.80	1.20	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.80	0.619	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.80	0.280	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.80	0.453	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.80	0.273	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.80	1.09	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.80	0.583	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.80	0.234	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.80	0.881	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.80	0.522	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.80	0.723	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.80	0.334	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.80	0.294	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.80	0.223	1
PFOA/PFOS, Total	ND		ng/l	1.80	0.212	1

Project Name: ROTH STEEL **Lab Number:** L2127266

Project Number: 16-S0140N **Report Date:** 06/21/21

SAMPLE RESULTS

Lab ID: L2127266-05 Date Collected: 05/21/21 09:10

Client ID: FIELD BLANK Date Received: 05/21/21

Sample Location: SYRACUSE NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	97		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	134		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	98		70-131
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	90		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	94		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	103		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	92		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	50		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	77		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	96		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	85		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	50		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	69		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	94		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	50		10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	64		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	96		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	70		22-136

Project Name: ROTH STEEL
Project Number: 16-S0140N
Lab Number: L2127266
Report Date: 06/21/21

SAMPLE RESULTS

Lab ID: L2127266-06
Client ID: EQUIPMENT BLANK
Sample Location: SYRACUSE NY

Date Collected: 05/21/21 09:00
Date Received: 05/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 06/01/21 12:09
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 05/27/21 21:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ng/l	144	32.6	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	36		15-110

Project Name: ROTH STEEL
Project Number: 16-S0140N
Lab Number: L2127266
Report Date: 06/21/21

SAMPLE RESULTS

Lab ID: L2127266-06
Client ID: EQUIPMENT BLANK
Sample Location: SYRACUSE NY

Date Collected: 05/21/21 09:00
Date Received: 05/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 134,LCMSMS-ID
Analytical Date: 06/07/21 22:10
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 05/28/21 18:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						
Perfluorobutanoic Acid (PFBA)	ND		ng/l	1.81	0.370	1
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	1.81	0.359	1
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	1.81	0.216	1
Perfluorohexanoic Acid (PFHxA)	0.410	J	ng/l	1.81	0.297	1
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	1.81	0.204	1
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	1.81	0.341	1
Perfluorooctanoic Acid (PFOA)	ND		ng/l	1.81	0.214	1
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	1.81	1.21	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	1.81	0.624	1
Perfluorononanoic Acid (PFNA)	ND		ng/l	1.81	0.283	1
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	1.81	0.457	1
Perfluorodecanoic Acid (PFDA)	ND		ng/l	1.81	0.276	1
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	1.81	1.10	1
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	1.81	0.588	1
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	1.81	0.236	1
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	1.81	0.889	1
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	1.81	0.526	1
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	1.81	0.729	1
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	1.81	0.337	1
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	1.81	0.297	1
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	1.81	0.225	1
PFOA/PFOS, Total	ND		ng/l	1.81	0.214	1

Project Name: ROTH STEEL **Lab Number:** L2127266

Project Number: 16-S0140N **Report Date:** 06/21/21

SAMPLE RESULTS

Lab ID: L2127266-06 Date Collected: 05/21/21 09:00

Client ID: EQUIPMENT BLANK Date Received: 05/21/21

Sample Location: SYRACUSE NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab						

Surrogate (Extracted Internal Standard)	% Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	94		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	127		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	97		70-131
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	87		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	92		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	104		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	91		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	54		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	75		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	92		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	85		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	51		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	65		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	92		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	49		10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	65		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	91		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	71		22-136

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 06/01/21 08:01
Analyst: PS

Extraction Method: EPA 3510C
Extraction Date: 05/27/21 21:45

Parameter	Result	Qualifier	Units	RL	MDL
1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 01-06 Batch: WG1504709-1					
1,4-Dioxane	ND		ng/l	150	33.9

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	35		15-110

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 06/03/21 07:42
Analyst: HT

Extraction Method: ALPHA 23528
Extraction Date: 05/28/21 18:05

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-06 Batch: WG1505152-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	0.408
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	0.396
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.238
Perfluorohexanoic Acid (PFHxA)	0.408	J	ng/l	2.00	0.328
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.225
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.376
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.236
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	2.00	1.33
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.00	0.688
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.312
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.504
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.304
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	1.21
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.648
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.260
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	0.980
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.580
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.804
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.372
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.327
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.248
PFOA/PFOS, Total	ND		ng/l	2.00	0.236

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 06/03/21 07:42
Analyst: HT

Extraction Method: ALPHA 23528
Extraction Date: 05/28/21 18:05

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01-06 Batch: WG1505152-1					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	97		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	129		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	107		70-131
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	98		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	95		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	95		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	97		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	98		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	89		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	99		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	91		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	99		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	71		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	94		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	38		10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	68		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	84		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	68		22-136

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 06/07/21 18:51
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 06/04/21 09:40

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01 Batch: WG1507487-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	0.408
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	0.396
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.238
Perfluorohexanoic Acid (PFHxA)	ND		ng/l	2.00	0.328
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.225
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.376
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.236
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	2.00	1.33
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.00	0.688
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.312
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.504
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.304
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	1.21
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.648
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.260
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	0.980
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.580
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.804
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.372
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.327
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.248
PFOA/PFOS, Total	ND		ng/l	2.00	0.236

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 06/07/21 18:51
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 06/04/21 09:40

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01 Batch: WG1507487-1					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	106		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	144		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	102		70-131
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	91		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	99		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	106		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	102		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	48		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	84		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	107		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	97		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	39		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	77		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	113		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	30		10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	70		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	116		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	88		22-136

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 06/11/21 08:36
Analyst: MP

Extraction Method: ALPHA 23528
Extraction Date: 06/04/21 09:40

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 01 Batch: WG1507487-1					
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.580

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	67		10-112

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 06/09/21 10:25
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 06/08/21 17:05

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 04 Batch: WG1509220-1					
Perfluorobutanoic Acid (PFBA)	ND		ng/l	2.00	0.408
Perfluoropentanoic Acid (PFPeA)	ND		ng/l	2.00	0.396
Perfluorobutanesulfonic Acid (PFBS)	ND		ng/l	2.00	0.238
Perfluorohexanoic Acid (PFHxA)	0.388	J	ng/l	2.00	0.328
Perfluoroheptanoic Acid (PFHpA)	ND		ng/l	2.00	0.225
Perfluorohexanesulfonic Acid (PFHxS)	ND		ng/l	2.00	0.376
Perfluorooctanoic Acid (PFOA)	ND		ng/l	2.00	0.236
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND		ng/l	2.00	1.33
Perfluoroheptanesulfonic Acid (PFHpS)	ND		ng/l	2.00	0.688
Perfluorononanoic Acid (PFNA)	ND		ng/l	2.00	0.312
Perfluorooctanesulfonic Acid (PFOS)	ND		ng/l	2.00	0.504
Perfluorodecanoic Acid (PFDA)	ND		ng/l	2.00	0.304
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND		ng/l	2.00	1.21
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND		ng/l	2.00	0.648
Perfluoroundecanoic Acid (PFUnA)	ND		ng/l	2.00	0.260
Perfluorodecanesulfonic Acid (PFDS)	ND		ng/l	2.00	0.980
Perfluorooctanesulfonamide (FOSA)	ND		ng/l	2.00	0.580
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND		ng/l	2.00	0.804
Perfluorododecanoic Acid (PFDoA)	ND		ng/l	2.00	0.372
Perfluorotridecanoic Acid (PFTrDA)	ND		ng/l	2.00	0.327
Perfluorotetradecanoic Acid (PFTA)	ND		ng/l	2.00	0.248
PFOA/PFOS, Total	ND		ng/l	2.00	0.236

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 134,LCMSMS-ID
Analytical Date: 06/09/21 10:25
Analyst: RS

Extraction Method: ALPHA 23528
Extraction Date: 06/08/21 17:05

Parameter	Result	Qualifier	Units	RL	MDL
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab for sample(s): 04 Batch: WG1509220-1					

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	95		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	122		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	99		70-131
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	96		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	98		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	98		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	88		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	89		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	79		59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	96		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	88		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	95		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	76		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	91		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	20		10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	71		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	86		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	71		22-136

Lab Control Sample Analysis

Batch Quality Control

Project Name: ROTH STEEL

Project Number: 16-S0140N

Lab Number: L2127266

Report Date: 06/21/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
1,4 Dioxane by 8270D-SIM - Mansfield Lab	Associated sample(s): 01-06		Batch: WG1504709-2 WG1504709-3					
1,4-Dioxane	114		117		40-140	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	38		39		15-110

Lab Control Sample Analysis

Batch Quality Control

Project Name: ROTH STEEL

Project Number: 16-S0140N

Lab Number: L2127266

Report Date: 06/21/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-06 Batch: WG1505152-2								
Perfluorobutanoic Acid (PFBA)	95		-		67-148	-		30
Perfluoropentanoic Acid (PFPeA)	96		-		63-161	-		30
Perfluorobutanesulfonic Acid (PFBS)	95		-		65-157	-		30
Perfluorohexanoic Acid (PFHxA)	97		-		69-168	-		30
Perfluoroheptanoic Acid (PFHpA)	96		-		58-159	-		30
Perfluorohexanesulfonic Acid (PFHxS)	98		-		69-177	-		30
Perfluorooctanoic Acid (PFOA)	94		-		63-159	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	105		-		49-187	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	92		-		61-179	-		30
Perfluorononanoic Acid (PFNA)	98		-		68-171	-		30
Perfluorooctanesulfonic Acid (PFOS)	96		-		52-151	-		30
Perfluorodecanoic Acid (PFDA)	95		-		63-171	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	102		-		56-173	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	101		-		60-166	-		30
Perfluoroundecanoic Acid (PFUnA)	96		-		60-153	-		30
Perfluorodecanesulfonic Acid (PFDS)	88		-		38-156	-		30
Perfluorooctanesulfonamide (FOSA)	90		-		46-170	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	98		-		45-170	-		30
Perfluorododecanoic Acid (PFDoA)	98		-		67-153	-		30
Perfluorotridecanoic Acid (PFTrDA)	96		-		48-158	-		30
Perfluorotetradecanoic Acid (PFTA)	100		-		59-182	-		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-06 Batch: WG1505152-2								

Surrogate (Extracted Internal Standard)	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	96				58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	127				62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	106				70-131
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	101				57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	96				60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	94				71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	97				62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	102				14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	91				59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	99				69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	91				62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	102				10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	76				24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	93				55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	33				10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	75				27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	83				48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	74				22-136

Lab Control Sample Analysis
Batch Quality Control

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01 Batch: WG1507487-2								
Perfluorobutanoic Acid (PFBA)	105		-		67-148	-		30
Perfluoropentanoic Acid (PFPeA)	112		-		63-161	-		30
Perfluorobutanesulfonic Acid (PFBS)	102		-		65-157	-		30
Perfluorohexanoic Acid (PFHxA)	111		-		69-168	-		30
Perfluoroheptanoic Acid (PFHpA)	105		-		58-159	-		30
Perfluorohexanesulfonic Acid (PFHxS)	105		-		69-177	-		30
Perfluorooctanoic Acid (PFOA)	109		-		63-159	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	120		-		49-187	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	108		-		61-179	-		30
Perfluorononanoic Acid (PFNA)	117		-		68-171	-		30
Perfluorooctanesulfonic Acid (PFOS)	107		-		52-151	-		30
Perfluorodecanoic Acid (PFDA)	108		-		63-171	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	115		-		56-173	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	104		-		60-166	-		30
Perfluoroundecanoic Acid (PFUnA)	105		-		60-153	-		30
Perfluorodecanesulfonic Acid (PFDS)	104		-		38-156	-		30
Perfluorooctanesulfonamide (FOSA)	95		-		46-170	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	118		-		45-170	-		30
Perfluorododecanoic Acid (PFDoA)	111		-		67-153	-		30
Perfluorotridecanoic Acid (PFTrDA)	105		-		48-158	-		30
Perfluorotetradecanoic Acid (PFTA)	111		-		59-182	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01 Batch: WG1507487-2								

Surrogate (Extracted Internal Standard)	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	96				58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	128				62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	98				70-131
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	80				57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	90				60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	103				71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	92				62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	49				14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	75				59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	98				69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	89				62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	43				10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	74				24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	101				55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	28				10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	68				27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	103				48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	83				22-136

Lab Control Sample Analysis

Batch Quality Control

Project Name: ROTH STEEL

Project Number: 16-S0140N

Lab Number: L2127266

Report Date: 06/21/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01 Batch: WG1507487-2								
Perfluorooctanesulfonamide (FOSA)	97		-		46-170	-		30

Surrogate (Extracted Internal Standard)	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	60				10-112

Lab Control Sample Analysis
Batch Quality Control

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04 Batch: WG1509220-2								
Perfluorobutanoic Acid (PFBA)	114		-		67-148	-		30
Perfluoropentanoic Acid (PFPeA)	120		-		63-161	-		30
Perfluorobutanesulfonic Acid (PFBS)	112		-		65-157	-		30
Perfluorohexanoic Acid (PFHxA)	121		-		69-168	-		30
Perfluoroheptanoic Acid (PFHpA)	114		-		58-159	-		30
Perfluorohexanesulfonic Acid (PFHxS)	111		-		69-177	-		30
Perfluorooctanoic Acid (PFOA)	123		-		63-159	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	128		-		49-187	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	113		-		61-179	-		30
Perfluorononanoic Acid (PFNA)	131		-		68-171	-		30
Perfluorooctanesulfonic Acid (PFOS)	116		-		52-151	-		30
Perfluorodecanoic Acid (PFDA)	121		-		63-171	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	129		-		56-173	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	127		-		60-166	-		30
Perfluoroundecanoic Acid (PFUnA)	120		-		60-153	-		30
Perfluorodecanesulfonic Acid (PFDS)	107		-		38-156	-		30
Perfluorooctanesulfonamide (FOSA)	116		-		46-170	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	118		-		45-170	-		30
Perfluorododecanoic Acid (PFDoA)	124		-		67-153	-		30
Perfluorotridecanoic Acid (PFTrDA)	123		-		48-158	-		30
Perfluorotetradecanoic Acid (PFTA)	124		-		59-182	-		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04 Batch: WG1509220-2								

Surrogate (Extracted Internal Standard)	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	98				58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	119				62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	103				70-131
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	95				57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	99				60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	100				71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	88				62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	102				14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	79				59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	95				69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	86				62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	90				10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	82				24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	97				55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	30				10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	88				27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	95				48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	80				22-136

Matrix Spike Analysis

Batch Quality Control

Project Name: ROTH STEEL

Project Number: 16-S0140N

Lab Number: L2127266

Report Date: 06/21/21

Parameter	*Native Sample*	*MS Added*	*MS Found*	*MS %Recovery*	*Qual*	*MSD Found*	*MSD %Recovery*	*Qual*	*Recovery Limits*	*RPD*	*Qual*	*RPD Limits*
1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1504709-4 WG1504709-5 QC Sample: L2127266-01 Client ID: MW-2A												
1,4-Dioxane	2370	4810	8560	129		9020	138		40-140	5		30

Surrogate	*MS % Recovery*	*MS Qualifier*	*MSD % Recovery*	*MSD Qualifier*	*Acceptance Criteria*
1,4-Dioxane-d8	30		40		15-110

Matrix Spike Analysis
Batch Quality Control

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Parameter	*Native Sample*	*MS Added*	*MS Found*	*MS %Recovery*	*Qual*	*MSD Found*	*MSD %Recovery*	*Qual*	*Recovery Limits*	*RPD*	*Qual*	*RPD Limits*
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1505152-3 WG1505152-4 QC Sample: L2127266-01 Client ID: MW-2A												
Perfluorobutanoic Acid (PFBA)	116	36.5	151	96		149	91		67-148	1		30
Perfluoropentanoic Acid (PFPeA)	176	36.5	210	93		212	99		63-161	1		30
Perfluorobutanesulfonic Acid (PFBS)	39.9	32.4	69.7	92		70.7	96		65-157	1		30
Perfluorohexanoic Acid (PFHxA)	174	36.5	215	112		215	113		69-168	0		30
Perfluoroheptanoic Acid (PFHpA)	80.9	36.5	118	102		118	102		58-159	0		30
Perfluorohexanesulfonic Acid (PFHxS)	187	33.4	211	72		211	72		69-177	0		30
Perfluorooctanoic Acid (PFOA)	334	36.5	396	**170**	Q	376	116		63-159	5		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	56.9	34.8	95.5	111		93.0	105		49-187	3		30
Perfluoroheptanesulfonic Acid (PFHpS)	19.4	34.8	59.7	116		57.8	111		61-179	3		30
Perfluorononanoic Acid (PFNA)	21.0	36.5	56.4	97		60.2	108		68-171	7		30
Perfluorooctanesulfonic Acid (PFOS)	1530E	33.9	1590E	**177**	Q	1450E	**0**	Q	52-151	9		30
Perfluorodecanoic Acid (PFDA)	0.544J	36.5	35.6	96		36.6	100		63-171	3		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	35.1	37.2	106		36.0	104		56-173	3		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	36.5	36.1	99		32.7	90		60-166	10		30
Perfluoroundecanoic Acid (PFUnA)	ND	36.5	35.1	96		33.2	92		60-153	6		30
Perfluorodecanesulfonic Acid (PFDS)	ND	35.2	38.3	109		35.0	100		38-156	9		30
Perfluorooctanesulfonamide (FOSA)	ND	36.5	32.2	88		32.6	90		46-170	1		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	36.5	38.2	105		36.1	100		45-170	6		30
Perfluorododecanoic Acid (PFDoA)	ND	36.5	34.8	95		34.4	95		67-153	1		30
Perfluorotridecanoic Acid (PFTrDA)	ND	36.5	36.1	99		35.9	99		48-158	1		30
Perfluorotetradecanoic Acid (PFTA)	ND	36.5	36.5	100		36.1	100		59-182	1		30

Matrix Spike Analysis

Batch Quality Control

Project Name: ROTH STEEL

Project Number: 16-S0140N

Lab Number: L2127266

Report Date: 06/21/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01-06 QC Batch ID: WG1505152-3 WG1505152-4 QC Sample: L2127266-01 Client ID: MW-2A

Surrogate (Extracted Internal Standard)	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	**211**	Q	**192**	Q	10-162
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	**300**	Q	**278**	Q	14-147
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	90		85		27-126
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	89		86		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	88		82		55-137
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	85		78		62-124
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	**47**	Q	**48**	Q	57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	61		63		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	106		100		71-134
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	87		82		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	99		92		22-136
Perfluoro[13C4]Butanoic Acid (MPFBA)	94		91		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	**57**	Q	**55**	Q	62-163
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	43		41		10-112
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	100		97		69-131
Perfluoro[13C8]Octanoic Acid (M8PFOA)	93		94		62-129
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	125		116		59-139
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	115		106		70-131

Matrix Spike Analysis

Batch Quality Control

Project Name: ROTH STEEL
Project Number: 16-S0140N
Lab Number: L2127266
Report Date: 06/21/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1507487-3 QC Sample: L2128788-01 Client ID: MS Sample												
Perfluorobutanesulfonic Acid (PFBS)	ND	34.8	34.9	100		-	-		65-157	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	36.7	40.1	109		-	-		37-219	-		30
Perfluorohexanoic Acid (PFHxA)	26.7	39.2	68.2	106		-	-		69-168	-		30
Perfluoropentanesulfonic Acid (PFPeS)	ND	36.8	38.6	105		-	-		52-156	-		30
Perfluoroheptanoic Acid (PFHpA)	13.2	39.2	52.7	101		-	-		58-159	-		30
Perfluorohexanesulfonic Acid-Branched (br-PFHxS)	ND	6.78	7.44	110		-	-		69-177	-		30
Perfluorooctanoic Acid (PFOA)	46.0	39.2	88.9	109		-	-		63-159	-		30
Perfluorononanoic Acid (PFNA)	11.4	39.2	56.4	115		-	-		68-171	-		30
Perfluorooctanesulfonic Acid (PFOS)	2.03J	36.4	40.6F	106		-	-		52-151	-		30
Perfluorodecanoic Acid (PFDA)	33.4	39.2	78.8	116		-	-		63-171	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	39.2	41.6	106		-	-		60-166	-		30
Perfluoroundecanoic Acid (PFUnA)	3.49	39.2	49.1	116		-	-		60-153	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	39.2	46.3	118		-	-		45-170	-		30
Perfluorododecanoic Acid (PFDoA)	2.24	39.2	57.5	141		-	-		67-153	-		30
Perfluorotridecanoic Acid (PFTrDA)	ND	39.2	49.0	125		-	-		48-158	-		30
Perfluorotetradecanoic Acid (PFTA)	ND	39.2	49.9	127		-	-		59-182	-		30

Surrogate (Extracted Internal Standard)	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	138				12-142
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	44				27-126
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	45				24-116

Matrix Spike Analysis

Batch Quality Control

Project Name: ROTH STEEL

Project Number: 16-S0140N

Lab Number: L2127266

Report Date: 06/21/21

Parameter	*Native Sample*	*MS Added*	*MS Found*	*MS %Recovery*	*Qual*	*MSD Found*	*MSD %Recovery*	*Qual*	*Recovery Limits*	*RPD*	*Qual*	*RPD Limits*

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1507487-3 QC Sample: L2128788-01 Client ID: MS Sample

Surrogate (Extracted Internal Standard)	*MS % Recovery*	*MS Qualifier*	*MSD % Recovery*	*MSD Qualifier*	*Acceptance Criteria*
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	63				55-137
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	66				62-124
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	**49**	Q			57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	78				60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	86				71-134
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	54				48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	48				22-136
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	85				69-131
Perfluoro[13C8]Octanoic Acid (M8PFOA)	78				62-129
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	62				59-139
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	93				70-131

Matrix Spike Analysis
Batch Quality Control

Project Name: ROTH STEEL
Project Number: 16-S0140N
Lab Number: L2127266
Report Date: 06/21/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1509220-3 QC Sample: L2129686-02 Client ID: MS Sample												
Perfluorobutanoic Acid (PFBA)	3.11	36.7	44.5	113		-	-		67-148	-		30
Perfluoropentanoic Acid (PFPeA)	2.54	36.7	47.0	121		-	-		63-161	-		30
Perfluorobutanesulfonic Acid (PFBS)	0.755J	32.6	37.3	112		-	-		65-157	-		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	34.4	42.1	123		-	-		37-219	-		30
Perfluorohexanoic Acid (PFHxA)	3.81	36.7	47.6	119		-	-		69-168	-		30
Perfluoropentanesulfonic Acid (PFPeS)	ND	34.5	41.3	120		-	-		52-156	-		30
Perfluoroheptanoic Acid (PFHpA)	3.01	36.7	44.9	114		-	-		58-159	-		30
Perfluorohexanesulfonic Acid (PFHxS)	1.71J	33.6	40.2	115		-	-		69-177	-		30
Perfluorooctanoic Acid (PFOA)	9.71	36.7	55.2	124		-	-		63-159	-		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	35	46.4	133		-	-		49-187	-		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	35	40.1	115		-	-		61-179	-		30
Perfluorononanoic Acid (PFNA)	1.20J	36.7	48.8	130		-	-		68-171	-		30
Perfluorooctanesulfonic Acid (PFOS)	1.01J	34.1	39.9	114		-	-		52-151	-		30
Perfluorodecanoic Acid (PFDA)	ND	36.7	43.4	118		-	-		63-171	-		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	35.2	52.8	150		-	-		56-173	-		30
Perfluorononanesulfonic Acid (PFNS)	ND	35.3	42.1	119		-	-		48-150	-		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	36.7	44.6	121		-	-		60-166	-		30
Perfluoroundecanoic Acid (PFUnA)	ND	36.7	43.6	119		-	-		60-153	-		30
Perfluorodecanesulfonic Acid (PFDS)	ND	35.4	36.3	103		-	-		38-156	-		30
Perfluorooctanesulfonamide (FOSA)	ND	36.7	30.4F	83		-	-		46-170	-		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	36.7	50.8	138		-	-		45-170	-		30
Perfluorododecanoic Acid (PFDoA)	ND	36.7	43.1	117		-	-		67-153	-		30

Matrix Spike Analysis

Batch Quality Control

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1509220-3 QC Sample: L2129686-02 Client ID: MS Sample												
Perfluorotridecanoic Acid (PFTrDA)	ND	36.7	35.0	95		-	-		48-158	-		30
Perfluorotetradecanoic Acid (PFTA)	ND	36.7	42.2	115		-	-		59-182	-		30

Surrogate (Extracted Internal Standard)	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	50				10-162
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	50				12-142
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	59				14-147
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	34				27-126
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	40				24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	66				55-137
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	**58**	Q			62-124
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	81				57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	82				60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	95				71-134
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	63				48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	37				22-136
Perfluoro[13C4]Butanoic Acid (MPFBA)	87				58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	116				62-163
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	**2**	Q			10-112
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	79				69-131
Perfluoro[13C8]Octanoic Acid (M8PFOA)	68				62-129
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	**54**	Q			59-139
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	101				70-131

Lab Duplicate Analysis
Batch Quality Control

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1507487-4 QC Sample: L2128788-02 Client ID: DUP Sample						
Perfluorobutanesulfonic Acid (PFBS)	ND	ND	ng/l	NC		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	ND	ng/l	NC		30
Perfluorohexanoic Acid (PFHxA)	16.8	18.6	ng/l	10		30
Perfluoropentanesulfonic Acid (PFPeS)	ND	ND	ng/l	NC		30
Perfluoroheptanoic Acid (PFHpA)	7.70	7.91	ng/l	3		30
Perfluorohexanesulfonic Acid (PFHxS)	ND	ND	ng/l	NC		30
Perfluorooctanoic Acid (PFOA)	25.0	25.4	ng/l	2		30
Perfluorononanoic Acid (PFNA)	6.25	6.27	ng/l	0		30
Perfluorooctanesulfonic Acid (PFOS)	1.14J	1.17J	ng/l	NC		30
Perfluorodecanoic Acid (PFDA)	17.9	19.6	ng/l	9		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ng/l	NC		30
Perfluoroundecanoic Acid (PFUnA)	1.64J	1.88J	ng/l	NC		30
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	0.836J	ND	ng/l	NC		30
Perfluorododecanoic Acid (PFDoA)	0.729JF	0.839JF	ng/l	NC		30
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ng/l	NC		30
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/l	NC		30

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	96		90		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	102		95		12-142

Lab Duplicate Analysis
Batch Quality Control

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1507487-4 QC Sample: L2128788-02 Client ID: DUP Sample

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	58		**55**	Q	57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	84		77		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	101		94		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	82		75		62-129
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	62		**56**	Q	59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	82		78		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	69		**61**	Q	62-124
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	42		36		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	72		63		55-137
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	40		36		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	69		63		48-131
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	54		49		22-136

Lab Duplicate Analysis
Batch Quality Control

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1509220-4 QC Sample: L2129686-04 Client ID: DUP Sample						
Perfluorobutanoic Acid (PFBA)	2.59	2.47	ng/l	5		30
Perfluoropentanoic Acid (PFPeA)	3.95	3.57	ng/l	10		30
Perfluorobutanesulfonic Acid (PFBS)	2.35	2.30	ng/l	2		30
1H,1H,2H,2H-Perfluorohexanesulfonic Acid (4:2FTS)	ND	ND	ng/l	NC		30
Perfluorohexanoic Acid (PFHxA)	9.16	8.92	ng/l	3		30
Perfluoropentanesulfonic Acid (PFPeS)	0.322JF	0.272J	ng/l	NC		30
Perfluoroheptanoic Acid (PFHpA)	16.6	17.2	ng/l	4		30
Perfluorohexanesulfonic Acid (PFHxS)	0.727J	0.735J	ng/l	NC		30
Perfluorooctanoic Acid (PFOA)	1.18J	1.06J	ng/l	NC		30
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	ND	ng/l	NC		30
Perfluoroheptanesulfonic Acid (PFHpS)	ND	ND	ng/l	NC		30
Perfluorononanoic Acid (PFNA)	ND	ND	ng/l	NC		30
Perfluorooctanesulfonic Acid (PFOS)	ND	ND	ng/l	NC		30
Perfluorodecanoic Acid (PFDA)	ND	ND	ng/l	NC		30
1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	ND	ng/l	NC		30
Perfluorononanesulfonic Acid (PFNS)	ND	ND	ng/l	NC		30
N-Methyl Perfluorooctanesulfonamidoacetic Acid (NMeFOSAA)	ND	ND	ng/l	NC		30
Perfluoroundecanoic Acid (PFUnA)	ND	ND	ng/l	NC		30
Perfluorodecanesulfonic Acid (PFDS)	ND	ND	ng/l	NC		30
Perfluorooctanesulfonamide (FOSA)	ND	ND	ng/l	NC		30

Lab Duplicate Analysis
Batch Quality Control

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1509220-4 QC Sample: L2129686-04 Client ID: DUP Sample						
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	ND	ng/l	NC		30
Perfluorododecanoic Acid (PFDoA)	ND	ND	ng/l	NC		30
Perfluorotridecanoic Acid (PFTrDA)	ND	ND	ng/l	NC		30
Perfluorotetradecanoic Acid (PFTA)	ND	ND	ng/l	NC		30

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[13C4]Butanoic Acid (MPFBA)	76		64		58-132
Perfluoro[13C5]Pentanoic Acid (M5PFPEA)	97		81		62-163
Perfluoro[2,3,4-13C3]Butanesulfonic Acid (M3PFBS)	94		91		70-131
1H,1H,2H,2H-Perfluoro[1,2-13C2]Hexanesulfonic Acid (M2-4:2FTS)	64		60		12-142
Perfluoro[1,2,3,4,6-13C5]Hexanoic Acid (M5PFHxA)	75		64		57-129
Perfluoro[1,2,3,4-13C4]Heptanoic Acid (M4PFHpA)	77		66		60-129
Perfluoro[1,2,3-13C3]Hexanesulfonic Acid (M3PFHxS)	88		83		71-134
Perfluoro[13C8]Octanoic Acid (M8PFOA)	70		62		62-129
1H,1H,2H,2H-Perfluoro[1,2-13C2]Octanesulfonic Acid (M2-6:2FTS)	69		62		14-147
Perfluoro[13C9]Nonanoic Acid (M9PFNA)	64		**57**	Q	59-139
Perfluoro[13C8]Octanesulfonic Acid (M8PFOS)	87		82		69-131
Perfluoro[1,2,3,4,5,6-13C6]Decanoic Acid (M6PFDA)	70		62		62-124
1H,1H,2H,2H-Perfluoro[1,2-13C2]Decanesulfonic Acid (M2-8:2FTS)	63		64		10-162
N-Deuteriomethylperfluoro-1-octanesulfonamidoacetic Acid (d3-NMeFOSAA)	48		47		24-116
Perfluoro[1,2,3,4,5,6,7-13C7]Undecanoic Acid (M7-PFUDA)	79		74		55-137
Perfluoro[13C8]Octanesulfonamide (M8FOSA)	**1**	Q	**1**	Q	10-112
N-Deuterioethylperfluoro-1-octanesulfonamidoacetic Acid (d5-NEtFOSAA)	45		44		27-126
Perfluoro[1,2-13C2]Dodecanoic Acid (MPFDOA)	75		75		48-131

Lab Duplicate Analysis
Batch Quality Control

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits

Perfluorinated Alkyl Acids by Isotope Dilution - Mansfield Lab Associated sample(s): 04 QC Batch ID: WG1509220-4 QC Sample: L2129686-04 Client ID: DUP Sample

Surrogate (Extracted Internal Standard)	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA)	50		50		22-136

PCBS

Project Name: ROTH STEEL
Project Number: 16-S0140N
Lab Number: L2127266
Report Date: 06/21/21

SAMPLE RESULTS

Lab ID: L2127266-07 D
Client ID: DRUM SAMPLE
Sample Location: SYRACUSE NY

Date Collected: 05/21/21 08:30
Date Received: 05/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8082A
Analytical Date: 06/04/21 13:44
Analyst: AWS
Percent Solids: 83%

Extraction Method: EPA 3546
Extraction Date: 06/04/21 01:46
Cleanup Method: EPA 3665A
Cleanup Date: 06/04/21
Cleanup Method: EPA 3660B
Cleanup Date: 06/04/21

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Polychlorinated Biphenyls by GC - Westborough Lab							
Aroclor 1016	ND		mg/kg	0.194	0.0173	5	A
Aroclor 1221	ND		mg/kg	0.194	0.0195	5	A
Aroclor 1232	ND		mg/kg	0.194	0.0412	5	A
Aroclor 1242	ND		mg/kg	0.194	0.0262	5	A
Aroclor 1248	0.683		mg/kg	0.194	0.0292	5	B
Aroclor 1254	0.518		mg/kg	0.194	0.0213	5	B
Aroclor 1260	ND		mg/kg	0.194	0.0359	5	A
Aroclor 1262	ND		mg/kg	0.194	0.0247	5	A
Aroclor 1268	ND		mg/kg	0.194	0.0201	5	A
PCBs, Total	1.20		mg/kg	0.194	0.0173	5	B

Surrogate	% Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	58		30-150	A
Decachlorobiphenyl	46		30-150	A
2,4,5,6-Tetrachloro-m-xylene	53		30-150	B
Decachlorobiphenyl	97		30-150	B

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8082A
Analytical Date: 06/04/21 01:02
Analyst: JM

Extraction Method: EPA 3546
Extraction Date: 06/03/21 04:16
Cleanup Method: EPA 3665A
Cleanup Date: 06/03/21
Cleanup Method: EPA 3660B
Cleanup Date: 06/03/21

Parameter	Result	Qualifier	Units	RL	MDL	Column
Polychlorinated Biphenyls by GC - Westborough Lab for sample(s): 07 Batch: WG1508582-1						
Aroclor 1016	ND		mg/kg	0.0317	0.00281	A
Aroclor 1221	ND		mg/kg	0.0317	0.00317	A
Aroclor 1232	ND		mg/kg	0.0317	0.00672	A
Aroclor 1242	ND		mg/kg	0.0317	0.00427	A
Aroclor 1248	ND		mg/kg	0.0317	0.00475	A
Aroclor 1254	ND		mg/kg	0.0317	0.00347	A
Aroclor 1260	ND		mg/kg	0.0317	0.00586	A
Aroclor 1262	ND		mg/kg	0.0317	0.00402	A
Aroclor 1268	ND		mg/kg	0.0317	0.00328	A
PCBs, Total	ND		mg/kg	0.0317	0.00281	A

Surrogate	%Recovery	Qualifier	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	85		30-150	A
Decachlorobiphenyl	73		30-150	A
2,4,5,6-Tetrachloro-m-xylene	88		30-150	B
Decachlorobiphenyl	96		30-150	B

Lab Control Sample Analysis

Batch Quality Control

Project Name: ROTH STEEL

Project Number: 16-S0140N

Lab Number: L2127266

Report Date: 06/21/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 07 Batch: WG1508582-2 WG1508582-3									
Aroclor 1016	81		81		40-140	0		50	A
Aroclor 1260	70		70		40-140	0		50	A

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	88		87		30-150	A
Decachlorobiphenyl	80		77		30-150	A
2,4,5,6-Tetrachloro-m-xylene	91		89		30-150	B
Decachlorobiphenyl	95		86		30-150	B

METALS

Project Name: ROTH STEEL
Project Number: 16-S0140N
Lab Number: L2127266
Report Date: 06/21/21

SAMPLE RESULTS

Lab ID: L2127266-07
Client ID: DRUM SAMPLE
Sample Location: SYRACUSE NY
Sample Depth:
Matrix: Soil
Percent Solids: 83%

Date Collected: 05/21/21 08:30
Date Received: 05/21/21
Field Prep: Not Specified
TCLP/SPLP Ext. Date: 05/28/21 05:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
TCLP Metals by EPA 1311 - Mansfield Lab											
Arsenic, TCLP	ND		mg/l	1.00	0.019	1	06/09/21 12:33	06/18/21 20:12	EPA 3015	1,6010D	BV
Barium, TCLP	0.615		mg/l	0.500	0.021	1	06/09/21 12:33	06/18/21 20:12	EPA 3015	1,6010D	BV
Cadmium, TCLP	0.011	J	mg/l	0.100	0.010	1	06/09/21 12:33	06/18/21 20:12	EPA 3015	1,6010D	BV
Chromium, TCLP	ND		mg/l	0.200	0.021	1	06/09/21 12:33	06/18/21 20:12	EPA 3015	1,6010D	BV
Lead, TCLP	0.043	J	mg/l	0.500	0.027	1	06/09/21 12:33	06/18/21 20:12	EPA 3015	1,6010D	BV
Mercury, TCLP	ND		mg/l	0.0010	0.0005	1	06/09/21 12:34	06/14/21 10:41	EPA 7470A	1,7470A	OU
Selenium, TCLP	ND		mg/l	0.500	0.035	1	06/09/21 12:33	06/18/21 20:12	EPA 3015	1,6010D	BV
Silver, TCLP	ND		mg/l	0.100	0.028	1	06/09/21 12:33	06/18/21 20:12	EPA 3015	1,6010D	BV

Project Name: ROTH STEEL
Project Number: 16-S0140N
Lab Number: L2127266
Report Date: 06/21/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
TCLP Metals by EPA 1311 - Mansfield Lab for sample(s): 07 Batch: WG1509519-1										
Arsenic, TCLP	ND		mg/l	1.00	0.019	1	06/09/21 12:33	06/18/21 23:31	1,6010D	BV
Barium, TCLP	ND		mg/l	0.500	0.021	1	06/09/21 12:33	06/18/21 23:31	1,6010D	BV
Cadmium, TCLP	ND		mg/l	0.100	0.010	1	06/09/21 12:33	06/18/21 23:31	1,6010D	BV
Chromium, TCLP	ND		mg/l	0.200	0.021	1	06/09/21 12:33	06/18/21 23:31	1,6010D	BV
Lead, TCLP	ND		mg/l	0.500	0.027	1	06/09/21 12:33	06/18/21 23:31	1,6010D	BV
Selenium, TCLP	ND		mg/l	0.500	0.035	1	06/09/21 12:33	06/18/21 23:31	1,6010D	BV
Silver, TCLP	ND		mg/l	0.100	0.028	1	06/09/21 12:33	06/18/21 23:31	1,6010D	BV

Prep Information

Digestion Method: EPA 3015
TCLP/SPLP Extraction Date: 05/27/21 15:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
TCLP Metals by EPA 1311 - Mansfield Lab for sample(s): 07 Batch: WG1509521-1										
Mercury, TCLP	ND		mg/l	0.0010	0.0005	1	06/09/21 12:34	06/14/21 10:13	1,7470A	OU

Prep Information

Digestion Method: EPA 7470A
TCLP/SPLP Extraction Date: 05/27/21 15:23

Lab Control Sample Analysis

Batch Quality Control

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
TCLP Metals by EPA 1311 - Mansfield Lab Associated sample(s): 07 Batch: WG1509519-2								
Arsenic, TCLP	108		-		75-125	-		20
Barium, TCLP	100		-		75-125	-		20
Cadmium, TCLP	104		-		75-125	-		20
Chromium, TCLP	100		-		75-125	-		20
Lead, TCLP	99		-		75-125	-		20
Selenium, TCLP	107		-		75-125	-		20
Silver, TCLP	97		-		75-125	-		20
TCLP Metals by EPA 1311 - Mansfield Lab Associated sample(s): 07 Batch: WG1509521-2								
Mercury, TCLP	105		-		80-120	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
TCLP Metals by EPA 1311 - Mansfield Lab Associated sample(s): 07 QC Batch ID: WG1509519-3 QC Sample: L2127094-01 Client ID: MS Sample												
Arsenic, TCLP	ND	1.2	1.31	109		-	-		75-125	-		20
Barium, TCLP	2.22	20	22.6	102		-	-		75-125	-		20
Cadmium, TCLP	ND	0.51	0.531	104		-	-		75-125	-		20
Chromium, TCLP	20.0	2	22.1	105		-	-		75-125	-		20
Lead, TCLP	ND	5.1	5.07	99		-	-		75-125	-		20
Selenium, TCLP	ND	1.2	1.29	108		-	-		75-125	-		20
Silver, TCLP	ND	0.5	0.493	99		-	-		75-125	-		20
TCLP Metals by EPA 1311 - Mansfield Lab Associated sample(s): 07 QC Batch ID: WG1509521-3 QC Sample: L2127094-01 Client ID: MS Sample												
Mercury, TCLP	ND	0.025	0.0256	102		-	-		80-120	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
TCLP Metals by EPA 1311 - Mansfield Lab Associated sample(s): 07 QC Batch ID: WG1509519-4 QC Sample: L2127094-01 Client ID: DUP Sample						
Arsenic, TCLP	ND	ND	mg/l	NC		20
Barium, TCLP	2.22	2.27	mg/l	2		20
Cadmium, TCLP	ND	ND	mg/l	NC		20
Chromium, TCLP	20.0	20.4	mg/l	2		20
Lead, TCLP	ND	ND	mg/l	NC		20
Selenium, TCLP	ND	ND	mg/l	NC		20
Silver, TCLP	ND	ND	mg/l	NC		20
TCLP Metals by EPA 1311 - Mansfield Lab Associated sample(s): 07 QC Batch ID: WG1509521-4 QC Sample: L2127094-01 Client ID: DUP Sample						
Mercury, TCLP	ND	ND	mg/l	NC		20

INORGANICS
&
MISCELLANEOUS

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

SAMPLE RESULTS

Lab ID: L2127266-07
Client ID: DRUM SAMPLE
Sample Location: SYRACUSE NY

Date Collected: 05/21/21 08:30
Date Received: 05/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.6		%	0.100	NA	1	-	05/27/21 09:35	121,2540G	RI

Lab Duplicate Analysis

Batch Quality Control

Project Name: ROTH STEEL

Project Number: 16-S0140N

Lab Number: L2127266

Report Date: 06/21/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 07 QC Batch ID: WG1504351-1 QC Sample: L2127789-01 Client ID: DUP Sample						
Solids, Total	95.1	95.4	%	0		20

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2127266-01A	Amber 250ml unpreserved	B	7	7	3.1	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2127266-01A1	Amber 250ml unpreserved	B	7	7	3.1	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2127266-01A2	Amber 250ml unpreserved	B	7	7	3.1	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2127266-01B	Amber 250ml unpreserved	B	7	7	3.1	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2127266-01B1	Amber 250ml unpreserved	B	7	7	3.1	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2127266-01B2	Amber 250ml unpreserved	B	7	7	3.1	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2127266-01C	Plastic 250ml unpreserved	A	NA		4.0	Y	Absent		A2-NY-537-ISOTOPE(14)
L2127266-01C1	Plastic 250ml unpreserved	A	NA		4.0	Y	Absent		A2-NY-537-ISOTOPE(14)
L2127266-01C2	Plastic 250ml unpreserved	A	NA		4.0	Y	Absent		A2-NY-537-ISOTOPE(14)
L2127266-01D	Plastic 250ml unpreserved	A	NA		4.0	Y	Absent		A2-NY-537-ISOTOPE(14)
L2127266-01D1	Plastic 250ml unpreserved	A	NA		4.0	Y	Absent		A2-NY-537-ISOTOPE(14)
L2127266-01D2	Plastic 250ml unpreserved	A	NA		4.0	Y	Absent		A2-NY-537-ISOTOPE(14)
L2127266-02A	Amber 250ml unpreserved	B	7	7	3.1	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2127266-02B	Amber 250ml unpreserved	B	7	7	3.1	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2127266-02C	Plastic 250ml unpreserved	A	NA		4.0	Y	Absent		A2-NY-537-ISOTOPE(14)
L2127266-02D	Plastic 250ml unpreserved	A	NA		4.0	Y	Absent		A2-NY-537-ISOTOPE(14)
L2127266-03A	Amber 250ml unpreserved	B	7	7	3.1	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2127266-03B	Amber 250ml unpreserved	B	7	7	3.1	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2127266-03C	Plastic 250ml unpreserved	A	NA		4.0	Y	Absent		A2-NY-537-ISOTOPE(14)
L2127266-03D	Plastic 250ml unpreserved	A	NA		4.0	Y	Absent		A2-NY-537-ISOTOPE(14)
L2127266-04A	Amber 250ml unpreserved	B	7	7	3.1	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2127266-04B	Amber 250ml unpreserved	B	7	7	3.1	Y	Absent		A2-1,4-DIOXANE-SIM(7)

*Values in parentheses indicate holding time in days

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2127266-04C	Plastic 250ml unpreserved	A	NA		4.0	Y	Absent		A2-NY-537-ISOTOPE(14)
L2127266-04D	Plastic 250ml unpreserved	A	NA		4.0	Y	Absent		A2-NY-537-ISOTOPE(14)
L2127266-05A	Amber 250ml unpreserved	B	7	7	3.1	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2127266-05B	Amber 250ml unpreserved	B	7	7	3.1	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2127266-05C	Plastic 250ml unpreserved	A	NA		4.0	Y	Absent		A2-NY-537-ISOTOPE(14)
L2127266-06A	Amber 250ml unpreserved	B	7	7	3.1	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2127266-06B	Amber 250ml unpreserved	B	7	7	3.1	Y	Absent		A2-1,4-DIOXANE-SIM(7)
L2127266-06C	Plastic 250ml unpreserved	A	NA		4.0	Y	Absent		A2-NY-537-ISOTOPE(14)
L2127266-06D	Plastic 250ml unpreserved	A	NA		4.0	Y	Absent		A2-NY-537-ISOTOPE(14)
L2127266-07A	Glass 250ml/8oz unpreserved	B	NA		3.1	Y	Absent		NYTCL-8082(365)
L2127266-07B	Plastic 2oz unpreserved for TS	B	NA		3.1	Y	Absent		TS(7)
L2127266-07X	Plastic 120ml HNO3 preserved Extracts	B	NA		3.1	Y	Absent		CD-CI(180),AS-CI(180),BA-CI(180),HG-C(28),PB-CI(180),CR-CI(180),SE-CI(180),AG-CI(180)
L2127266-07X9	Tumble Vessel	B	NA		3.1	Y	Absent		-

*Values in parentheses indicate holding time in days

Project Name: ROTH STEEL
Project Number: 16-S0140N

Lab Number: L2127266
Report Date: 06/21/21

PFAS PARAMETER SUMMARY

Parameter	Acronym	CAS Number
PERFLUOROALKYL CARBOXYLIC ACIDS (PFCAs)		
Perfluorooctadecanoic Acid	PFODA	16517-11-6
Perfluorohexadecanoic Acid	PFHxDA	67905-19-5
Perfluorotetradecanoic Acid	PFTA	376-06-7
Perfluorotridecanoic Acid	PFTrDA	72629-94-8
Perfluorododecanoic Acid	PFDoA	307-55-1
Perfluoroundecanoic Acid	PFUnA	2058-94-8
Perfluorodecanoic Acid	PFDA	335-76-2
Perfluorononanoic Acid	PFNA	375-95-1
Perfluorooctanoic Acid	PFOA	335-67-1
Perfluoroheptanoic Acid	PFHpA	375-85-9
Perfluorohexanoic Acid	PFHxA	307-24-4
Perfluoropentanoic Acid	PFPeA	2706-90-3
Perfluorobutanoic Acid	PFBA	375-22-4
PERFLUOROALKYL SULFONIC ACIDS (PFSAs)		
Perfluorododecanesulfonic Acid	PFDoDS	79780-39-5
Perfluorodecanesulfonic Acid	PFDS	335-77-3
Perfluorononanesulfonic Acid	PFNS	68259-12-1
Perfluorooctanesulfonic Acid	PFOS	1763-23-1
Perfluoroheptanesulfonic Acid	PFHpS	375-92-8
Perfluorohexanesulfonic Acid	PFHxS	355-46-4
Perfluoropentanesulfonic Acid	PFPeS	2706-91-4
Perfluorobutanesulfonic Acid	PFBS	375-73-5
FLUOROTELOMERS		
1H,1H,2H,2H-Perfluorododecanesulfonic Acid	10:2FTS	120226-60-0
1H,1H,2H,2H-Perfluorodecanesulfonic Acid	8:2FTS	39108-34-4
1H,1H,2H,2H-Perfluorooctanesulfonic Acid	6:2FTS	27619-97-2
1H,1H,2H,2H-Perfluorohexanesulfonic Acid	4:2FTS	757124-72-4
PERFLUOROALKANE SULFONAMIDES (FASAs)		
Perfluorooctanesulfonamide	FOSA	754-91-6
N-Ethyl Perfluorooctane Sulfonamide	NEtFOSA	4151-50-2
N-Methyl Perfluorooctane Sulfonamide	NMeFOSA	31506-32-8
PERFLUOROALKANE SULFONYL SUBSTANCES		
N-Ethyl Perfluorooctanesulfonamido Ethanol	NEtFOSE	1691-99-2
N-Methyl Perfluorooctanesulfonamido Ethanol	NMeFOSE	24448-09-7
N-Ethyl Perfluorooctanesulfonamidoacetic Acid	NEtFOSAA	2991-50-6
N-Methyl Perfluorooctanesulfonamidoacetic Acid	NMeFOSAA	2355-31-9
PER- and POLYFLUOROALKYL ETHER CARBOXYLIC ACIDS		
2,3,3,3-Tetrafluoro-2-[1,1,2,2,3,3,3-Heptafluoropropoxy]-Propanoic Acid	HFPO-DA	13252-13-6
4,8-Dioxa-3h-Perfluorononanoic Acid	ADONA	919005-14-4
CHLORO-PERFLUOROALKYL SULFONIC ACIDS		
11-Chloroeicosafluoro-3-Oxaundecane-1-Sulfonic Acid	11Cl-PF3OUdS	763051-92-9
9-Chlorohexadecafluoro-3-Oxanone-1-Sulfonic Acid	9Cl-PF3ONS	756426-58-1
PERFLUOROETHER SULFONIC ACIDS (PFESAs)		
Perfluoro(2-Ethoxyethane)Sulfonic Acid	PFEESA	113507-82-7
PERFLUOROETHER/POLYETHER CARBOXYLIC ACIDS (PFPCAs)		
Perfluoro-3-Methoxypropanoic Acid	PFMPA	377-73-1
Perfluoro-4-Methoxybutanoic Acid	PFMBA	863090-89-5
Nonafluoro-3,6-Dioxaheptanoic Acid	NFDHA	151772-58-6

Project Name:	ROTH STEEL	**Lab Number:**	L2127266
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GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name:	ROTH STEEL	**Lab Number:**	L2127266
Project Number:	16-S0140N	**Report Date:**	06/21/21

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

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Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers

Project Name:	ROTH STEEL	**Lab Number:**	L2127266
Project Number:	16-S0140N	**Report Date:**	06/21/21

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

134 Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) using Isotope Dilution. Alpha SOP 23528.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N, **SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

NEW YORK CHAIN OF CUSTODY

ALPHA

Westborough, MA 01581
8 Walkup Dr.
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA 02048
320 Forbes Blvd
TEL: 508-822-9300
FAX: 508-822-3288

Service Centers
Mahwah, NJ 07430: 35 Whitney Rd, Suite 5
Albany, NY 12205: 14 Walker Way
Tonawanda, NY 14150: 275 Cooper Ave, Suite 105

Page of

Date Rec'd in Lab: 5/22/21

ALPHA Job #: L1127266

Client Information

Client: JMT of New York, Inc
Address: 19 British American Blvd.
Latham NY 12110
Phone: (518) 782-2382
Fax:
Email: jciampa@jmt.com

Project Information

Project Name: Rath Site
Project Location: Syracuse, NY
Project #: 16-50140N
(Use Project name as Project #)
Project Manager: John Ciampa
ALPHAQuote #:

Turn-Around Time

Standard: X
Rush (only if pre approved):
Due Date:
# of Days:

These samples have been previously analyzed by Alpha

Other project specific requirements/comments:

Please specify Metals or TAL.

Deliverables

- ASP-A
- ASP-B
- EQuIS (1 File)
- EQuIS (4 File)
- Other

Regulatory Requirement

- NY TOGS
- NY Part 375
- AWQ Standards
- NY CP-51
- NY Restricted Use
- Other
- NY Unrestricted Use
- NYC Sewer Discharge

Billing Information

- Same as Client Info

PO #

Disposal Site Information

Please identify below location of applicable disposal facilities.

Disposal Facility:
- NJ
- NY
- Other:

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	1,4 Dioxane via EPA-8270D-SIM	PFAAs via LCMSMS - Isotope Dilution	TS-SM 2540	TCL PCB's EPA 8082	TCLP RCRA 8 Metals EPA 6010D/7470				Sample Specific Comments
27266-01	MW-2A	5/21/21	1000	G.W.	MG	X	X							
-02	MW-3R		1140	G.W.	MG	X	X							
-03	MW-6		1300	G.W.	MG	X	X							
-04	Duplicate			G.W.	MG	X	X							
	MW-2A MS		1000	G.W.	MG	X	X							
	MW-2A MSD		1000	G.W.	MG	X	X							
-05	Field Blank		0910	G.W.	MG	X	X							
-06	Equipment Blank		0900	G.W.	MG	X	X							
-07	Drum Sample		0830	S	MG			X	X	X				

Sample Filtration
- Done
- Lab to do

Preservation
- Lab to do

(Please Specify below)

Total Bottle

Container Type

Preservative

Preservative Code:
A = None
B = HCl
C = HNO_3
D = H_2SO_4
E = NaOH
F = MeOH
G = $NaHSO_4$
H = $Na_2S_2O_3$
K/E = Zn Ac/NaOH
O = Other

Container Code:
P = Plastic
A = Amber Glass
V = Vial
G = Glass
B = Bacteria Cup
C = Cube
O = Other
E = Encore
D = BOD Bottle

Westboro: Certification No: MA935
Mansfield: Certification No: MA015

Relinquished By:	Date/Time	Received By:	Date/Time
	5/21/21 16:30		5/21/21 16:30
	5/21/21 16:55		5/22/21 01:00
Ryley Jackson	5/22/21 10:05		5/22/21 8:30
			5/22/21 10:05

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS. (See reverse side.)

Form No: 01-25 HC (rev. 30-Sept-2013)

Data Usability Summary Report

ALPHA GEOSCIENCE

Geology
Hydrology
Remediation
Water Supply

Data Usability Summary Report for
Alpha Analytical, Lab No: 2127266

3 Ground Water Samples, 1 Field Duplicate,
1 Filed Blank, and 1 Equipment Blank
Collected May 21, 2021

Prepared by: Donald Anné
July 1, 2021

The data package contains the documentation required by NYSDEC ASP. The proper chain of custody procedures were followed by the samplers. All information appears legible and complete. The data pack contains the results of 3 ground water samples, 1 field duplicate, 1 field blank, and 1 equipment blank analyzed for 1,4-dioxane and PFAS.

The overall performances of the analyses are acceptable. Alpha Analytical did fulfill the requirements for the methods.

The data are mostly acceptable with some issues that are identified in the accompanying data validation reviews. The following data were qualified:

- The PFAS results for PFOS in samples MW-2A and DUPLICATE were quantitated using data that were extrapolated beyond the highest calibration standard and flagged "E" by the laboratory. The results for PFOS marked "E" in the undiluted samples were qualified as estimated (J).

- The positive PFAS results for PFPeA and PFHxA were qualified as "estimated" (J) in samples MW-2A and DUPLICATE because surrogates used to quantitate the results were below QC limits but not below 10% in the samples.

- The positive PFAS results for 6:2 FTS were qualified as "estimated" (J) in samples MW-2A, MW-3R, and DUPLICATE because surrogates used to quantitate the results were above QC limits in the samples.

- The positive PFAS result for PFHxA were qualified as "not detected" (U) at the reporting limit for the field and equipment blanks because the samples were associated with the method blank containing PFHxA and the reported concentrations for PFHxA were below the reporting limits.

All data are considered usable with estimated (J) data associated with a higher level of quantitative uncertainty. Detailed information on data quality is included in the data validation reviews.

z:\projects\2016\16600 - 16620\16609-roth steel irm\temp review\l2127266.dus.docx

Qualified Data Section

Results Summary
Form 1
1,4 Dioxane by 8270D-SIM

Client	: JMT, Inc.	**Lab Number**	: L2127266
Project Name	: ROTH STEEL	**Project Number**	: 16-S0140N
Lab ID	: L2127266-01	**Date Collected**	: 05/21/21 10:00
Client ID	: MW-2A	**Date Received**	: 05/21/21
Sample Location	: SYRACUSE NY	**Date Analyzed**	: 06/01/21 09:44
Sample Matrix	: WATER	**Date Extracted**	: 05/27/21
Analytical Method	: 1,8270D-SIM	**Dilution Factor**	: 1
Lab File ID	: F1606012111	**Analyst**	: PS
Sample Amount	: 260 ml	**Instrument ID**	: PAH16
Extraction Method	: EPA 3510C	**GC Column**	: RTX-5
Extract Volume	: 2500 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 1 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
123-91-1	1,4-Dioxane	2370	144	32.6	

Results Summary
Form 1
1,4 Dioxane by 8270D-SIM

Client	: JMT, Inc.	**Lab Number**	: L2127266
Project Name	: ROTH STEEL	**Project Number**	: 16-S0140N
Lab ID	: L2127266-02	**Date Collected**	: 05/21/21 11:40
Client ID	: MW-3R	**Date Received**	: 05/21/21
Sample Location	: SYRACUSE NY	**Date Analyzed**	: 06/01/21 10:45
Sample Matrix	: WATER	**Date Extracted**	: 05/27/21
Analytical Method	: 1,8270D-SIM	**Dilution Factor**	: 1
Lab File ID	: F1606012114	**Analyst**	: PS
Sample Amount	: 250 ml	**Instrument ID**	: PAH16
Extraction Method	: EPA 3510C	**GC Column**	: RTX-5
Extract Volume	: 2500 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 1 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
123-91-1	1,4-Dioxane	2410	150	33.9	

Results Summary
Form 1
1,4 Dioxane by 8270D-SIM

Client	: JMT, Inc.	**Lab Number**	: L2127266
Project Name	: ROTH STEEL	**Project Number**	: 16-S0140N
Lab ID	: L2127266-03	**Date Collected**	: 05/21/21 13:00
Client ID	: MW-6	**Date Received**	: 05/21/21
Sample Location	: SYRACUSE NY	**Date Analyzed**	: 06/01/21 11:06
Sample Matrix	: WATER	**Date Extracted**	: 05/27/21
Analytical Method	: 1,8270D-SIM	**Dilution Factor**	: 1
Lab File ID	: F1606012115	**Analyst**	: PS
Sample Amount	: 260 ml	**Instrument ID**	: PAH16
Extraction Method	: EPA 3510C	**GC Column**	: RTX-5
Extract Volume	: 2500 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 1 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
123-91-1	1,4-Dioxane	2100	144	32.6	

Results Summary
Form 1
1,4 Dioxane by 8270D-SIM

Client	: JMT, Inc.	**Lab Number**	: L2127266
Project Name	: ROTH STEEL	**Project Number**	: 16-S0140N
Lab ID	: L2127266-04	**Date Collected**	: 05/21/21 00:00
Client ID	: DUPLICATE	**Date Received**	: 05/21/21
Sample Location	: SYRACUSE NY	**Date Analyzed**	: 06/01/21 11:28
Sample Matrix	: WATER	**Date Extracted**	: 05/27/21
Analytical Method	: 1,8270D-SIM	**Dilution Factor**	: 1
Lab File ID	: F1606012116	**Analyst**	: PS
Sample Amount	: 260 ml	**Instrument ID**	: PAH16
Extraction Method	: EPA 3510C	**GC Column**	: RTX-5
Extract Volume	: 2500 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 1 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
123-91-1	1,4-Dioxane	2590	144	32.6	

Results Summary
Form 1
1,4 Dioxane by 8270D-SIM

Client	: JMT, Inc.	**Lab Number**	: L2127266
Project Name	: ROTH STEEL	**Project Number**	: 16-S0140N
Lab ID	: L2127266-05	**Date Collected**	: 05/21/21 09:10
Client ID	: FIELD BLANK	**Date Received**	: 05/21/21
Sample Location	: SYRACUSE NY	**Date Analyzed**	: 06/01/21 11:48
Sample Matrix	: WATER	**Date Extracted**	: 05/27/21
Analytical Method	: 1,8270D-SIM	**Dilution Factor**	: 1
Lab File ID	: F1606012117	**Analyst**	: PS
Sample Amount	: 260 ml	**Instrument ID**	: PAH16
Extraction Method	: EPA 3510C	**GC Column**	: RTX-5
Extract Volume	: 2500 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 1 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
123-91-1	1,4-Dioxane	ND	144	32.6	U

Results Summary
Form 1
1,4 Dioxane by 8270D-SIM

Client	: JMT, Inc.	**Lab Number**	: L2127266
Project Name	: ROTH STEEL	**Project Number**	: 16-S0140N
Lab ID	: L2127266-06	**Date Collected**	: 05/21/21 09:00
Client ID	: EQUIPMENT BLANK	**Date Received**	: 05/21/21
Sample Location	: SYRACUSE NY	**Date Analyzed**	: 06/01/21 12:09
Sample Matrix	: WATER	**Date Extracted**	: 05/27/21
Analytical Method	: 1,8270D-SIM	**Dilution Factor**	: 1
Lab File ID	: F1606012118	**Analyst**	: PS
Sample Amount	: 260 ml	**Instrument ID**	: PAH16
Extraction Method	: EPA 3510C	**GC Column**	: RTX-5
Extract Volume	: 2500 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 1 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
123-91-1	1,4-Dioxane	ND	144	32.6	U

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: JMT, Inc.	Lab Number	: L2127266
Project Name	: ROTH STEEL	Project Number	: 16-S0140N
Lab ID	: L2127266-01	Date Collected	: 05/21/21 10:00
Client ID	: MW-2A	Date Received	: 05/21/21
Sample Location	: SYRACUSE NY	Date Analyzed	: 06/03/21 08:32
Sample Matrix	: WATER	Date Extracted	: 05/28/21
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I35670	Analyst	: HT
Sample Amount	: 273.84 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

		ng/l			
CAS NO.	Parameter	Results	RL	MDL	Qualifier
375-22-4	Perfluorobutanoic Acid (PFBA)	116	1.82	0.372	
2706-90-3	Perfluoropentanoic Acid (PFPeA)	176	1.82	0.362	J
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	39.9	1.82	0.217	
307-24-4	Perfluorohexanoic Acid (PFHxA)	174	1.82	0.299	J
375-85-9	Perfluoroheptanoic Acid (PFHpA)	80.9	1.82	0.206	
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	187	1.82	0.343	
335-67-1	Perfluorooctanoic Acid (PFOA)	334	1.82	0.215	
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	56.9	1.82	1.22	J
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	19.4	1.82	0.628	
375-95-1	Perfluorononanoic Acid (PFNA)	21.0	1.82	0.285	
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	1530	1.82	0.460	E J
335-76-2	Perfluorodecanoic Acid (PFDA)	0.544	1.82	0.278	J
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.82	1.11	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.82	0.592	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.82	0.237	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.82	0.895	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	1.82	0.530	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.82	0.734	U

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: JMT, Inc.	Lab Number	: L2127266
Project Name	: ROTH STEEL	Project Number	: 16-S0140N
Lab ID	: L2127266-01	Date Collected	: 05/21/21 10:00
Client ID	: MW-2A	Date Received	: 05/21/21
Sample Location	: SYRACUSE NY	Date Analyzed	: 06/03/21 08:32
Sample Matrix	: WATER	Date Extracted	: 05/28/21
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I35670	Analyst	: HT
Sample Amount	: 273.84 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

		ng/l			
CAS NO.	Parameter	Results	RL	MDL	Qualifier
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.82	0.340	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.82	0.299	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.82	0.226	U
NONE	PFOA/PFOS, Total	1840	1.82	0.215	

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: JMT, Inc.	**Lab Number**	: L2127266
Project Name	: ROTH STEEL	**Project Number**	: 16-S0140N
Lab ID	: L2127266-01RE	**Date Collected**	: 05/21/21 10:00
Client ID	: MW-2A	**Date Received**	: 05/21/21
Sample Location	: SYRACUSE NY	**Date Analyzed**	: 06/07/21 19:24
Sample Matrix	: WATER	**Date Extracted**	: 06/04/21
Analytical Method	: 134,LCMSMS-ID	**Dilution Factor**	: 1
Lab File ID	: I35952	**Analyst**	: RS
Sample Amount	: 25 g	**Instrument ID**	: LCMS01
Extraction Method	: ALPHA 23528	**GC Column**	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 3 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	1510	20.0	5.04	

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: JMT, Inc.	Lab Number	: L2127266
Project Name	: ROTH STEEL	Project Number	: 16-S0140N
Lab ID	: L2127266-02	Date Collected	: 05/21/21 11:40
Client ID	: MW-3R	Date Received	: 05/21/21
Sample Location	: SYRACUSE NY	Date Analyzed	: 06/07/21 21:04
Sample Matrix	: WATER	Date Extracted	: 05/28/21
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I35958	Analyst	: RS
Sample Amount	: 272.16 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

		ng/l			
CAS NO.	Parameter	Results	RL	MDL	Qualifier
375-22-4	Perfluorobutanoic Acid (PFBA)	80.1	1.84	0.375	
2706-90-3	Perfluoropentanoic Acid (PFPeA)	122	1.84	0.364	
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	31.9	1.84	0.219	
307-24-4	Perfluorohexanoic Acid (PFHxA)	134	1.84	0.301	
375-85-9	Perfluoroheptanoic Acid (PFHpA)	63.6	1.84	0.207	
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	135	1.84	0.345	
335-67-1	Perfluorooctanoic Acid (PFOA)	199	1.84	0.217	
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	58.6	1.84	1.22	J
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	6.17	1.84	0.632	
375-95-1	Perfluorononanoic Acid (PFNA)	10.8	1.84	0.286	
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	220	1.84	0.463	
335-76-2	Perfluorodecanoic Acid (PFDA)	2.30	1.84	0.279	
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.84	1.11	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.84	0.595	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.84	0.239	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.84	0.900	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	0.970	1.84	0.533	JF
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	1.20	1.84	0.738	JF

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: JMT, Inc.	Lab Number	: L2127266
Project Name	: ROTH STEEL	Project Number	: 16-S0140N
Lab ID	: L2127266-02	Date Collected	: 05/21/21 11:40
Client ID	: MW-3R	Date Received	: 05/21/21
Sample Location	: SYRACUSE NY	Date Analyzed	: 06/07/21 21:04
Sample Matrix	: WATER	Date Extracted	: 05/28/21
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I35958	Analyst	: RS
Sample Amount	: 272.16 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

		ng/l			
CAS NO.	Parameter	Results	RL	MDL	Qualifier
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.84	0.342	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.84	0.300	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.84	0.228	U
NONE	PFOA/PFOS, Total	419	1.84	0.217	

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: JMT, Inc.	Lab Number	: L2127266
Project Name	: ROTH STEEL	Project Number	: 16-S0140N
Lab ID	: L2127266-03	Date Collected	: 05/21/21 13:00
Client ID	: MW-6	Date Received	: 05/21/21
Sample Location	: SYRACUSE NY	Date Analyzed	: 06/07/21 21:20
Sample Matrix	: WATER	Date Extracted	: 05/28/21
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I35959	Analyst	: RS
Sample Amount	: 269.33 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

		ng/l			
CAS NO.	Parameter	Results	RL	MDL	Qualifier
375-22-4	Perfluorobutanoic Acid (PFBA)	52.8	1.86	0.379	
2706-90-3	Perfluoropentanoic Acid (PFPeA)	79.5	1.86	0.368	
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	37.0	1.86	0.221	
307-24-4	Perfluorohexanoic Acid (PFHxA)	90.2	1.86	0.304	
375-85-9	Perfluoroheptanoic Acid (PFHpA)	52.0	1.86	0.209	
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	93.5	1.86	0.349	
335-67-1	Perfluorooctanoic Acid (PFOA)	182	1.86	0.219	
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	45.8	1.86	1.24	
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	7.31	1.86	0.639	
375-95-1	Perfluorononanoic Acid (PFNA)	12.2	1.86	0.290	
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	444	1.86	0.468	
335-76-2	Perfluorodecanoic Acid (PFDA)	1.53	1.86	0.282	J
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.86	1.12	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.86	0.601	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.86	0.241	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.86	0.910	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	1.86	0.538	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.86	0.746	U

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: JMT, Inc.	**Lab Number**	: L2127266
Project Name	: ROTH STEEL	**Project Number**	: 16-S0140N
Lab ID	: L2127266-03	**Date Collected**	: 05/21/21 13:00
Client ID	: MW-6	**Date Received**	: 05/21/21
Sample Location	: SYRACUSE NY	**Date Analyzed**	: 06/07/21 21:20
Sample Matrix	: WATER	**Date Extracted**	: 05/28/21
Analytical Method	: 134,LCMSMS-ID	**Dilution Factor**	: 1
Lab File ID	: I35959	**Analyst**	: RS
Sample Amount	: 269.33 g	**Instrument ID**	: LCMS01
Extraction Method	: ALPHA 23528	**GC Column**	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 3 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.86	0.345	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.86	0.304	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.86	0.230	U
NONE	PFOA/PFOS, Total	626	1.86	0.219	

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: JMT, Inc.	Lab Number	: L2127266
Project Name	: ROTH STEEL	Project Number	: 16-S0140N
Lab ID	: L2127266-04	Date Collected	: 05/21/21 00:00
Client ID	: DUPLICATE	Date Received	: 05/21/21
Sample Location	: SYRACUSE NY	Date Analyzed	: 06/07/21 21:37
Sample Matrix	: WATER	Date Extracted	: 05/28/21
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I35960	Analyst	: RS
Sample Amount	: 271.97 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

		ng/l			
CAS NO.	Parameter	Results	RL	MDL	Qualifier
375-22-4	Perfluorobutanoic Acid (PFBA)	135	1.84	0.375	
2706-90-3	Perfluoropentanoic Acid (PFPeA)	190	1.84	0.364	J
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	36.3	1.84	0.219	
307-24-4	Perfluorohexanoic Acid (PFHxA)	193	1.84	0.302	J
375-85-9	Perfluoroheptanoic Acid (PFHpA)	88.1	1.84	0.207	
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	193	1.84	0.346	
335-67-1	Perfluorooctanoic Acid (PFOA)	382	1.84	0.217	
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	59.6	1.84	1.22	J
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	22.0	1.84	0.632	
375-95-1	Perfluorononanoic Acid (PFNA)	23.5	1.84	0.287	
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	1760	1.84	0.463	E J
335-76-2	Perfluorodecanoic Acid (PFDA)	0.562	1.84	0.279	J
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.84	1.11	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.84	0.596	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.84	0.239	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.84	0.901	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	1.84	0.533	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.84	0.739	U

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: JMT, Inc.	Lab Number	: L2127266
Project Name	: ROTH STEEL	Project Number	: 16-S0140N
Lab ID	: L2127266-04	Date Collected	: 05/21/21 00:00
Client ID	: DUPLICATE	Date Received	: 05/21/21
Sample Location	: SYRACUSE NY	Date Analyzed	: 06/07/21 21:37
Sample Matrix	: WATER	Date Extracted	: 05/28/21
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I35960	Analyst	: RS
Sample Amount	: 271.97 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

		ng/l			
CAS NO.	Parameter	Results	RL	MDL	Qualifier
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.84	0.342	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.84	0.301	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.84	0.228	U
NONE	PFOA/PFOS, Total	1940	1.84	0.217	

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: JMT, Inc.	**Lab Number**	: L2127266
Project Name	: ROTH STEEL	**Project Number**	: 16-S0140N
Lab ID	: L2127266-04RE	**Date Collected**	: 05/21/21 00:00
Client ID	: DUPLICATE	**Date Received**	: 05/21/21
Sample Location	: SYRACUSE NY	**Date Analyzed**	: 06/09/21 10:58
Sample Matrix	: WATER	**Date Extracted**	: 06/08/21
Analytical Method	: 134,LCMSMS-ID	**Dilution Factor**	: 1
Lab File ID	: I36071	**Analyst**	: RS
Sample Amount	: 25 g	**Instrument ID**	: LCMS01
Extraction Method	: ALPHA 23528	**GC Column**	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 3 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	1560	20.0	5.04	

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: JMT, Inc.	Lab Number	: L2127266
Project Name	: ROTH STEEL	Project Number	: 16-S0140N
Lab ID	: L2127266-05	Date Collected	: 05/21/21 09:10
Client ID	: FIELD BLANK	Date Received	: 05/21/21
Sample Location	: SYRACUSE NY	Date Analyzed	: 06/07/21 21:53
Sample Matrix	: WATER	Date Extracted	: 05/28/21
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I35961	Analyst	: RS
Sample Amount	: 278.01 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

		ng/l			
CAS NO.	Parameter	Results	RL	MDL	Qualifier
375-22-4	Perfluorobutanoic Acid (PFBA)	ND	1.80	0.367	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	1.80	0.356	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	1.80	0.214	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	ND	1.80	0.295	U
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND	1.80	0.202	U
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.80	0.338	U
335-67-1	Perfluorooctanoic Acid (PFOA)	ND	1.80	0.212	U
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	1.80	1.20	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.80	0.619	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	1.80	0.280	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	1.80	0.453	U
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.80	0.273	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.80	1.09	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.80	0.583	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.80	0.234	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.80	0.881	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	1.80	0.522	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.80	0.723	U

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: JMT, Inc.	**Lab Number**	: L2127266
Project Name	: ROTH STEEL	**Project Number**	: 16-S0140N
Lab ID	: L2127266-05	**Date Collected**	: 05/21/21 09:10
Client ID	: FIELD BLANK	**Date Received**	: 05/21/21
Sample Location	: SYRACUSE NY	**Date Analyzed**	: 06/07/21 21:53
Sample Matrix	: WATER	**Date Extracted**	: 05/28/21
Analytical Method	: 134,LCMSMS-ID	**Dilution Factor**	: 1
Lab File ID	: I35961	**Analyst**	: RS
Sample Amount	: 278.01 g	**Instrument ID**	: LCMS01
Extraction Method	: ALPHA 23528	**GC Column**	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 3 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.80	0.334	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.80	0.294	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.80	0.223	U
NONE	PFOA/PFOS, Total	ND	1.80	0.212	U

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: JMT, Inc.	Lab Number	: L2127266
Project Name	: ROTH STEEL	Project Number	: 16-S0140N
Lab ID	: L2127266-06	Date Collected	: 05/21/21 09:00
Client ID	: EQUIPMENT BLANK	Date Received	: 05/21/21
Sample Location	: SYRACUSE NY	Date Analyzed	: 06/07/21 22:10
Sample Matrix	: WATER	Date Extracted	: 05/28/21
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I35962	Analyst	: RS
Sample Amount	: 275.69 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

		ng/l			
CAS NO.	Parameter	Results	RL	MDL	Qualifier
375-22-4	Perfluorobutanoic Acid (PFBA)	ND	1.81	0.370	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	1.81	0.359	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	1.81	0.216	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	ND	1.81	0.297	U
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND	1.81	0.204	U
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	1.81	0.341	U
335-67-1	Perfluorooctanoic Acid (PFOA)	ND	1.81	0.214	U
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	1.81	1.21	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	1.81	0.624	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	1.81	0.283	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	1.81	0.457	U
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	1.81	0.276	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	1.81	1.10	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	1.81	0.588	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	1.81	0.236	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	1.81	0.889	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	1.81	0.526	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	1.81	0.729	U

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: JMT, Inc.	**Lab Number**	: L2127266
Project Name	: ROTH STEEL	**Project Number**	: 16-S0140N
Lab ID	: L2127266-06	**Date Collected**	: 05/21/21 09:00
Client ID	: EQUIPMENT BLANK	**Date Received**	: 05/21/21
Sample Location	: SYRACUSE NY	**Date Analyzed**	: 06/07/21 22:10
Sample Matrix	: WATER	**Date Extracted**	: 05/28/21
Analytical Method	: 134,LCMSMS-ID	**Dilution Factor**	: 1
Lab File ID	: I35962	**Analyst**	: RS
Sample Amount	: 275.69 g	**Instrument ID**	: LCMS01
Extraction Method	: ALPHA 23528	**GC Column**	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	**%Solids**	: N/A
GPC Cleanup	: N	**Injection Volume**	: 3 uL

		ng/l			
CAS NO.	**Parameter**	**Results**	**RL**	**MDL**	**Qualifier**
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	1.81	0.337	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	1.81	0.297	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	1.81	0.225	U
NONE	PFOA/PFOS, Total	ND	1.81	0.214	U

1,4-Dioxane

Data Section

ALPHA GEOSCIENCE

Geology
Hydrology
Remediation
Water Supply

QA/QC Review of Method 8270D SIM 1,4-Dioxane
Data for Alpha Analytical, SDG Number: L2035150

3 Ground Water Samples, 1 Field Duplicate,
1 Field Blank, and 1 Equipment Blank
Collected May 21, 2021

Prepared by: Donald Anné
July 1, 2021

Holding Times: Samples were extracted and analyzed within USEPA SW-846 holding times.

GC/MS Tuning and Mass Calibration: The DFTPP tuning criteria were within control limits.

Initial Calibration: The average RRF for 1,4-dioxane was above the allowable minimum (0.010) and the %RSD was below the allowable maximum (30%), as required.

Continuing Calibration: The RRF for 1,4-dioxane was above the allowable minimum (0.010) and the %D was below the allowable maximum (25%), as required.

Blanks: The analyses of the method, field and equipment blanks reported 1,4-dioxane as not detected.

Internal Standard Area Summary: The internal standard areas and retention times were within control limits.

Surrogate Recovery: The surrogate recoveries were within control limits for the ground water samples, field blank, and equipment blank.

Matrix Spike/Matrix Spike Duplicate: The relative percent differences for 1,4-dioxane was below the allowable maximum and the percent recoveries were within QC limits for aqueous MS/MSD sample MW-2A.

Laboratory Control Sample: The relative percent differences for 1,4-dioxane was below the allowable maximum and the percent recoveries were within QC limits for aqueous samples WG1504709-2/3.

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Field Duplicates: The relative percent difference for 1,4-dioxane was below the allowable maximum (20%) for aqueous field duplicate pair MW-2A/DUPLICATE (attached table), as required.

Compound ID: Checked compounds were within GC/MS quantitation limits. The mass spectra for detected compounds contained the primary and secondary ions, as outlined in the method.

PFAS

Data Section

ALPHA GEOSCIENCE

Geology
Hydrology
Remediation
Water Supply

QA/QC Review of Method 537 (Modified) PFAS Data
for Alpha Analytical Labs SDG Number: L2127266

3 Ground Water Samples, 1 Field Duplicate,
1 Field Blank, and 1 Equipment Blank
Collected May 21, 2021

Prepared by: Donald Anné
July 1, 2021

Holding Times: The samples were analyzed within USEPA holding times.

Initial Calibration: The %RSDs for applicable PFASs were below the method maximum (20%) or the R or R squared were above the method minimums, as required.

Continuing Calibration: The percent recoveries for applicable PFAS were within QC limits, as required.

Blanks: Method blank WG1505152-1BLANK contained a trace of PFHxA (0.408 ng/L). Positive results for these PFHxA that are below the reporting limit (RL) should be reported as not detected (U) at the reporting limit in associated samples. Positive results for these PFAS that are above the RL and less than ten times the highest blank level should be considered estimated, biased high (J+) in associated samples.

Surrogate Recovery: Two surrogate recoveries for sample MW-2A and DUPLICATE were above QC limits. One surrogate recovery for sample MW-3R was above QC limits. Positive results associated with these surrogates should be considered estimated (J) in the samples.

Two surrogate recoveries for sample MW-2A and DUPLICATE were below QC limits, but not below 10%. Positive and "not detected" results associated with these surrogates should be considered estimated (J or UJ respectively)) in the samples.

Laboratory Duplicate Sample: The relative percent differences for applicable PFAS were below the allowable maximum for aqueous batch duplicate samples WG1507487-4 and WG1509220-4.

Matrix Spike/Matrix Spike Duplicate: The relative percent difference for target PFAS were below the allowable maximum and applicable percent recoveries were within QC limits for aqueous MS/MSD sample MW-2A.

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Laboratory Control Sample: The percent recoveries for target PFAS were within QC limits for aqueous samples WG1505152-2, WG1507487-2, and WG1509220-2.

Field Duplicates: The relative percent differences for applicable PFAS were below the allowable maximum (20%) for aqueous field duplicate pair MW-2A/DUPLICATE (attached table), as required.

Compound ID: Checked compounds were within LC quantitation limits.

The results for PFOS in samples MW-2A and DUPLICATE were quantitated by extrapolating data above the highest calibration standard and marked 'E' by the laboratory. The sample was diluted by the laboratory and re-analyzed; therefore, the result that is flagged as 'E' in the undiluted samples should be considered estimated (J). The use of the diluted results for PFOS is recommended for samples MW-2A and DUPLICATE. It is recommended that the undiluted results be used for all other compounds.

Surrogate (Extracted Internal Standard) Recovery Summary
Form 2
Semivolatiles

Client: JMT, Inc.
Project Name: ROTH STEEL

Lab Number: L2127266
Project Number: 16-S0140N
Matrix: Water

CLIENT ID (LAB SAMPLE NO.)	S1 ()	S2 ()	S3 ()	S4 ()	S5 ()	S6 ()	S7 ()
MW-2A (L2127266-01)	88	54*	108	47*	62	97	94
MW-2A (L2127266-01RE)	NA	NA	NA	NA	NA	NA	NA
MW-3R (L2127266-02)	92	69	102	65	82	97	89
MW-6 (L2127266-03)	94	83	109	75	90	110	92
DUPLICATE (L2127266-04RE)	NA	NA	NA	NA	NA	NA	NA
DUPLICATE (L2127266-04)	94	59*	111	48*	64	106	90
FIELD BLANK (L2127266-05)	97	134	98	90	94	103	92
EQUIPMENT BLANK (L2127266-06)	94	127	97	87	92	104	91
WG1505152-1BLANK	97	129	107	98	95	95	97
WG1505152-2LCS	96	127	106	101	96	94	97
MW-2AMS	94	57*	115	47*	61	106	93
MW-2AMSD	91	55*	106	48*	63	100	94
WG1507487-1BLANK	106	144	102	91	99	106	102
WG1507487-1BLANK	NA	NA	NA	NA	NA	NA	NA
WG1507487-2LCS	NA	NA	NA	NA	NA	NA	NA
WG1507487-2LCS	96	128	98	80	90	103	92
PW-FS-AP-601MS	NA	NA	93	49*	78	86	78
PW-FS-AP-601ADUP	NA	NA	90	55*	77	94	75
WG1509220-1BLANK	95	122	99	96	98	98	88
WG1509220-2LCS	98	119	103	95	99	100	88
1302RMS	87	116	101	81	82	95	68
MW-1703DUP	64	81	91	64	66	83	62

QC LIMITS

(58-132) S1 = PERFLUORO[13C4]BUTANOIC ACID (MPFBA)
(62-163) S2 = PERFLUORO[13C5]PENTANOIC ACID (M5PFPEA)
(70-131) S3 = PERFLUORO[2,3,4-13C3]BUTANESULFONIC ACID (M3PFBS)
(57-129) S4 = PERFLUORO[1,2,3,4,6-13C5]HEXANOIC ACID (M5PFHXA)
(60-129) S5 = PERFLUORO[1,2,3,4-13C4]HEPTANOIC ACID (M4PFHPA)
(71-134) S6 = PERFLUORO[1,2,3-13C3]HEXANESULFONIC ACID (M3PFHXS)
(71-134) S7 = PERFLUORO[13C8]OCTANOIC ACID (M8PFOA)

*** Values outside of QC limits**

Surrogate (Extracted Internal Standard) Recovery Summary
Form 2
Semivolatiles

Client: JMT, Inc.
Project Name: ROTH STEEL

Lab Number: L2127266
Project Number: 16-S0140N
Matrix: Water

CLIENT ID (LAB SAMPLE NO.)	S8 ()	S9 ()	S10 ()	S11 ()	S12 ()	S13 ()	S14 ()
MW-2A (L2127266-01)	286*	115	95	77	190*	74	81
MW-2A (L2127266-01RE)	NA	NA	101	NA	NA	NA	NA
MW-3R (L2127266-02)	176*	95	91	83	156	89	89
MW-6 (L2127266-03)	139	93	98	83	139	89	90
DUPLICATE (L2127266-04RE)	NA	NA	95	NA	NA	NA	NA
DUPLICATE (L2127266-04)	366*	110	95	84	258*	91	91
FIELD BLANK (L2127266-05)	50	77	96	85	50	69	94
EQUIPMENT BLANK (L2127266-06)	54	75	92	85	51	65	92
WG1505152-1BLANK	98	89	99	91	99	71	94
WG1505152-2LCS	102	91	99	91	102	76	93
MW-2AMS	300*	125	100	85	211*	89	88
MW-2AMSD	278*	116	97	78	192*	86	82
WG1507487-1BLANK	48	84	107	97	39	77	113
WG1507487-1BLANK	NA	NA	NA	NA	NA	NA	NA
WG1507487-2LCS	NA	NA	NA	NA	NA	NA	NA
WG1507487-2LCS	49	75	98	89	43	74	101
PW-FS-AP-601MS	NA	62	85	66	NA	45	63
PW-FS-AP-601ADUP	NA	56*	78	61*	NA	36	63
WG1509220-1BLANK	89	79	96	88	95	76	91
WG1509220-2LCS	102	79	95	86	90	82	97
1302RMS	59	54*	79	58*	50	40	66
MW-1703DUP	62	57*	82	62	64	47	74

QC LIMITS

(14-147) S8 = 1H,1H,2H,2H-PERFLUORO[1,2-13C2]OCTANESULFONIC ACID (M2-6:2FTS)
(59-139) S9 = PERFLUORO[13C9]NONANOIC ACID (M9PFNA)
(69-131) S10 = PERFLUORO[13C8]OCTANESULFONIC ACID (M8PFOS)
(62-124) S11 = PERFLUORO[1,2,3,4,5,6-13C6]DECANOIC ACID (M6PFDA)
(10-162) S12 = 1H,1H,2H,2H-PERFLUORO[1,2-13C2]DECANESULFONIC ACID (M2-8:2FTS)
(24-116) S13 = N-DEUTERIOMETHYLPERFLUORO-1-OCTANESULFONAMIDOACETIC ACID (D3-NMEFOSAA)
(24-116) S14 = PERFLUORO[1,2,3,4,5,6,7-13C7]UNDECANOIC ACID (M7-PFUDA)

* Values outside of QC limits

Surrogate (Extracted Internal Standard) Recovery Summary
Form 2
Semivolatiles

Client: JMT, Inc.
Project Name: ROTH STEEL

Lab Number: L2127266
Project Number: 16-S0140N
Matrix: Water

CLIENT ID (LAB SAMPLE NO.)	S15 ()	S16 ()	S17 ()	S18 ()	S19 ()	S20 ()	S21 ()	TOT OUT
MW-2A (L2127266-01)	41	82	77	91	--	--	--	4
MW-2A (L2127266-01RE)	NA	NA	NA	NA	--	--	--	0
MW-3R (L2127266-02)	36	104	92	73	--	--	--	1
MW-6 (L2127266-03)	39	100	81	74	--	--	--	0
DUPLICATE (L2127266-04RE)	NA	NA	NA	NA	--	--	--	0
DUPLICATE (L2127266-04)	41	102	89	82	--	--	--	4
FIELD BLANK (L2127266-05)	50	64	96	70	--	--	--	0
EQUIPMENT BLANK (L2127266-06)	49	65	91	71	--	--	--	0
WG1505152-1BLANK	38	68	84	68	--	--	--	0
WG1505152-2LCS	33	75	83	74	--	--	--	0
MW-2AMS	43	90	87	99	--	--	--	4
MW-2AMSD	41	85	82	92	--	--	--	4
WG1507487-1BLANK	30	70	116	88	--	--	--	0
WG1507487-1BLANK	67	NA	NA	NA	--	--	--	0
WG1507487-2LCS	60	NA	NA	NA	--	--	--	0
WG1507487-2LCS	28	68	103	83	--	--	--	0
PW-FS-AP-601MS	NA	44	54	48	--	--	--	1
PW-FS-AP-601ADUP	NA	36	63	49	--	--	--	3
WG1509220-1BLANK	20	71	86	71	--	--	--	0
WG1509220-2LCS	30	88	95	80	--	--	--	0
1302RMS	2*	34	63	37	--	--	--	3
MW-1703DUP	1*	44	75	50	--	--	--	2

QC LIMITS
(10-112) S15 = PERFLUORO[13C8]OCTANESULFONAMIDE (M8FOSA)
(27-126) S16 = N-DEUTERIOETHYLPERFLUORO-1-OCTANESULFONAMIDOACETIC ACID (D5-NETFOSAA)
(48-131) S17 = PERFLUORO[1,2-13C2]DODECANOIC ACID (MPFDOA)
(22-136) S18 = PERFLUORO[1,2-13C2]TETRADECANOIC ACID (M2PFTEDA)

* Values outside of QC limits

FORM II A2-NY-537-ISOTOPE (Continued)

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: JMT, Inc.	Lab Number	: L2127266
Project Name	: ROTH STEEL	Project Number	: 16-S0140N
Lab ID	: WG1505152-1	Date Collected	: NA
Client ID	: WG1505152-1BLANK	Date Received	: NA
Sample Location	:	Date Analyzed	: 06/03/21 07:42
Sample Matrix	: WATER	Date Extracted	: 05/28/21
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I35667	Analyst	: HT
Sample Amount	: 250 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

		ng/l			
CAS NO.	Parameter	Results	RL	MDL	Qualifier
375-22-4	Perfluorobutanoic Acid (PFBA)	ND	2.00	0.408	U
2706-90-3	Perfluoropentanoic Acid (PFPeA)	ND	2.00	0.396	U
375-73-5	Perfluorobutanesulfonic Acid (PFBS)	ND	2.00	0.238	U
307-24-4	Perfluorohexanoic Acid (PFHxA)	0.408	2.00	0.328	J
375-85-9	Perfluoroheptanoic Acid (PFHpA)	ND	2.00	0.225	U
355-46-4	Perfluorohexanesulfonic Acid (PFHxS)	ND	2.00	0.376	U
335-67-1	Perfluorooctanoic Acid (PFOA)	ND	2.00	0.236	U
27619-97-2	1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	ND	2.00	1.33	U
375-92-8	Perfluoroheptanesulfonic Acid (PFHpS)	ND	2.00	0.688	U
375-95-1	Perfluorononanoic Acid (PFNA)	ND	2.00	0.312	U
1763-23-1	Perfluorooctanesulfonic Acid (PFOS)	ND	2.00	0.504	U
335-76-2	Perfluorodecanoic Acid (PFDA)	ND	2.00	0.304	U
39108-34-4	1H,1H,2H,2H-Perfluorodecanesulfonic Acid (8:2FTS)	ND	2.00	1.21	U
2355-31-9	N-Methyl Perfluorooctanesulfonamidoaceti c Acid (NMeFOSAA)	ND	2.00	0.648	U
2058-94-8	Perfluoroundecanoic Acid (PFUnA)	ND	2.00	0.260	U
335-77-3	Perfluorodecanesulfonic Acid (PFDS)	ND	2.00	0.980	U
754-91-6	Perfluorooctanesulfonamide (FOSA)	ND	2.00	0.580	U
2991-50-6	N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	ND	2.00	0.804	U

Results Summary
Form 1
Perfluorinated Alkyl Acids by Isotope Dilution

Client	: JMT, Inc.	Lab Number	: L2127266
Project Name	: ROTH STEEL	Project Number	: 16-S0140N
Lab ID	: WG1505152-1	Date Collected	: NA
Client ID	: WG1505152-1BLANK	Date Received	: NA
Sample Location	:	Date Analyzed	: 06/03/21 07:42
Sample Matrix	: WATER	Date Extracted	: 05/28/21
Analytical Method	: 134,LCMSMS-ID	Dilution Factor	: 1
Lab File ID	: I35667	Analyst	: HT
Sample Amount	: 250 g	Instrument ID	: LCMS01
Extraction Method	: ALPHA 23528	GC Column	: Acquity UPLC BEH C18
Extract Volume	: 1000 uL	%Solids	: N/A
GPC Cleanup	: N	Injection Volume	: 3 uL

		ng/l			
CAS NO.	Parameter	Results	RL	MDL	Qualifier
307-55-1	Perfluorododecanoic Acid (PFDoA)	ND	2.00	0.372	U
72629-94-8	Perfluorotridecanoic Acid (PFTrDA)	ND	2.00	0.327	U
376-06-7	Perfluorotetradecanoic Acid (PFTA)	ND	2.00	0.248	U
NONE	PFOA/PFOS, Total	ND	2.00	0.236	U

Field Duplicate Calculation Section

Semi-Volatiles (SIM 1,4-Dioxane)

Calculations for Field Duplicate Relative Percent Difference (RPD)
SDG No. L2127266

S1= MW-2A **S2=** DUPLICATE

Analyte	S1	S2	RPD (%)
1,4-Dioxane	2370	2590	9%

* RPD is above the allowable maximum (20%).

All results are in ng/L.

Bold numbers were values that are below the CRQL or above the high standard.
ND - Not detected.
NC - Not calculated, both results must be within the linear range for valid RPDs to be calculated.

EPA Method 537 PFC

Calculations for Field Duplicate Relative Percent Difference (RPD)

SDG No. L2127266

S1= MW-2A **S2=** DUPLICATE

Analyte	S1	S2	RPD (%)
Perfluorobutanoic Acid (PFBA)	116	135	15%
Perfluoropentanoic Acid (PFPeA)	176	190	8%
Perfluorobutanesulfonic Acid (PFBS)	39.9	36.3	9%
Perfluorohexanoic Acid (PFHxA)	174	193	10%
Perfluoroheptanoic Acid (PFHpA)	80.9	88.1	9%
Perfluorohexanesulfonic Acid (PFHxS)	187	193	3%
Perfluorooctanoic Acid (PFOA)	334	382	13%
1H,1H,2H,2H-Perfluorooctanesulfonic Acid (6:2FTS)	56.9	59.6	5%
Perfluoroheptanesulfonic Acid (PFHpS)	19.4	22.0	13%
Perfluorononanoic Acid (PFNA)	21.0	23.5	11%
Perfluorooctanesulfonic Acid (PFOS)	**1530**	**1760**	NC
Perfluorodecanoic Acid (PFDA)	**0.544**	**0.562**	NC
PFOA/PFOS, Total	1840	1940	5%
Perfluorooctanesulfonic Acid (PFOS) RE	1510	1560	3%

* RPD is above the allowable maximum (20%).

All results are in ng/L.

Bold numbers were values that are below the CRQL or above the high standard.
ND - Not detected.
NC - Not calculated, both results must be within the linear range for valid RPDs to be calculated.

Semi-Volatiles (SIM 1,4-Dioxane)

Calculations for Field Duplicate Relative Percent Difference (RPD)

SDG No. L2127266

S1= MW-2A **S2=** DUPLICATE

Analyte	S1	S2	RPD (%)
1,4-Dioxane	2370	2590	9%

* RPD is above the allowable maximum (20%).

All results are in ng/L.

Bold numbers were values that are below the CRQL or above the high standard.
ND - Not detected.
NC - Not calculated, both results must be within the linear range for valid RPDs to be calculated.

Alpha Geoscience: Acronyms and Definitions

Data Validation Acronyms

AA	Atomic absorption, flame technique
BHC	Hexachlorocyclohexane
BFB	Bromofluorobenzene
CCB	Continuing calibration blank
CCC	Calibration check compound
CCV	Continuing calibration verification
CN	Cyanide
CRDL	Contract required detection limit
CRQL	Contract required quantitation limit
CVAA	Atomic adsorption, cold vapor technique
DCAA	2,4-Dichlophenylacetic acid
DCB	Decachlorobiphenyl
DFTPP	Decafluorotriphenyl phosphine
ECD	Electron capture detector
FAA	Atomic absorption, furnace technique
FID	Flame ionization detector
FNP	1-Fluoronaphthalene
GC	Gas chromatography
GC/MS	Gas chromatography/mass spectrometry
GPC	Gel permeation chromatography
ICB	Initial calibration blank
ICP	Inductively coupled plasma-atomic emission spectrometer
ICV	Initial calibration verification
IDL	Instrument detection limit
IS	Internal standard
LCS	Laboratory control sample
LCS/LCSD	Laboratory control sample/laboratory control sample duplicate
MSA	Method of standard additions
MS/MSD	Matrix spike/matrix spike duplicate
PID	Photo ionization detector
PCB	Polychlorinated biphenyl
PCDD	Polychlorinated dibenzodioxins
PCDF	Polychlorinated dibenzofurans
QA	Quality assurance
QC	Quality control
RF	Response factor
RPD	Relative percent difference
RRF	Relative response factor
RRF(number)	Relative response factor at concentration of the number following
RT	Retention time
RRT	Relative retention time
SDG	Sample delivery group
SPCC	System performance check compound
TCX	Tetrachloro-m-xylene
%D	Percent difference
%R	Percent recovery
%RSD	Percent relative standard deviation

Data Validation Qualifiers Used in the QA/QC Reviews for USEPA Region II

U	=	Not detected. The associated number indicates the approximate sample concentration necessary to be detected significantly greater than the level of the highest associated blank.
R	=	Unreliable result; data is rejected or unusable. Analyte may or may not be present in the sample. Supporting data or information is necessary to confirm the result.
N	=	Tentative identification. Analyte is considered present. Special methods may be needed to confirm its presence or absence during future sampling efforts.
J	=	Analyte is present. Reported value may be associated with a higher level of uncertainty than is normally expected with the analytical method.
J-	=	Analyte is present. Reported value may be biased low and associated with a higher level of uncertainty than is normally expected with the analytical method.
J+	=	Analyte is present. Reported value may be biased high andassociated with a higher level of uncertainty than is normally expected with the analytical method.
UJ	=	Not detected, quantitation limit may be inaccurate or imprecise.

Note: These qualifiers are used for data validation purposes. The data validation qualifiers may differ from the qualifiers that the laboratory assigns to the data. Refer to the laboratory analytical report for the definitions of the laboratory qualifiers.

Polyfluorinated Alkyl Substances (PFAS) Acronyms

PFBA	Perfluorobutanoic acid
PFPeA	Perfluoropentanoic acid
PFHxA	Perfluorohexanoic acid
PFHpA	Perfluoroheptanoic acid
PFOA	Perfluorooctanoic acid
PFNA	Perfluorononanoic acid
PFDA	Perfluorodecanoic acid
PFUnA	Perfluoroundecanoic acid
PFDoA	Perfluorododecanoic acid
PFTriA or PFTrDA	Perfluorotridecanoic acid
PFTeA or PFTA	Perfluorotetradecanoic acid
PFBS	Perfluorobutanesulfonic acid
PFPeS	Perfluoropentanesulfonic acid
PFHxS	Perfluorohexanesulfonic acid
PFHpS	Perfluoroheptanesulfonic acid
PFOS	Perfluorooctanesulfonic acid
PFNS	Perfluorononanesulfonic acid
PFDS	Perfluorodecanesulfonic acid
FOSA	Perfluorooctane Sulfonamide
NMeFOSAA	N-methyl perfluorooctane sulfonamidoacetic acid
NEtFOSAA	N-ethyl perfluorooctane sulfonamidoacetic acid
4:2 FTS or 4:2	1H, 1H, 2H, 2H-perfluorohexanesulfonic acid
6:2 FTS or 6:2	1H, 1H, 2H, 2H-perfluorooctanesulfonic acid or 6:2 Fluorotelomersulfonate
8:2 FTS or 8:2	1H, 1H, 2H, 2H-perfluorodecanesulfonic acid or 8:2 Fluorotelomersulfonate

Well Sampling Logs

WELL SAMPLING LOG

Well I.D.: MW-6

Project Name:	Former Roth Steel	Personnel Onsite:	Matthew Griffin	**Project No.:**	16-50140N
Client Name:		DEC: Yes / (No)		**Date:**	5/21/21
Location:	Syracuse	If yes, name:		**Logged By:**	MG
Weather/Temp.:	80°F Sunny			**Checked By:**	

WELL INFORMATION

Riser Diameter (I.D.):	2	inches
Screen Diameter (I.D.):	~~5~~ 2	ft
Screened Interval:	5-15	ft
Reported Well Depth:	17.00	ft
Field Well Depth:	16.00	ft

FIELD MEASUREMENTS

Sand/Silt Accumulation:	1	ft
Depth to Water:	5.98	ft
Well Water Volume:	1.64	gallons
3 Well Volumes:	5	gallons

Time (minutes)	Volume Removed (gallons)	DTW (ft) 1 ft total	Temp (C) 3%	DO (%) 10%	Cond (mS/cm) 3%	ORP (mV) 10 mV	pH 0-1 units	Turbidity (NTU) 10% or 1 NTU
0	0	6.41	12	21.3	5967	-33.3	10.41	61.3
5	0.75	6.93	12	10.6	5959	-97.9	10.63	55.8
10	1.5	7.0	12	6.4	5955	-98.4	10.91	53.1
15	2.25	7.0	12	5.1	5978	-99.1	11.0	52.6
20	3.0	7.0	12	4.4	5996	-101.3	11.3	52.3
25	3.75	7.0	12	3.3	6021	-122	11.3	51.9
30	4.5	7.0	12	2.3	6057	-151.3	11.3	50.3
35	5.25	7.0	12	2.1	6055	-154.1	11.3	50.6
40	6.0	7.0	12	2.0	6056	-156.8	11.3	50.3
45								
50								
55								
60								
65								
70								
75								
80								
85								
90								
95								
100								
105								
110								
115								
120								
125								
130								

Sample Date:

Start Time: 1215 (24 hr format)

End Time: 1255 (24 hr format)

Sample Time: 1300 (24 hr format)

Equipment Used/Serial Numbers

YSI
Turb. meter
Geopump

Analytical Tests Conducted

Laboratory
Alpha

Samples Delivered Via
Delivered to Albany service center

Total Static Water Level Drawdown
0.59 ft

At the time of sampling take note of the following:

Odor:	Sheen:	Sediment:	Color:
Yes / No	Yes / No	Yes / No	

Purge Water Disposal Method:

Additional Notes (equipment malfunctions, condition of well, etc.):

WELL SAMPLING LOG

Well I.D.: MW-2A + MS MSD Dup.

Project Name:	Former Roth steel	Personnel Onsite:	Matthew Gaffin	**Project No.:**	16-50140 N
Client Name:		DEC: Yes / ~~No~~		**Date:**	5/21/21
Location:	Syracuse	If yes, name:		**Logged By:**	MG
Weather/Temp.:	80°F sunny			**Checked By:**	

WELL INFORMATION

Riser Diameter (I.D.):	2	inches
Screen Diameter (I.D.):	2	ft
Screened Interval:	5-15	ft
Reported Well Depth:	~~17.07~~	ft
Field Well Depth:	17.11	ft

FIELD MEASUREMENTS

Sand/Silt Accumulation:	0	ft
Depth to Water:	8.38	ft
Well Water Volume:	~~0.7~~ 1.5	gallons
3 Well Volumes:	5	gallons

Time (minutes)	Volume Removed (gallons)	DTW (ft) 1 ft total	Temp (C) 3%	DO (%) 10%	Cond (mS/cm) 3%	ORP (mV) 10 mV	pH 0-1 units	Turbidity (NTU) 10% or 1 NTU
0	0	8.38	12	6.1	1937	32.1	4.0	42.8
5	0.75	8.39	12	4.1	1898	-39.3	5.4	31.3
10	1.5	8.40	12	2.3	1846	-141.2	6.9	20.6
15	2.25	8.41	12	1.1	1812	-147.3	7.3	16.5
20	3.0	8.41	12	0.9	1799	-121.3	6.8	4.84
25	3.75	8.41	12	0.8	1779	-112.5	6.6	2.51
30	4.5	8.41	12	0.8	1769	-81.3	6.3	1.31
35	5.25	8.41	12	0.7	1765	-74.8	6.2	1.23
40	6.0	8.41	12	0.7	1760	-73.9	6.1	1.16
45	~~6.75~~	8.41	12	0.7	1759	-73.6	6.1	1.15
50			~~12~~					
55								
60								
65								
70								
75								
80								
85								
90								
95								
100								
105								
110								
115								
120								
125								
130								

Sample Date: 5/21/21

Start Time: (24 hr format) 0915

End Time: (24 hr format) 1000

Sample Time: (24 hr format) 1000

Equipment Used/Serial Numbers

YSI
Turb. Meter
Geopump

Analytical Tests Conducted

PFAs, 1,4 Dioxane

Laboratory

Alpha

Samples Delivered Via

Delivered to Albany service center.

Total Static Water Level Drawdown

0.03 ft

At the time of sampling take note of the following:

Purge Water Disposal Method:

Odor:	Sheen:	Sediment:	Color:
Yes / No	Yes / No	Yes / No	

Additional Notes (equipment malfunctions, condition of well, etc.):

WELL SAMPLING LOG

Well I.D.: MW-3R

Project Name:	Former Roth Steel	Personnel Onsite:	Matthew Coffin	**Project No.:**	16-50140N
Client Name:		DEC: Yes (No)		**Date:**	5/21/21
Location:	Lyncrest	If yes, name:		**Logged By:**	MG
Weather/Temp.:	80's sunny			**Checked By:**	

WELL INFORMATION

Riser Diameter (I.D.):	2	inches
Screen Diameter (I.D.):	[illegible]	ft
Screened Interval:	4-12	ft
Reported Well Depth:		ft
Field Well Depth:	15.98	ft

FIELD MEASUREMENTS

Sand/Silt Accumulation:	0	ft
Depth to Water:	7.71	ft
Well Water Volume:	1.35	gallons
3 Well Volumes:	4	gallons

Time (minutes)	Volume Removed (gallons)	DTW (ft) 1 ft total	Temp (C) 3%	DO (%) 10%	Cond (mS/cm) 3%	ORP (mV) 10 mV	pH 0-1 units	Turbidity (NTU) 10% or 1 NTU
0	0	8.21	13	1.7	760	-181.5	8.0	14.7
5	0.4	8.30	13	1.3	701	-203.1	8.3	9.82
10	0.8	8.30	13	1.1	684	-240.6	8.3	7.11
15	1.2	8.30	13	0.96	672	-240.	8.4	7.01
20	1.6	8.30	13	0.91	667	-237	8.5	8.0
25	2.0	8.30	13	0.81	658	-235	8.6	7.56
30	2.4	8.30	13	0.73	641	-233	8.9	6.31
35	2.8	8.30	13	0.56	634	-229	8.9	6.63
40	3.2	8.30	13	0.91	631	-224	8.9	6.95
45	3.6	8.30	13	0.33	631	-221	8.9	6.93
50	4	8.30	13	0.28	631	-221	8.9	6.91
55								
60								
65								
70								
75								
80								
85								
90								
95								
100								
105								
110								
115								
120								
125								
130								

Sample Date: 5/21/21

Start Time: (24 hr format) 1050

End Time: (24 hr format) 1140

Sample Time: (24 hr format) 1140

Equipment Used/Serial Numbers

YSI

Turbidity Meter

Geopump

Analytical Tests Conducted

PFAs, 1,4 Dioxane

Laboratory

Alpha

Samples Delivered Via

Delivered to Albany Service Center

Total Static Water Level Drawdown

0.09 ft

At the time of sampling take note of the following:

Odor:	Sheen:	Sediment:	Color:
Yes / No	Yes / No	Yes / No	

Purge Water Disposal Method:

Additional Notes (equipment malfunctions, condition of well, etc.):

Field Blank taken @ 0910

Equipment Blank taken @ 0900