



Final Report

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

PWSID: 1250013
System Name: Red Wing
City: Red Wing

Program Code: JB

Type: X

Date Received: 12/22/21 11:51
Rep. Temp. (°C): 4.3

Collector Name: Luke Anderson
Collector ID: 8089

MDH Sample Number: 21L0895-01

Location ID: D01
Sampling Point: Field Blank
Field Number: FB1250013

Collect Date: 12/20/21
Collect Time: 08:20
Matrix: Drinking Water

Field Residual Chlorine Result: None
Field Fluoride Result: None
Field pH Result: None
Field PO₄ Result: None

Results were produced by the Minnesota Department of Health, except where noted.

PFAS in Water 533

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
11-Chloroeicosafluoro-3-oxaundecane (11Cl-PF3OUdS)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	
9-Chlorohexadecafluoro-3-oxanonane-1-s(9Cl-PF3ONS)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	
N-ethyl perfluorooctanesulfonamidoacetic(NEt	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	
Nonfluoro-3,6-dioxaheptanoic acid (NFDHA)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	
Perfluoro-3-methoxypropanoic acid (PFMPA)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	
Perfluoro-4-methoxybutanoic acid (PFMBA)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	
Perfluorobutanesulfonate (PFBS)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	
Perfluorobutanoic acid (PFBA)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	
Perfluorodecanoic acid (PFDA)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	
Perfluorododecanoic acid (PFDoA)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	
Perfluoroheptanoic acid (PFHpA)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	
Perfluoroheptasulfonate (PFHpS)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	
Perfluorohexanesulfonate (PFHxS)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	

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Paul Moyer, Environmental Laboratory Manager
Public Health Laboratory, Minnesota Department of Health



Final Report

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

PWSID: 1250013

MDH Sample Number: 21L0895-01

Location ID: D01
Sampling Point: Field Blank
Field Number: FB1250013

Collect Date: 12/20/21
Collect Time: 08:20
Matrix: Drinking Water

Field Residual Chlorine Result: None
Field Fluoride Result: None
Field pH Result: None
Field PO₄ Result: None

Results were produced by the Minnesota Department of Health, except where noted.

PFAS in Water 533 - Continued

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
Perfluorohexanoic acid (PFHxA)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	
Perfluorononanoic acid (PFNA)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	
Perfluorooctanesulfonate (PFOS)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	
Perfluorooctanoic acid (PFOA)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	
Perfluoropentanoic acid (PFPeA)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	
Perfluoropentasulfonate (PFPeS)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	
Perfluoroundecanoic acid (PFUnA)	<	5.1	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:25	JLD	EPA 533	

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Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

PWSID: 1250013

MDH Sample Number: 21L0895-02

Location ID: S09
Sampling Point: Red Wing # 8-2
Field Number: S09

Collect Date: 12/20/21
Collect Time: 08:20
Matrix: Drinking Water

Field Residual Chlorine Result: None
Field Fluoride Result: None
Field pH Result: None
Field PO₄ Result: None

Results were produced by the Minnesota Department of Health, except where noted.

PFAS in Water 533

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
11-Chloroeicosafluoro-3-oxaundecane (11Cl-PF3OUdS)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
9-Chlorohexadecafluoro-3-oxanonane-1-s(9Cl-PF3ONS)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
N-ethyl perfluorooctanesulfonamidoacetic(NEt)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
Perfluoro-3-methoxypropanoic acid (PFMPA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
Perfluoro-4-methoxybutanoic acid (PFMBA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
Perfluorobutanesulfonate (PFBS)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
Perfluorobutanoic acid (PFBA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
Perfluorodecanoic acid (PFDA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
Perfluorododecanoic acid (PFDoA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
Perfluoroheptanoic acid (PFHpA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
Perfluoroheptasulfonate (PFHpS)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
Perfluorohexanesulfonate (PFHxS)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
Perfluorohexanoic acid (PFHxA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
Perfluorononanoic acid (PFNA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
Perfluorooctanesulfonate (PFOS)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
Perfluorooctanoic acid (PFOA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
Perfluoropentanoic acid (PFPeA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
Perfluoropentasulfonate (PFPeS)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	
Perfluoroundecanoic acid (PFUnA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:39	JLD	EPA 533	

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Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

PWSID: 1250013

MDH Sample Number: 21L0895-03

Location ID: E06

Collect Date: 12/20/21

Field Residual Chlorine Result: None

Sampling Point: Charlson Crest Treatment Plant, Well #8-1

Collect Time: 08:25

Field Fluoride Result: None

Field Number: E06

Matrix: Drinking Water

Field pH Result: None

Field PO₄ Result: None

Results were produced by the Minnesota Department of Health, except where noted.

PFAS in Water 533

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
11-Chloroeicosafluoro-3-oxaundecane (11Cl-PF3OUdS)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
9-Chlorohexadecafluoro-3-oxanonane-1-s(9Cl-PF3ONS)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
N-ethyl perfluorooctanesulfonamidoacetic(NEt)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
Perfluoro-3-methoxypropanoic acid (PFMPA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
Perfluoro-4-methoxybutanoic acid (PFMBA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
Perfluorobutanesulfonate (PFBS)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
Perfluorobutanoic acid (PFBA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
Perfluorodecanoic acid (PFDA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
Perfluorododecanoic acid (PFDoA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
Perfluoroheptanoic acid (PFHpA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
Perfluoroheptasulfonate (PFHpS)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
Perfluorohexanesulfonate (PFHxS)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
Perfluorohexanoic acid (PFHxA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
Perfluorononanoic acid (PFNA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
Perfluorooctanesulfonate (PFOS)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
Perfluorooctanoic acid (PFOA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
Perfluoropentanoic acid (PFPeA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
Perfluoropentasulfonate (PFPeS)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	
Perfluoroundecanoic acid (PFUnA)	<	4.7	ng/L	B2A0397	01/03/22 06:22	01/03/22 11:53	JLD	EPA 533	

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Public Health Laboratory, Minnesota Department of Health



Final Report

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

PWSID: 1250013

MDH Sample Number: 21L0895-04

Location ID: S06
Sampling Point: Red Wing # 7-2
Field Number: S06

Collect Date: 12/20/21
Collect Time: 08:45
Matrix: Drinking Water

Field Residual Chlorine Result: None
Field Fluoride Result: None
Field pH Result: None
Field PO₄ Result: None

Results were produced by the Minnesota Department of Health, except where noted.

PFAS in Water 533

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
11-Chloroeicosafluoro-3-oxaundecane (11Cl-PF3OUdS)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
9-Chlorohexadecafluoro-3-oxanonane-1-s(9Cl-PF3ONS)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
N-ethyl perfluorooctanesulfonamidoacetic(NEt)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
Perfluoro-3-methoxypropanoic acid (PFMPA)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
Perfluoro-4-methoxybutanoic acid (PFMBA)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
Perfluorobutanesulfonate (PFBS)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
Perfluorobutanoic acid (PFBA)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
Perfluorodecanoic acid (PFDA)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
Perfluorododecanoic acid (PFDoA)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
Perfluoroheptanoic acid (PFHpA)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
Perfluoroheptasulfonate (PFHpS)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
Perfluorohexanesulfonate (PFHxS)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
Perfluorohexanoic acid (PFHxA)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
Perfluorononanoic acid (PFNA)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
Perfluorooctanesulfonate (PFOS)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
Perfluorooctanoic acid (PFOA)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
Perfluoropentanoic acid (PFPeA)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
Perfluoropentasulfonate (PFPeS)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	
Perfluoroundecanoic acid (PFUnA)	<	4.9	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:06	JLD	EPA 533	

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Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

PWSID: 1250013

MDH Sample Number: 21L0895-05

Location ID: E05

Collect Date: 12/20/21

Field Residual Chlorine Result: None

Sampling Point: Twin Bluff Treatment Plant, Wells #7-1 and #7-2 Collect Time: 08:55

Field Fluoride Result: None

Field Number: E05

Matrix: Drinking Water

Field pH Result: None

Field PO₄ Result: None

Results were produced by the Minnesota Department of Health, except where noted.

PFAS in Water 533

Analyte	Result	Reporting Limit	Units	Batch	Prepared	Analyzed	Init.	Method	Qualifiers
11-Chloroeicosafluoro-3-oxaundecane (11Cl-PF3OUdS)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
9-Chlorohexadecafluoro-3-oxanonane-1-s(9Cl-PF3ONS)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
N-ethyl perfluorooctanesulfonamidoacetic(NEt)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
Perfluoro-3-methoxypropanoic acid (PFMPA)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
Perfluoro-4-methoxybutanoic acid (PFMBA)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
Perfluorobutanesulfonate (PFBS)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
Perfluorobutanoic acid (PFBA)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
Perfluorodecanoic acid (PFDA)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
Perfluorododecanoic acid (PFDoA)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
Perfluoroheptanoic acid (PFHpA)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
Perfluoroheptasulfonate (PFHpS)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
Perfluorohexanesulfonate (PFHxS)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
Perfluorohexanoic acid (PFHxA)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
Perfluorononanoic acid (PFNA)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
Perfluorooctanesulfonate (PFOS)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
Perfluorooctanoic acid (PFOA)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
Perfluoropentanoic acid (PFPeA)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
Perfluoropentasulfonate (PFPeS)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	
Perfluoroundecanoic acid (PFUnA)	<	4.8	ng/L	B2A0397	01/03/22 06:22	01/03/22 12:20	JLD	EPA 533	

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Paul Moyer, Environmental Laboratory Manager
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Final Report

Minnesota Department of Health
Public Health Laboratory
Environmental Laboratory Section
601 Robert St. N., P.O. Box 64899
St. Paul, MN 55164-0899
651-201-5300

PWSID: 1250013

Results were produced by Minnesota Department of Health, except where noted.

Batch B2A0397 - PFAS in Water by 533

Blank (B2A0397-BLK1)

Prepared: 01/03/22 06:22 Analyzed: 01/03/22 11:12

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
11-Chloroeicosafluoro-3-oxaundecane (11Cl-PF3OUdS)	<	5.0	ng/L							JLD	
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	<	5.0	ng/L							JLD	
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	<	5.0	ng/L							JLD	
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	<	5.0	ng/L							JLD	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<	5.0	ng/L							JLD	
9-Chlorohexadecafluoro-3-oxanonane-1-s(9Cl-PF3ONS)	<	5.0	ng/L							JLD	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	<	5.0	ng/L							JLD	
N-ethyl perfluorooctanesulfonamidoacetic(NEtF OSAA)	<	5.0	ng/L							JLD	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	<	5.0	ng/L							JLD	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	<	5.0	ng/L							JLD	
Perfluoro-3-methoxypropanoic acid (PFMPA)	<	5.0	ng/L							JLD	
Perfluoro-4-methoxybutanoic acid (PFMBA)	<	5.0	ng/L							JLD	
Perfluorobutanesulfonate (PFBS)	<	5.0	ng/L							JLD	
Perfluorobutanoic acid (PFBA)	<	5.0	ng/L							JLD	
Perfluorodecanoic acid (PFDA)	<	5.0	ng/L							JLD	
Perfluorododecanoic acid (PFDoA)	<	5.0	ng/L							JLD	
Perfluoroheptanoic acid (PFHpA)	<	5.0	ng/L							JLD	
Perfluoroheptasulfonate (PFHpS)	<	5.0	ng/L							JLD	
Perfluorohexanesulfonate (PFHxS)	<	5.0	ng/L							JLD	
Perfluorohexanoic acid (PFHxA)	<	5.0	ng/L							JLD	
Perfluorononanoic acid (PFNA)	<	5.0	ng/L							JLD	
Perfluorooctanesulfonate (PFOS)	<	5.0	ng/L							JLD	
Perfluorooctanoic acid (PFOA)	<	5.0	ng/L							JLD	
Perfluoropentanoic acid (PFPeA)	<	5.0	ng/L							JLD	
Perfluoropentasulfonate (PFPeS)	<	5.0	ng/L							JLD	
Perfluoroundecanoic acid (PFUnA)	<	5.0	ng/L							JLD	

Matrix Spike (B2A0397-MS1)

Source: 21L0898-02

Prepared: 01/03/22 06:22 Analyzed: 01/03/22 13:28

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Batch B2A0397 - PFAS in Water by 533

Matrix Spike (B2A0397-MS1)		Source: 21L0898-02			Prepared: 01/03/22 06:22 Analyzed: 01/03/22 13:28						
Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
11-Chloroeicosafluoro-3-oxaundecane (11Cl-PF3OUdS)	33	5.0	ng/L	37.76	<	88	70-130			JLD	
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	34	5.0	ng/L	38.4	<	88	70-130			JLD	
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	32	5.0	ng/L	37.52	<	86	70-130			JLD	
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	35	5.0	ng/L	38.08	<	92	70-130			JLD	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	33	5.0	ng/L	37.84	<	87	70-130			JLD	
9-Chlorohexadecafluoro-3-oxanonane-1-s(9Cl-PF3ONS)	34	5.0	ng/L	37.36	<	91	70-130			JLD	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	36	5.0	ng/L	40	<	90	70-130			JLD	
N-ethyl perfluorooctanesulfonamidoacetic(NEtF OSAA)	36	5.0	ng/L	40	<	91	70-130			JLD	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	35	5.0	ng/L	40	<	87	70-130			JLD	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	32	5.0	ng/L	35.68	<	90	70-130			JLD	
Perfluoro-3-methoxypropanoic acid (PFMPA)	35	5.0	ng/L	40	<	89	70-130			JLD	
Perfluoro-4-methoxybutanoic acid (PFMBA)	36	5.0	ng/L	40	<	90	70-130			JLD	
Perfluorobutanesulfonate (PFBS)	32	5.0	ng/L	35.52	<	91	70-130			JLD	
Perfluorobutanoic acid (PFBA)	36	5.0	ng/L	40	<	89	70-130			JLD	
Perfluorodecanoic acid (PFDA)	37	5.0	ng/L	40	<	91	70-130			JLD	
Perfluorododecanoic acid (PFDoA)	36	5.0	ng/L	40	<	90	70-130			JLD	
Perfluoroheptanoic acid (PFHpA)	35	5.0	ng/L	40	<	88	70-130			JLD	
Perfluoroheptasulfonate (PFHpS)	36	5.0	ng/L	38.16	<	94	70-130			JLD	
Perfluorohexanesulfonate (PFHxS)	32	5.0	ng/L	36.48	<	88	70-130			JLD	
Perfluorohexanoic acid (PFHxA)	36	5.0	ng/L	40	<	89	70-130			JLD	
Perfluorononanoic acid (PFNA)	36	5.0	ng/L	40	<	89	70-130			JLD	
Perfluorooctanesulfonate (PFOS)	34	5.0	ng/L	37.12	<	91	70-130			JLD	
Perfluorooctanoic acid (PFOA)	35	5.0	ng/L	40	<	89	70-130			JLD	
Perfluoropentanoic acid (PFPeA)	35	5.0	ng/L	40	<	88	70-130			JLD	
Perfluoropentasulfonate (PFPeS)	32	5.0	ng/L	37.6	<	85	70-130			JLD	
Perfluoroundecanoic acid (PFUnA)	36	5.0	ng/L	40	<	91	70-130			JLD	

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651-201-5300

PWSID: 1250013

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Batch B2A0397 - PFAS in Water by 533

Matrix Spike Dup (B2A0397-MSD1)

Source: 21L0898-02

Prepared: 01/03/22 06:22 Analyzed: 01/03/22 13:42

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Init.	Qualifiers
11-Chloroeicosafluoro-3-oxaundecane (11Cl-PF3OUdS)	34	5.1	ng/L	38.14	<	90	70-130	4	30	JLD	
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	36	5.1	ng/L	38.78	<	92	70-130	6	30	JLD	
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	34	5.1	ng/L	37.89	<	89	70-130	5	30	JLD	
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	34	5.1	ng/L	38.46	<	89	70-130	2	30	JLD	
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	35	5.1	ng/L	38.22	<	91	70-130	5	30	JLD	
9-Chlorohexadecafluoro-3-oxanonane-1-s(9Cl-PF3ONS)	35	5.1	ng/L	37.73	<	92	70-130	3	30	JLD	
Hexafluoropropylene oxide dimer acid (HFPO-DA)	38	5.1	ng/L	40.40	<	94	70-130	5	30	JLD	
N-ethyl perfluorooctanesulfonamidoacetic(NEtF OSAA)	37	5.1	ng/L	40.40	<	92	70-130	3	30	JLD	
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	40	5.1	ng/L	40.40	<	98	70-130	13	30	JLD	
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	33	5.1	ng/L	36.04	<	92	70-130	4	30	JLD	
Perfluoro-3-methoxypropanoic acid (PFMPA)	37	5.1	ng/L	40.40	<	93	70-130	5	30	JLD	
Perfluoro-4-methoxybutanoic acid (PFMBA)	37	5.1	ng/L	40.40	<	91	70-130	2	30	JLD	
Perfluorobutanesulfonate (PFBS)	33	5.1	ng/L	35.87	<	93	70-130	3	30	JLD	
Perfluorobutanoic acid (PFBA)	37	5.1	ng/L	40.40	<	91	70-130	3	30	JLD	
Perfluorodecanoic acid (PFDA)	38	5.1	ng/L	40.40	<	93	70-130	3	30	JLD	
Perfluorododecanoic acid (PFDoA)	38	5.1	ng/L	40.40	<	95	70-130	6	30	JLD	
Perfluoroheptanoic acid (PFHpA)	37	5.1	ng/L	40.40	<	93	70-130	6	30	JLD	
Perfluoroheptasulfonate (PFHpS)	37	5.1	ng/L	38.54	<	97	70-130	5	30	JLD	
Perfluorohexanesulfonate (PFHxS)	34	5.1	ng/L	36.84	<	92	70-130	5	30	JLD	
Perfluorohexanoic acid (PFHxA)	38	5.1	ng/L	40.40	<	94	70-130	6	30	JLD	
Perfluorononanoic acid (PFNA)	37	5.1	ng/L	40.40	<	92	70-130	4	30	JLD	
Perfluorooctanesulfonate (PFOS)	35	5.1	ng/L	37.49	<	92	70-130	2	30	JLD	
Perfluorooctanoic acid (PFOA)	37	5.1	ng/L	40.40	<	91	70-130	4	30	JLD	
Perfluoropentanoic acid (PFPeA)	37	5.1	ng/L	40.40	<	91	70-130	5	30	JLD	
Perfluoropentasulfonate (PFPeS)	35	5.1	ng/L	37.98	<	92	70-130	9	30	JLD	
Perfluoroundecanoic acid (PFUnA)	38	5.1	ng/L	40.40	<	94	70-130	4	30	JLD	

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651-201-5300

PWSID: 1250013

Data Qualifiers and Definitions

J Analyte was present between the method detection limit and reporting limit and should be considered an estimated value.

Work Order Comments

Samples were received in proper condition.

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