

June 15, 2022
File No. 25221094.00

Mr. Matt Vitale
Wisconsin Department of Natural Resources
1300 W Clairemont Ave.
Eau Claire, WI 54701-6127

Subject: Site Investigation Status Update
Blackhawk Drycleaners, 700 East Blackhawk Ave., Prairie du Chien, WI
BRRTS #02-12-552357 and #06-12-587767

Dear Mr. Vitale:

SCS Engineers (SCS) has prepared this Site Investigation Status Update for the Blackhawk Drycleaners site (**Figures 1 and 2**). It provides a summary of additional groundwater sampling required per your emails dated April 22, 2022, and May 16, 2022. The sampling was performed on May 12, 2022. Sampling and data evaluation methods and findings are summarized below.

METHODS

Monitoring wells MW-01R, MW-02, MW-03, MW-04, MW-05 and MW-8 were sampled for per- and polyfluoroalkyl substances (PFAS) to further evaluate the degree and extent of PFAS in groundwater. Monitoring wells MW-03 and MW-04 were also sampled for volatile organic compounds (VOCs) to further evaluate tetrachloroethylene (PCE) concentration trends for these wells.

Water levels were measured at all site monitoring wells prior to sampling. The groundwater samples were collected with low-flow sampling methods using new sample tubing for each well. Quality assurance samples, including a duplicate sample from monitoring well MW-03, a field blank, an equipment blank from sample tubing, and a trip blank were collected. All samples were properly containerized, preserved, and submitted to Eurofins of University Park, Illinois, for analysis.

As requested, PCE concentrations and water levels for wells MW-03 and MW-04 were plotted to evaluate the potential influence of groundwater elevation on contaminant concentrations. Semi-log plots were prepared consistent with Wisconsin Department of Natural Resources (WDNR) natural attenuation guidance documents RR-699 and RR-614.

FINDINGS

The laboratory report for the May 2022 sampling event is provided in **Attachment A** and analytical results are summarized in **Tables 1 and 2**. Water level measurements are provided in **Table 3** and a water table contour map is provided as **Figure 3**. PCE and water level trends for wells MW-03 and MW-04 are provided in **Attachment B**. Additional details are provided below.

- PFAS were detected in samples from all six monitoring wells that were sampled; however, only the sample from well MW-04 exceeded U.S. Environmental Protection Agency (U.S. EPA) PFAS Health Advisory (HA) levels.



- PCE was detected in samples from monitoring wells MW-03 and MW-04 at concentrations exceeding the NR 140 preventive action limit (PAL) but less than the enforcement standard (ES).
- PCE concentrations for wells MW-03 and MW-04 continue to decline, likely due to natural attenuation via abiotic processes, such as adsorption, advection, and dispersion as opposed to biotic processes such as reductive dechlorination.
- Changes in groundwater elevation can produce fluctuations in groundwater contaminant concentrations. For example, if a rising water table were to intercept a zone of contaminated soil, it is possible that the groundwater contaminant concentrations would increase due to contact with this soil. However, the changes in PCE concentrations at this site do not strongly correlate with fluctuating groundwater elevations as evidenced by relatively low coefficients of determination (R^2) for concentration versus groundwater elevation plots.
- Groundwater elevations for the May 2022 event were the highest on record for the monitoring well network, but only slightly higher than observed in April of 2021.
- Groundwater flow for the May 2022 sampling event was to the north, whereas prior flow maps have shown flow more westerly; however, the groundwater gradient at the site is relatively flat such that periods of heavy precipitation, fluctuating Mississippi River levels, or cycling of nearby municipal wells could potentially produce temporary changes in groundwater flow direction.

CONCLUSIONS

VOCs and PFAS appear to be commingled in groundwater, with the highest concentrations found immediately downgradient of the former dry cleaning facility. The extents of these constituents are relatively well defined by the existing monitoring well network, with the highest concentrations being primarily limited to the source property. VOCs have not been detected in excess of WDNR ESs, and PFAS have not been detected in excess of U.S. EPA HA levels in samples collected from off-site monitoring wells.

The groundwater PCE plume appears to be stable or receding based on long-term PCE trends. The decreasing PCE concentrations do not appear to be related to changes in groundwater elevation. Instead, natural degradation of PCE through abiotic means appears to be the primary source of PCE degradation. These processes will likely bring groundwater into compliance with NR 140 standards within a reasonable period of time, given that the source of contamination is no longer present, the relatively low concentrations, the limited extent of the plume, and the lack of downgradient drinking water receptors.

Based on the findings to date, we request your concurrence that no further sampling is necessary for the purposes of delineating or assessing contaminant sources, such that once the remaining off-site vapor sampling is completed we can submit a Site Investigation Report with a Remedial Action Plan.

Please contact Robert Langdon at (608) 212-3995 or rlangdon@SCSEngineers.com if you have any questions concerning this letter.

Mr. Matt Vitale
June 15, 2022
Page 3

Sincerely,



Robert Langdon
Senior Project Manager
SCS Engineers



Mark R. Huber, PE
Project Director
SCS Engineers

REL/jsn_REO/MRH

cc: Garth Fable, City of Prairie du Chien

Attachments: Table 1 – Groundwater Analytical Results Summary – VOCs
Table 2 – Groundwater Analytical Results Summary – PFAS
Table 3 – Water Level Summary
Figure 1 – Site Location Map
Figure 2 – Site Plan
Figure 3 – Water Table Map – May 12, 2022
Attachment A – Laboratory Analytical Report
Attachment B – Groundwater Trend Plots

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Tables

- 1 Groundwater Analytical Results Summary – VOCs
- 2 Groundwater Analytical Results Summary – PFAS
- 3 Water Level Summary

Table 1. Groundwater Analytical Results Summary - VOCs
Blackhawk Junction - Prairie du Chien, WI / SCS Engineers Project #25221094.00
 (Results are in µg/L)

Sample	Date	Lab Notes	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	Other VOCs
GP-1	4/16/2009	--	<u>1.2</u>	<0.15	<0.4	ND	ND	2-Butanone 12 Ethylbenzene 0.58
GP-2	4/16/2009	--	<u>16</u>	0.45	<0.4	ND	ND	Chloromethane 0.32
GP-3	4/16/2009	--	<u>37</u>	0.41	<0.4	ND	ND	Chloromethane 1.1
GP-4	7/24/2009	--	<u>64</u>	<u>0.81</u>	0.92	ND	ND	Chloromethane 0.61
GP-5	7/24/2009	--	<0.4	<0.15	<0.4	ND	ND	Chloromethane 2.1 Naphthalene 0.7
GP-6	2/17/2010	--	<u>2.6</u>	<0.15	<0.4	ND	ND	Chloromethane 0.3 Ethylbenzene 0.29 Toluene 0.78 m&p-Xylene 1.3 o-Xylene 0.82 1,2,4-Trimethylbenzene 1.1 1,3,5-Trimethylbenzene 0.25
GP-7	2/17/2010	--	<u>13</u>	<0.15	<0.4	ND	ND	Chloromethane 0.32 Toluene 0.45 m&p-Xylene 0.71 1,2,4-Trimethylbenzene 0.84 1,3,5-Trimethylbenzene 0.2
SB-01-GW (18.7-30)	3/10/2020	--	<u>2.8</u>	<0.15	<0.20	<0.19	<0.099	ND
SB-02-GW (17.8-30)	3/10/2020	--	<u>2.6</u>	<0.15	<0.20	<0.19	<0.099	ND
SB-03-GW (18.8-30)	3/10/2020	--	<u>27.2</u>	<0.15	<0.20	<0.19	<0.099	ND

Table 1. Groundwater Analytical Results Summary - VOCs
Blackhawk Junction - Prairie du Chien, WI / SCS Engineers Project #25221094.00
 (Results are in µg/L)

Sample	Date	Lab Notes	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	Other VOCs
SB-04-GW (18.5-30)	3/10/2020	--	<u>5.1</u>	<0.15	<0.20	<0.19	<0.099	ND
	3/10/2020 (Dup)	--	<u>4.7</u>	<0.15	<0.20	<0.19	<0.099	ND
MW-01	2/1/2021	(1)	<u>0.92</u>	<0.15	<0.20	<0.19 v2	<0.099	ND
	4/7/2021	--	<1.0	<1.0	<1.0	<1.0	<1.0	ND
	6/23/2021	--	<u>0.66</u> J	<0.32	<0.47	<0.53	<0.17	ND
	8/23/2021	(4)	<u>0.61</u> J	<0.32	<0.47	<0.53	<0.17	ND
	2/17/2022	--	<u>0.69</u> J	<0.16	<0.41	<0.35	<0.20	ND
	2/17/2022 (DUP)	--	<u>0.83</u> J	<0.16	<0.41	<0.35	<0.20	ND
MW-02	2/1/2021	(2)	<u>11.9</u>	<0.15	<0.20	<0.19 v2	<0.099	ND
	4/8/2021	--	<u>8.7</u>	<1.0	<1.0	<1.0	<1.0	ND
	6/23/2021	(3)	<u>9.0</u>	<0.32	<0.47	<0.53	<0.17	ND
	8/23/2021	(6)	<u>12.6</u>	<0.32	<0.47	<0.53	<0.17	ND
	12/13/2021	--	<u>10.3</u>	<0.32	<0.47	<0.53	<0.17	ND
MW-03	2/2/2021	(2)	<u>25.2</u>	<0.15	<0.20	<0.19 v2	<0.099	ND
	4/8/2021	--	<u>5.2</u>	<1.0	<1.0	<1.0	<1.0	ND
	6/23/2021	(3)	<u>42.6</u>	<0.32	<0.47	<0.53	<0.17	ND
	8/23/2021	(6)	<u>13.1</u>	<0.32	<0.47	<0.53	<0.17	ND
	12/13/2021	--	<u>107</u>	<0.32	<0.47	<0.53	<0.17	ND
	12/13/2021 (Dup)	--	<u>108</u>	<0.32	<0.47	<0.53	<0.17	ND
	2/17/2022	--	<u>19</u>	<0.16	<0.41	<0.35	<0.20	Chloroform 0.45 J
	5/12/2022	--	<u>3.7</u>	<0.16	<0.41	<0.35	<0.20	p-Isopropyltoluene 0.42 J
	5/12/2022 (Dup)	--	<u>3.7</u>	<0.16	<0.41	<0.35	<0.20	ND

Table 1. Groundwater Analytical Results Summary - VOCs
Blackhawk Junction - Prairie du Chien, WI / SCS Engineers Project #25221094.00
 (Results are in µg/L)

Sample	Date	Lab Notes	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	Other VOCs
MW-04	2/2/2021	(2)	<u>228</u>	<u>0.64</u>	<0.20	<0.19 v2	<0.099	ND
	2/2/2021 (Dup)	(1)	<u>222</u>	<u>0.57</u>	<0.20	<0.19 v2	<0.099	ND
	4/8/2021	--	<u>8.3</u>	<1.0	<1.0	<1.0	<1.0	ND
	4/8/2021 (Dup)	--	<u>8.3</u>	<1.0	<1.0	<1.0	<1.0	ND
	6/23/2021	(3)	<u>196</u>	0.34 J	<0.47	<0.53	<0.17	ND
	6/23/2021 (Dup)	(3)	<u>202</u>	<0.32	<0.47	<0.53	<0.17	ND
	8/23/2021	(6)	<u>52.6</u>	<0.32	<0.47	<0.53	<0.17	Methylene Chloride 0.48 J
	12/13/2021	--	<u>87.3</u>	<0.32	<0.47	<0.53	<0.17	ND
	5/12/2022	--	<u>4.9</u>	<0.16	<0.41	<0.35	<0.20 F1	ND
MW-05	2/2/2021	(2)	<u>2.0</u>	<0.15	<0.20	<0.19 v2	<0.099	ND
	4/8/2021	--	<u>0.96</u> J	<1.0	<1.0	<1.0	<1.0	Methylene Chloride 0.34 J
	6/23/2021	(3)	<u>2.5</u>	<0.32	<0.47	<0.53	<0.17	ND
	8/23/2021	(4)	<u>2.1</u>	<0.32	<0.47	<0.53	<0.17	ND
	12/13/2021	--	<u>1.7</u>	<0.32	<0.47	<0.53	<0.17	Methylene Chloride <u>0.67</u> J
MW-6P	8/23/2021	(6)	<0.41	<0.32	<0.47	<0.53	<0.17	ND
	8/23/2021 (Dup)	(6)	0.49 J	<0.32	<0.47	<0.53	<0.17	ND
	12/13/2021	--	<0.41	<0.32	<0.47	<0.53	<0.17	ND
MW-7	8/23/2021	(5)	<0.41	<0.32	<0.47	<0.53	<0.17	ND
	12/13/2021	--	<0.41	<0.32	<0.47	<0.53	<0.17	ND

Table 1. Groundwater Analytical Results Summary - VOCs
Blackhawk Junction - Prairie du Chien, WI / SCS Engineers Project #25221094.00
 (Results are in µg/L)

Sample	Date	Lab Notes	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	Other VOCs
MW-8	8/23/2021	(4)	<0.41	<0.32	<0.47	<0.53	<0.17	ND
	12/13/2021	(7)	<0.41	<0.32	<0.47	<0.53	<0.17	ND
MW-8P	8/23/2021	--	<0.41	<0.32	<0.47	<0.53	<0.17	ND
	12/13/2021	--	<0.41	<0.32	<0.47	<0.53	<0.17	ND
Trip Blank	3/11/2020	--	<0.17	<0.15	<0.20	<0.19	<0.099	Methylene Chloride <u>1.4</u> J, C0
	2/1/2021	(2)	<0.17	<0.15	<0.20	<0.19 v2	<0.099	ND
	4/5/2021	--	<1.0	<1.0	<1.0	<1.0	<1.0	ND
	6/23/2021	--	<0.41	<0.32	<0.47	<0.53	<0.17	ND
	8/23/2021	--	<0.41	<0.32	<0.47	<0.53	<0.17	ND
	12/13/2021	--	<0.41	<0.32	<0.47	<0.53	<0.17	ND
	2/17/2022	--	<0.37	<0.16	<0.41	<0.35	<0.20	ND
	5/12/2022	--	<0.37	<0.16	<0.41	<0.35	<0.20	ND
Field Blank	2/2/2021	--	<0.17	<0.15	<0.20	<0.19	<0.099	Acetone 14.3
								2-Butanone (MEK) 1.1 J
								Diethyl ether (Ethyl Ether) 0.52 J
								Ethylbenzene 0.12 J
								4-Methyl-2-pentanone (MIBK) 0.77 J
								Toluene 0.33 J
								Xylenes (Total) 0.45 J
								m&p-Xylene 0.29 J
								o-Xylene 0.16 J

Table 1. Groundwater Analytical Results Summary - VOCs
Blackhawk Junction - Prairie du Chien, WI / SCS Engineers Project #25221094.00
 (Results are in µg/L)

Sample	Date	Lab Notes	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	Vinyl Chloride	Other VOCs	
NR 140 Enforcement Standards (ESs)			5	5	70	100	0.2	Acetone	9,000
								2-Butanone (MEK)	4,000
								Chloroform	6
								Chloromethane	30
								Diethyl ether (Ethyl ether)	1,000
								Ethylbenzene	700
								4-Methyl-2-pentanone (MIBK)	500
								Methylene Chloride	5
								Naphthalene	100
								Toluene	800
								1,2,4- and 1,3,5-Trimethylbenzene	480
								Xylenes (Total)	2,000
								m&p-Xylene	NE
								o-Xylene	NE
p-Isopropyltoluene	NE								
NR 140 Preventive Action Limits (PALs)			0.5	0.5	7	20	0.02	Acetone	1,800
								2-Butanone (MEK)	800
								Chloroform	0.6
								Chloromethane	3
								Diethyl ether (Ethyl ether)	100
								Ethylbenzene	140
								4-Methyl-2-pentanone (MIBK)	50
								Methylene Chloride	0.5
								Naphthalene	10
								Toluene	160
								1,2,4- and 1,3,5-Trimethylbenzene	96
								Xylenes (Total)	400
								m&p-Xylene	NE
								o-Xylene	NE
p-Isopropyltoluene	NE								

Abbreviations:

µg/L = micrograms per liter or parts per billion (ppb)
 PCE = Tetrachloroethene
 (Dup) = Duplicate Sample
 -- = Not Applicable

cis-1,2-DCE = cis-1,2-Dichloroethene
 TCE = Trichloroethene
 NA = Not Analyzed
 NE = No Standard Established

trans-1,2-DCE = trans-1,2-Dichloroethene
 VOCs = Volatile Organic Compounds
 ND = Not Detected

**Table 1. Groundwater Analytical Results Summary - VOCs
Blackhawk Junction - Prairie du Chien, WI / SCS Engineers Project #25221094.00**

Notes:

NR 140 ESs - Wisconsin Administrative Code (WAC), Chapter NR 140.10 Table 1 - Public Health Groundwater Quality Standards from February 2021.

NR 140 PALs - WAC, Chapter NR 140.10 Table 1 - Public Health Groundwater Quality Standards from February 2021.

All samples analyzed for full VOC list.

2009 and 2010 sample results from Ayers Associates Contamination Assessment reports (dated May 18, 2009 and March 18, 2010) available on Bureau for Remediation and Redevelopment Tracking System on the Web (BOTW).

March 10, 2020 sample results from April 23, 2020 Bay West LLC Phase II Environmental Site Assessment Report available on BOTW.

February and April 2021 sample results from May 2021 Bay West LLC Limited Site Investigation Report available on BOTW.

Bold+underlined values meet or exceed NR 140 ESs.

Italic+underlined values meet or exceed NR 140 PALs.

Laboratory Notes/Qualifiers:

1M = This analyte did not meet the secondary source verification criteria for the initial calibration. Analyte recovery exceeded the 130% upper control limit at 156%. Results may be biased high.

C0 = Result confirmed by second analysis.

J = Estimated concentration at or above the LOD and below the LOQ.

HS = Results are from sample aliquot taken from VOA vial with headspace (air bubble greater than 6 mm diameter).

L1 = Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results may be biased high.

M0 = Matrix spike recovery and/or matrix duplicate recovery was outside laboratory control limits.

v1 = The continuing calibration verification was above the method acceptance limit. Any detection for the analyte in the associated samples may have a high bias.

v2 = The continuing calibration verification was below the method acceptance limit. The analyte was not detected in the associated samples and the sensitivity of the instrument was verified with a reporting limit check standard.

F1 = MS and/or MSD recovery exceeds control limits.

(1) Allyl chloride, Bromoform, trans-1,3-Dichloropropene, Diethyl ether (Ethyl ether), and Methylene Chloride = v2

Bromomethane = 1M

(2) Allyl chloride, Bromoform, 1,3-Dichloropropane, Diethyl ether (Ethyl ether), and Methylene Chloride = v2

Bromomethane = 1M

(3) Carbon tetrachloride = L1

(4) Bromomethane, 1,1 Dichloroethene = L1

Bromomethane = v1

(5) Bromomethane, 1,1 Dichloroethene = L1

Bromomethane = v1, M0

(6) Bromomethane, 1,1 Dichloroethene = L1

(7) Surrogate 4-Bromofluorobenzene = HS

Created by: REL Date: 6/26/2021

Last revision by: REO Date: 6/1/2022

Checked by: AJR Date: 6/2/2022

Proj Mgr QA/QC: REL Date: 6/3/2022

Table 3. Water Level Summary
Blackhawk Junction - Prairie du Chien, WI / SCS Engineers Project # 25221094.00

Raw Data	Depth to Water in feet below top of well casing									
	MW-01	MW-01R	MW-02	MW-03	MW-04	MW-05	MW-6P	MW-7	MW-8	MW-8P
Measurement Date										
February 1, 2021	23.29	--	23.79	24.12	23.23	20.45	--	--	--	--
April 7, 2021	23.10	--	23.50	23.85	22.85	20.02	--	--	--	--
June 23, 2021	23.24	--	23.86	24.25	23.29	20.51	--	--	--	--
August 23, 2021	24.18	--	24.81	25.15	24.19	21.42	20.96	20.21	20.68	20.76
December 13, 2021	25.84	--	25.59	25.97	24.99	22.13	21.75	20.98	21.39	21.46
February 16, 2022	25.91	--	25.69	26.07	25.07	22.32	21.84	21.18	21.59	21.67
May 12, 2022	AB	22.40	23.00	23.40	22.40	19.41	19.12	18.38	18.62	18.74

Ground Water Elevation in feet, relative survey elevation										
Well Number	MW-01	MW1R	MW-02	MW-03	MW-04	MW-05	MW-6P	MW-7	MW-8	MW-8P
Top of Casing Elevation (feet amsl)	640.39	--	640.78	641.19	640.20	637.23	636.95	636.20	636.51	636.56
Screen Length (ft)	15	15	15	15	15	15	5	15	15	5
Total Depth (ft from top of casing)	31.4	32.7	30.4	32.7	32.3	29.8	55.4	29.1	29.8	64.9
Top of Well Screen Elevation (ft)	624.0	--	625.4	623.5	622.9	622.5	586.6	622.1	621.7	576.7
Measurement Date										
February 1, 2021	617.10	--	616.99	617.07	616.97	616.78	--	--	--	--
April 7, 2021	617.29	--	617.28	617.34	617.35	617.21	--	--	--	--
June 23, 2021	617.15	--	616.92	616.94	616.91	616.72	--	--	--	--
August 23, 2021	616.21	--	615.97	616.04	616.01	615.81	615.99	615.99	615.83	615.80
December 13, 2021	614.55	--	615.19	615.22	615.21	615.10	615.20	615.22	615.12	615.10
February 16, 2022	614.48	--	615.09	615.12	615.13	614.91	615.11	615.02	614.92	614.89
May 12, 2022	AB	--	617.78	617.79	617.80	617.82	617.83	617.82	617.89	617.82
Bottom of Well Elevation (ft)	609.04	--	610.37	608.45	607.94	607.48	581.60	607.10	606.72	571.71

Abbreviations:

AB = Abandoned

-- = Not Applicable

Notes:

1) February and April 2021 water levels and well construction details from May 2021 Bay West Limited Site Investigation Report.

Top of casing elevations from Quam Engineering, LLC survey performed August 23, 2021.

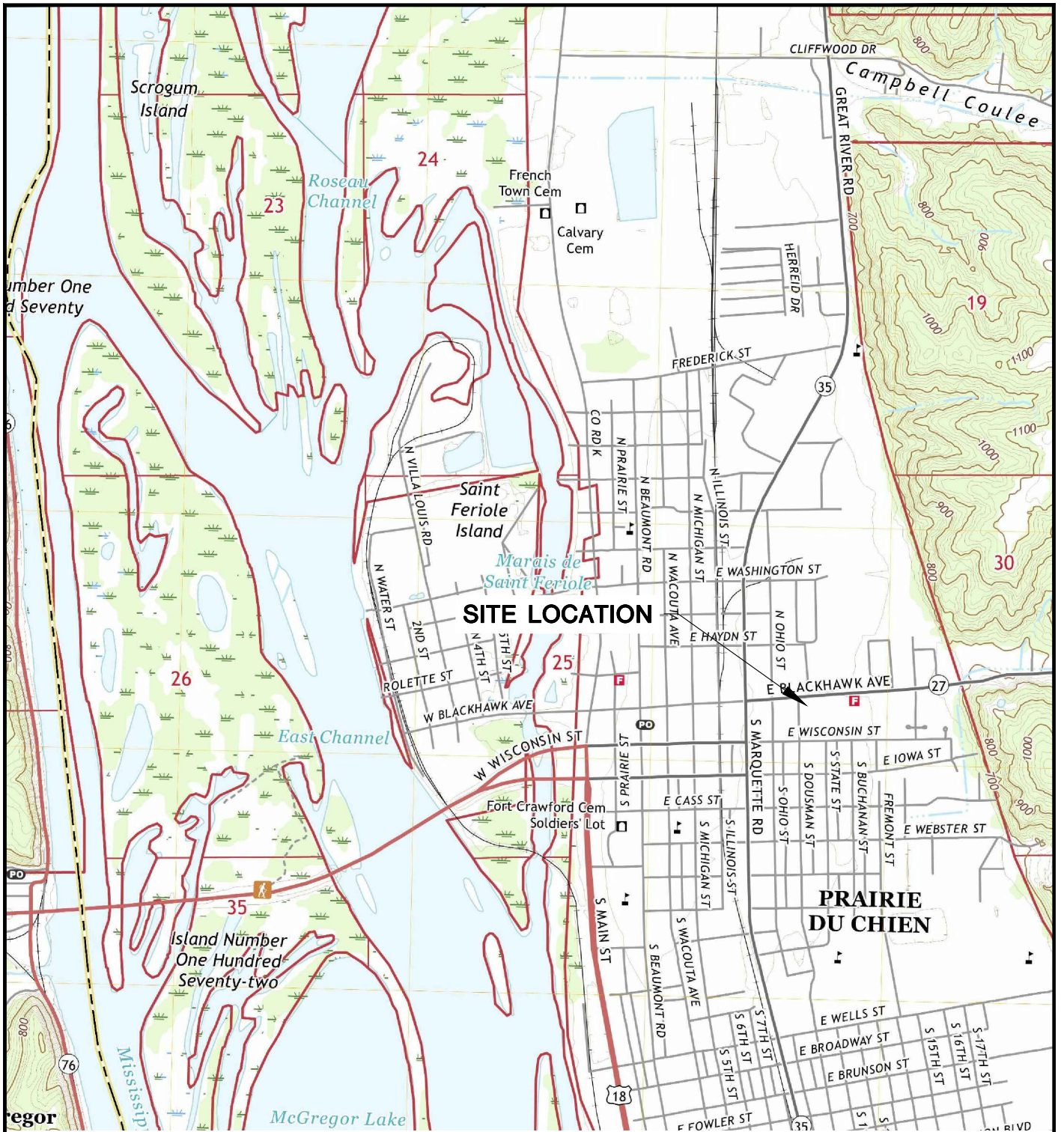
2) On December 13, 2021, SCS observed that monitoring well MW-01 had been damaged. The well had been struck and the PVC casing bent.

The top of casing elevation from the August 23, 2021 survey may no longer be accurate. MW-01 abandoned and replaced by MW-01R on March 4, 2022.

Created by:	REL	Date:	6/26/2021
Last revision by:	REL	Date:	5/16/2022
Checked by:	REO	Date:	5/16/2022
Proj Mgr QA/QC:	REL	Date:	5/17/2022

Figures

- 1 Site Location Map
- 2 Site Plan
- 3 Water Table Map – May 12, 2022



PRAIRIE DU CHIEN QUADRANGLE
 WISCONSIN-IOWA
 7.5 MINUTE SERIES (TOPOGRAPHIC)
 2018
 SCALE: 1" = 2,000'



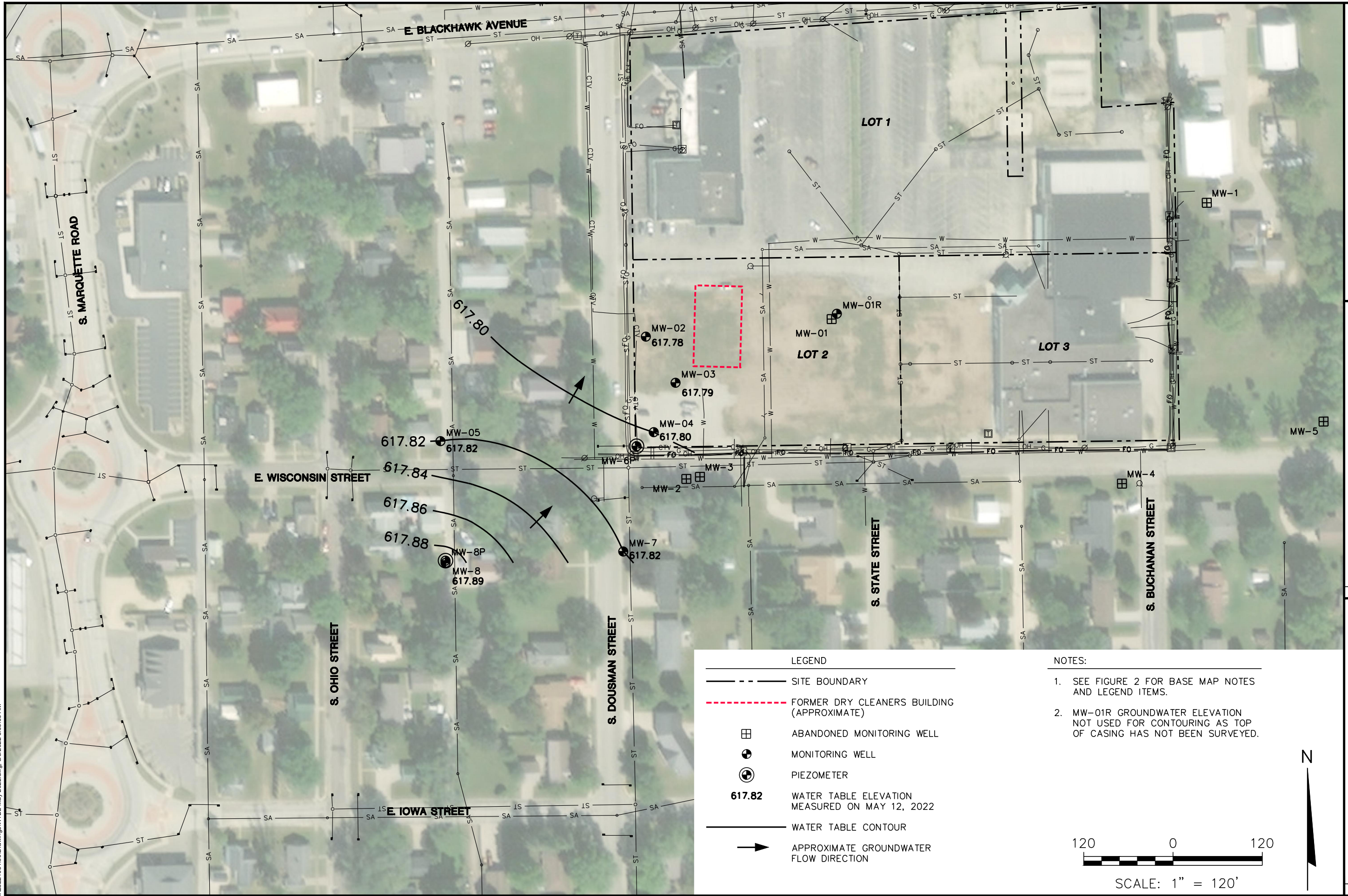
CLIENT	PRAIRIE DU CHIEN REDEVELOPMENT AUTHORITY		SITE	BLACKHAWK JUNCTION REDEVELOPMENT 700 EAST BLACKHAWK AVENUE PRAIRIE DU CHIEN, WISCONSIN		ENGINEER	SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830		FIGURE 1
	PROJECT NO.	25221094.00		DRAWN BY:	KP		APPROVED BY:	REL 04/20/2021	
	DRAWN:	04/05/2021	CHECKED BY:	MRH					
	REVISED:	04/05/2021							



LEGEND			
—	SITE BOUNDARY	○	MANHOLE
- - -	FORMER DRY CLEANERS BUILDING (APPROXIMATE)	⊕	STORM INLET
— CTV —	CABLE TELEVISION (BURIED)	⊞	UTILITY POLE
— UE —	ELECTRIC (BURIED)	⊞	TELEPHONE PEDESTAL
— FO —	FIBER OPTIC (BURIED)	⊞	TRANSFORMER
— G —	GAS MAIN (BURIED)	⊞	FIRE HYDRANT
— OH —	OVERHEAD UTILITY	⊞	SOIL BORING
— SA —	SANITARY SEWER (BURIED)	⊞	ABANDONED MONITORING WELL
— ST —	STORM SEWER (BURIED)	⊞	MONITORING WELL
— T —	TELEPHONE (BURIED)	⊞	PIEZOMETER
— W —	WATER MAIN (BURIED)		

- NOTES:
1. SEPTEMBER 2018 AERIAL PHOTOGRAPH SOURCES: ESRI, DIGITALGLOBE, GEOEYE, I-CUBED, USDA FSA, USGS, AEX, GETMAPPING, AERGRID, IGN, IGP, SWISSTOPO, AND THE GIS USER COMMUNITY.
 2. BAY WEST MONITORING WELLS MW-01 THROUGH MW-05 AND SOIL BORINGS SB-01 THROUGH SB-08, AND AYRES BORINGS GP-1 THROUGH GP-7 BASED ON BAY WEST FIGURE 1, SITE MAP WITH MONITORING WELL LOCATIONS DATED JANUARY 27, 2021.
 3. ABANDONED ADVENT MONITORING WELLS MW-1, AND MW-2 THROUGH MW-5 BASED ON ADVENT ENVIRONMENTAL SERVICES OVERLAY OF WELL LOCATION MAP DATED SEPTEMBER 13, 1991.
 4. UTILITY LOCATIONS FROM VERBICHER EXISTING CONDITIONS DRAWING DATED MARCH 2022, STORM SEWER DRAWING DATED MARCH 19, 2019, AND SANITARY SEWER LATERAL DRAWING DATED MARCH 2, 2020.
 5. SITE BOUNDARY AND LOT DETAILS FROM VERBICHER CERTIFIED SURVEY MAP DATED JUNE 29, 2021.
 6. BORING AND WELL LOCATIONS ARE APPROXIMATE. UTILITY LOCATIONS ARE APPROXIMATE AND SHOULD NOT BE USED FOR LOCATING.

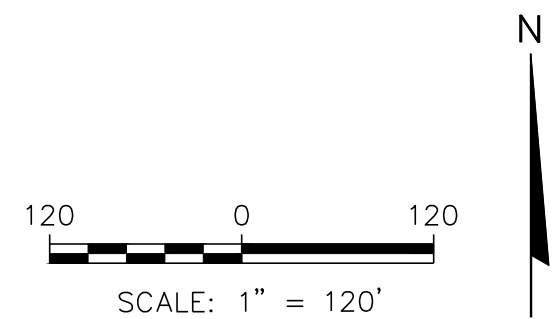
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LEGEND

- SITE BOUNDARY
- FORMER DRY CLEANERS BUILDING (APPROXIMATE)
- ABANDONED MONITORING WELL
- MONITORING WELL
- PIEZOMETER
- 617.82** WATER TABLE ELEVATION MEASURED ON MAY 12, 2022
- WATER TABLE CONTOUR
- APPROXIMATE GROUNDWATER FLOW DIRECTION

- NOTES:**
- SEE FIGURE 2 FOR BASE MAP NOTES AND LEGEND ITEMS.
 - MW-01R GROUNDWATER ELEVATION NOT USED FOR CONTOURING AS TOP OF CASING HAS NOT BEEN SURVEYED.



CLIENT PRAIRIE DU CHIEN REDEVELOPMENT AUTHORITY	PROJECT NO.	25221094.00	ENGINEER	WATER TABLE MAP - MAY 12, 2022	FIGURE 3
	DRAWN BY:	06/07/2022	REL		
	REVISD BY:	06/09/2022	REL 6/10/2022	SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	
				BLACKHAWK JUNCTION REDEVELOPMENT 700 EAST BLACKHAWK AVENUE PRAIRIE DU CHIEN, WISCONSIN	

Attachment A
Laboratory Analytical Report

ANALYTICAL REPORT

Eurofins Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

Laboratory Job ID: 500-216625-1

Client Project/Site: Black Hawk Junction - 25221094.00

For:

SCS Engineers
2830 Dairy Dr
Madison, Wisconsin 53718

Attn: Mr. Robert Langdon



Authorized for release by:
5/31/2022 12:02:52 PM

Sandie Fredrick, Project Manager II
(920)261-1660

Sandra.Fredrick@et.eurofinsus.com

LINKS

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The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

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

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Case Narrative

Client: SCS Engineers
Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Job ID: 500-216625-1

Laboratory: Eurofins Chicago

Narrative

Job Narrative 500-216625-1

Comments

No additional comments.

Receipt

The samples were received on 5/14/2022 10:15 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 1.4° C.

GC/MS VOA

Method 8260B: The method blank for analytical batch 658136 contained Naphthalene above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

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

LCMS

Method 537 (modified): The transition mass ratio for the indicated analyte was above the established ratio limits. The qualitative identification of the analyte has some degree of uncertainty, and the reported value may have some high bias. However, analyst judgment was used to positively identify the analyte.

MW-2 (500-216625-2), MW-3 (500-216625-3), MW-3 DUP (500-216625-4), MW-4 (500-216625-5) and MW-5 (500-216625-6)

Method 537 (modified): Results for sample MW-4 (500-216625-5) were reported from the analysis of a diluted extract due to high concentration of the target analyte in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits.

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

Organic Prep

Method 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-590681. Method: 3535 PFC-W Matrix: Aqueous

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

Detection Summary

Client: SCS Engineers
Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: MW-1R

Lab Sample ID: 500-216625-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.3	J	4.5	2.2	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	3.4		1.8	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	2.4		1.8	0.53	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.6		1.8	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	5.7		1.8	0.77	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	4.4		1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	16		1.8	0.52	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	0.43	J	1.8	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	11		1.8	0.49	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-2

Lab Sample ID: 500-216625-2

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	7.1		4.3	2.1	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	6.1		1.7	0.42	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	4.0		1.7	0.50	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.1		1.7	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	7.8		1.7	0.73	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	3.1		1.7	0.17	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.33	J	1.7	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.9		1.7	0.49	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	0.45	J	1.7	0.16	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	7.8	C	1.7	0.46	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	0.94	J	1.7	0.84	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-3

Lab Sample ID: 500-216625-3

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
p-Isopropyltoluene	0.42	J	1.0	0.36	ug/L	1		8260B	Total/NA
Tetrachloroethene	3.7		1.0	0.37	ug/L	1		8260B	Total/NA
Perfluorobutanoic acid (PFBA)	5.1		4.4	2.1	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	3.6		1.8	0.43	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	12		1.8	0.51	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.3		1.8	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	33		1.8	0.75	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.52	J	1.8	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	11		1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	1.7	J	1.8	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	220		1.8	0.50	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	2.9		1.8	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	26	C	1.8	0.48	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-3 DUP

Lab Sample ID: 500-216625-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	3.7		1.0	0.37	ug/L	1		8260B	Total/NA
Perfluorobutanoic acid (PFBA)	4.5		4.3	2.1	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	3.4		1.7	0.42	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	12		1.7	0.50	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Chicago

Detection Summary

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: MW-3 DUP (Continued)

Lab Sample ID: 500-216625-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid (PFHpA)	6.3		1.7	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	36		1.7	0.73	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.64	J	1.7	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	11		1.7	0.17	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	1.7		1.7	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	220		1.7	0.49	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	3.8		1.7	0.16	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	26	C	1.7	0.47	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonamide (FOSA)	1.1	J	1.7	0.85	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-4

Lab Sample ID: 500-216625-5

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	4.9		1.0	0.37	ug/L	1		8260B	Total/NA
Perfluorobutanoic acid (PFBA)	9.3		4.4	2.1	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	6.1		1.8	0.43	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	34		1.8	0.51	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	15		1.8	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	71		1.8	0.75	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	17		1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	7.8		1.8	0.26	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	4.8		1.8	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	45	C	1.8	0.47	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	820		18	5.0	ng/L	10		537 (modified)	Total/NA
- DL									

Client Sample ID: MW-5

Lab Sample ID: 500-216625-6

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.3	J	4.5	2.2	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	1.3	J	1.8	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	6.6		1.8	0.52	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.6		1.8	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	8.4		1.8	0.77	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	4.7		1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	1.5	J	1.8	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	98		1.8	0.51	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	15	C	1.8	0.49	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MW-8

Lab Sample ID: 500-216625-7

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.3	J	4.4	2.1	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	0.52	J	1.7	0.43	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	0.64	J	1.7	0.51	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.44	J	1.7	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.1	J	1.7	0.74	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.5		1.7	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	8.4		1.7	0.50	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Chicago

Detection Summary

Client: SCS Engineers
Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: MW-8 (Continued)

Lab Sample ID: 500-216625-7

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	2.9		1.7	0.47	ng/L	1		537 (modified)	Total/NA

Client Sample ID: Equipment Blank

Lab Sample ID: 500-216625-8

No Detections.

Client Sample ID: Field Blank

Lab Sample ID: 500-216625-9

No Detections.

Client Sample ID: Trip Blank

Lab Sample ID: 500-216625-10

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins Chicago



Method Summary

Client: SCS Engineers
Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CHI
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL SAC
3535	Solid-Phase Extraction (SPE)	SW846	TAL SAC
5030B	Purge and Trap	SW846	TAL CHI

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

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

Sample Summary

Client: SCS Engineers
Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-216625-1	MW-1R	Water	05/12/22 13:15	05/14/22 10:15
500-216625-2	MW-2	Water	05/12/22 14:15	05/14/22 10:15
500-216625-3	MW-3	Water	05/12/22 16:45	05/14/22 10:15
500-216625-4	MW-3 DUP	Water	05/12/22 16:45	05/14/22 10:15
500-216625-5	MW-4	Water	05/12/22 16:00	05/14/22 10:15
500-216625-6	MW-5	Water	05/12/22 13:55	05/14/22 10:15
500-216625-7	MW-8	Water	05/12/22 12:00	05/14/22 10:15
500-216625-8	Equipment Blank	Water	05/12/22 10:50	05/14/22 10:15
500-216625-9	Field Blank	Water	05/12/22 10:45	05/14/22 10:15
500-216625-10	Trip Blank	Water	05/12/22 08:00	05/14/22 10:15

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- 17

Client Sample Results

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: MW-1R
Date Collected: 05/12/22 13:15
Date Received: 05/14/22 10:15

Lab Sample ID: 500-216625-1
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.3	J	4.5	2.2	ng/L		05/26/22 12:47	05/29/22 04:30	1
Perfluoropentanoic acid (PFPeA)	3.4		1.8	0.44	ng/L		05/26/22 12:47	05/29/22 04:30	1
Perfluorohexanoic acid (PFHxA)	2.4		1.8	0.53	ng/L		05/26/22 12:47	05/29/22 04:30	1
Perfluoroheptanoic acid (PFHpA)	2.6		1.8	0.23	ng/L		05/26/22 12:47	05/29/22 04:30	1
Perfluorooctanoic acid (PFOA)	5.7		1.8	0.77	ng/L		05/26/22 12:47	05/29/22 04:30	1
Perfluorononanoic acid (PFNA)	<0.24		1.8	0.24	ng/L		05/26/22 12:47	05/29/22 04:30	1
Perfluorodecanoic acid (PFDA)	<0.28		1.8	0.28	ng/L		05/26/22 12:47	05/29/22 04:30	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.8	1.0	ng/L		05/26/22 12:47	05/29/22 04:30	1
Perfluorododecanoic acid (PFDoA)	<0.50		1.8	0.50	ng/L		05/26/22 12:47	05/29/22 04:30	1
Perfluorotridecanoic acid (PFTrDA)	<1.2		1.8	1.2	ng/L		05/26/22 12:47	05/29/22 04:30	1
Perfluorotetradecanoic acid (PFTeA)	<0.66		1.8	0.66	ng/L		05/26/22 12:47	05/29/22 04:30	1
Perfluorobutanesulfonic acid (PFBS)	4.4		1.8	0.18	ng/L		05/26/22 12:47	05/29/22 04:30	1
Perfluoropentanesulfonic acid (PFPeS)	<0.27		1.8	0.27	ng/L		05/26/22 12:47	05/29/22 04:30	1
Perfluorohexanesulfonic acid (PFHxS)	16		1.8	0.52	ng/L		05/26/22 12:47	05/29/22 04:30	1
Perfluoroheptanesulfonic acid (PFHpS)	0.43	J	1.8	0.17	ng/L		05/26/22 12:47	05/29/22 04:30	1
Perfluorooctanesulfonic acid (PFOS)	11		1.8	0.49	ng/L		05/26/22 12:47	05/29/22 04:30	1
Perfluorononanesulfonic acid (PFNS)	<0.34		1.8	0.34	ng/L		05/26/22 12:47	05/29/22 04:30	1
Perfluorodecanesulfonic acid (PFDS)	<0.29		1.8	0.29	ng/L		05/26/22 12:47	05/29/22 04:30	1
Perfluorododecanesulfonic acid (PFDoS)	<0.88		1.8	0.88	ng/L		05/26/22 12:47	05/29/22 04:30	1
Perfluorooctanesulfonamide (FOSA)	<0.89		1.8	0.89	ng/L		05/26/22 12:47	05/29/22 04:30	1
NEtFOSA	<0.79		1.8	0.79	ng/L		05/26/22 12:47	05/29/22 04:30	1
NMeFOSA	<0.39		1.8	0.39	ng/L		05/26/22 12:47	05/29/22 04:30	1
NMeFOSAA	<1.1		4.5	1.1	ng/L		05/26/22 12:47	05/29/22 04:30	1
NEtFOSAA	<1.2		4.5	1.2	ng/L		05/26/22 12:47	05/29/22 04:30	1
NMeFOSE	<1.3		3.6	1.3	ng/L		05/26/22 12:47	05/29/22 04:30	1
NEtFOSE	<0.77		1.8	0.77	ng/L		05/26/22 12:47	05/29/22 04:30	1
4:2 FTS	<0.22		1.8	0.22	ng/L		05/26/22 12:47	05/29/22 04:30	1
6:2 FTS	<2.3		4.5	2.3	ng/L		05/26/22 12:47	05/29/22 04:30	1
8:2 FTS	<0.42		1.8	0.42	ng/L		05/26/22 12:47	05/29/22 04:30	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.36		1.8	0.36	ng/L		05/26/22 12:47	05/29/22 04:30	1
HFPO-DA (GenX)	<1.4		3.6	1.4	ng/L		05/26/22 12:47	05/29/22 04:30	1
9CI-PF3ONS	<0.22		1.8	0.22	ng/L		05/26/22 12:47	05/29/22 04:30	1
11CI-PF3OUdS	<0.29		1.8	0.29	ng/L		05/26/22 12:47	05/29/22 04:30	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	100		25 - 150				05/26/22 12:47	05/29/22 04:30	1
13C5 PFPeA	127		25 - 150				05/26/22 12:47	05/29/22 04:30	1
13C2 PFHxA	97		25 - 150				05/26/22 12:47	05/29/22 04:30	1
13C4 PFHpA	90		25 - 150				05/26/22 12:47	05/29/22 04:30	1
13C4 PFOA	97		25 - 150				05/26/22 12:47	05/29/22 04:30	1
13C5 PFNA	104		25 - 150				05/26/22 12:47	05/29/22 04:30	1
13C2 PFDA	114		25 - 150				05/26/22 12:47	05/29/22 04:30	1
13C2 PFUnA	104		25 - 150				05/26/22 12:47	05/29/22 04:30	1
13C2 PFDoA	102		25 - 150				05/26/22 12:47	05/29/22 04:30	1
13C2 PFTeDA	98		25 - 150				05/26/22 12:47	05/29/22 04:30	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: MW-1R
Date Collected: 05/12/22 13:15
Date Received: 05/14/22 10:15

Lab Sample ID: 500-216625-1
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C3 PFBS	117		25 - 150	05/26/22 12:47	05/29/22 04:30	1
18O2 PFHxS	109		25 - 150	05/26/22 12:47	05/29/22 04:30	1
13C4 PFOS	103		25 - 150	05/26/22 12:47	05/29/22 04:30	1
13C8 FOSA	111		10 - 150	05/26/22 12:47	05/29/22 04:30	1
d3-NMeFOSAA	113		25 - 150	05/26/22 12:47	05/29/22 04:30	1
d5-NEtFOSAA	122		25 - 150	05/26/22 12:47	05/29/22 04:30	1
d-N-MeFOSA-M	88		10 - 150	05/26/22 12:47	05/29/22 04:30	1
d-N-EtFOSA-M	86		10 - 150	05/26/22 12:47	05/29/22 04:30	1
d7-N-MeFOSE-M	99		10 - 150	05/26/22 12:47	05/29/22 04:30	1
d9-N-EtFOSE-M	104		10 - 150	05/26/22 12:47	05/29/22 04:30	1
M2-4:2 FTS	135		25 - 150	05/26/22 12:47	05/29/22 04:30	1
M2-6:2 FTS	142		25 - 150	05/26/22 12:47	05/29/22 04:30	1
M2-8:2 FTS	117		25 - 150	05/26/22 12:47	05/29/22 04:30	1
13C3 HFPO-DA	90		25 - 150	05/26/22 12:47	05/29/22 04:30	1
13C2 10:2 FTS	104		25 - 150	05/26/22 12:47	05/29/22 04:30	1

Client Sample Results

Client: SCS Engineers
Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: MW-2

Lab Sample ID: 500-216625-2

Date Collected: 05/12/22 14:15

Matrix: Water

Date Received: 05/14/22 10:15

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	7.1		4.3	2.1	ng/L		05/26/22 12:47	05/29/22 04:40	1
Perfluoropentanoic acid (PFPeA)	6.1		1.7	0.42	ng/L		05/26/22 12:47	05/29/22 04:40	1
Perfluorohexanoic acid (PFHxA)	4.0		1.7	0.50	ng/L		05/26/22 12:47	05/29/22 04:40	1
Perfluoroheptanoic acid (PFHpA)	4.1		1.7	0.21	ng/L		05/26/22 12:47	05/29/22 04:40	1
Perfluorooctanoic acid (PFOA)	7.8		1.7	0.73	ng/L		05/26/22 12:47	05/29/22 04:40	1
Perfluorononanoic acid (PFNA)	<0.23		1.7	0.23	ng/L		05/26/22 12:47	05/29/22 04:40	1
Perfluorodecanoic acid (PFDA)	<0.27		1.7	0.27	ng/L		05/26/22 12:47	05/29/22 04:40	1
Perfluoroundecanoic acid (PFUnA)	<0.94		1.7	0.94	ng/L		05/26/22 12:47	05/29/22 04:40	1
Perfluorododecanoic acid (PFDoA)	<0.47		1.7	0.47	ng/L		05/26/22 12:47	05/29/22 04:40	1
Perfluorotridecanoic acid (PFTrDA)	<1.1		1.7	1.1	ng/L		05/26/22 12:47	05/29/22 04:40	1
Perfluorotetradecanoic acid (PFTeA)	<0.62		1.7	0.62	ng/L		05/26/22 12:47	05/29/22 04:40	1
Perfluorobutanesulfonic acid (PFBS)	3.1		1.7	0.17	ng/L		05/26/22 12:47	05/29/22 04:40	1
Perfluoropentanesulfonic acid (PFPeS)	0.33	J	1.7	0.26	ng/L		05/26/22 12:47	05/29/22 04:40	1
Perfluorohexanesulfonic acid (PFHxS)	6.9		1.7	0.49	ng/L		05/26/22 12:47	05/29/22 04:40	1
Perfluoroheptanesulfonic acid (PFHpS)	0.45	J	1.7	0.16	ng/L		05/26/22 12:47	05/29/22 04:40	1
Perfluorooctanesulfonic acid (PFOS)	7.8	C	1.7	0.46	ng/L		05/26/22 12:47	05/29/22 04:40	1
Perfluorononanesulfonic acid (PFNS)	<0.32		1.7	0.32	ng/L		05/26/22 12:47	05/29/22 04:40	1
Perfluorodecanesulfonic acid (PFDS)	<0.27		1.7	0.27	ng/L		05/26/22 12:47	05/29/22 04:40	1
Perfluorododecanesulfonic acid (PFDoS)	<0.83		1.7	0.83	ng/L		05/26/22 12:47	05/29/22 04:40	1
Perfluorooctanesulfonamide (FOSA)	0.94	J	1.7	0.84	ng/L		05/26/22 12:47	05/29/22 04:40	1
NEtFOSA	<0.74		1.7	0.74	ng/L		05/26/22 12:47	05/29/22 04:40	1
NMeFOSA	<0.37		1.7	0.37	ng/L		05/26/22 12:47	05/29/22 04:40	1
NMeFOSAA	<1.0		4.3	1.0	ng/L		05/26/22 12:47	05/29/22 04:40	1
NEtFOSAA	<1.1		4.3	1.1	ng/L		05/26/22 12:47	05/29/22 04:40	1
NMeFOSE	<1.2		3.4	1.2	ng/L		05/26/22 12:47	05/29/22 04:40	1
NEtFOSE	<0.73		1.7	0.73	ng/L		05/26/22 12:47	05/29/22 04:40	1
4:2 FTS	<0.21		1.7	0.21	ng/L		05/26/22 12:47	05/29/22 04:40	1
6:2 FTS	<2.1		4.3	2.1	ng/L		05/26/22 12:47	05/29/22 04:40	1
8:2 FTS	<0.39		1.7	0.39	ng/L		05/26/22 12:47	05/29/22 04:40	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.34		1.7	0.34	ng/L		05/26/22 12:47	05/29/22 04:40	1
HFPO-DA (GenX)	<1.3		3.4	1.3	ng/L		05/26/22 12:47	05/29/22 04:40	1
9Cl-PF3ONS	<0.21		1.7	0.21	ng/L		05/26/22 12:47	05/29/22 04:40	1
11Cl-PF3OUdS	<0.27		1.7	0.27	ng/L		05/26/22 12:47	05/29/22 04:40	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	101		25 - 150	05/26/22 12:47	05/29/22 04:40	1
13C5 PFPeA	133		25 - 150	05/26/22 12:47	05/29/22 04:40	1
13C2 PFHxA	97		25 - 150	05/26/22 12:47	05/29/22 04:40	1
13C4 PFHpA	90		25 - 150	05/26/22 12:47	05/29/22 04:40	1
13C4 PFOA	97		25 - 150	05/26/22 12:47	05/29/22 04:40	1
13C5 PFNA	102		25 - 150	05/26/22 12:47	05/29/22 04:40	1
13C2 PFDA	114		25 - 150	05/26/22 12:47	05/29/22 04:40	1
13C2 PFUnA	109		25 - 150	05/26/22 12:47	05/29/22 04:40	1
13C2 PFDoA	103		25 - 150	05/26/22 12:47	05/29/22 04:40	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: MW-2

Lab Sample ID: 500-216625-2

Date Collected: 05/12/22 14:15

Matrix: Water

Date Received: 05/14/22 10:15

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C2 PFTeDA	104		25 - 150	05/26/22 12:47	05/29/22 04:40	1
13C3 PFBS	113		25 - 150	05/26/22 12:47	05/29/22 04:40	1
18O2 PFHxS	105		25 - 150	05/26/22 12:47	05/29/22 04:40	1
13C4 PFOS	99		25 - 150	05/26/22 12:47	05/29/22 04:40	1
13C8 FOSA	109		10 - 150	05/26/22 12:47	05/29/22 04:40	1
d3-NMeFOSAA	115		25 - 150	05/26/22 12:47	05/29/22 04:40	1
d5-NEtFOSAA	125		25 - 150	05/26/22 12:47	05/29/22 04:40	1
d-N-MeFOSA-M	93		10 - 150	05/26/22 12:47	05/29/22 04:40	1
d-N-EtFOSA-M	97		10 - 150	05/26/22 12:47	05/29/22 04:40	1
d7-N-MeFOSE-M	110		10 - 150	05/26/22 12:47	05/29/22 04:40	1
d9-N-EtFOSE-M	108		10 - 150	05/26/22 12:47	05/29/22 04:40	1
M2-4:2 FTS	132		25 - 150	05/26/22 12:47	05/29/22 04:40	1
M2-6:2 FTS	135		25 - 150	05/26/22 12:47	05/29/22 04:40	1
M2-8:2 FTS	114		25 - 150	05/26/22 12:47	05/29/22 04:40	1
13C3 HFPO-DA	91		25 - 150	05/26/22 12:47	05/29/22 04:40	1
13C2 10:2 FTS	105		25 - 150	05/26/22 12:47	05/29/22 04:40	1

Client Sample Results

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: MW-3

Lab Sample ID: 500-216625-3

Date Collected: 05/12/22 16:45

Matrix: Water

Date Received: 05/14/22 10:15

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			05/24/22 05:26	1
Bromobenzene	<0.36		1.0	0.36	ug/L			05/24/22 05:26	1
Bromochloromethane	<0.43		1.0	0.43	ug/L			05/24/22 05:26	1
Bromodichloromethane	<0.37		1.0	0.37	ug/L			05/24/22 05:26	1
Bromoform	<0.48		1.0	0.48	ug/L			05/24/22 05:26	1
Bromomethane	<0.80		3.0	0.80	ug/L			05/24/22 05:26	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			05/24/22 05:26	1
Chlorobenzene	<0.39		1.0	0.39	ug/L			05/24/22 05:26	1
Chloroethane	<0.51		1.0	0.51	ug/L			05/24/22 05:26	1
Chloroform	<0.37		2.0	0.37	ug/L			05/24/22 05:26	1
Chloromethane	<0.32		1.0	0.32	ug/L			05/24/22 05:26	1
2-Chlorotoluene	<0.31		1.0	0.31	ug/L			05/24/22 05:26	1
4-Chlorotoluene	<0.35		1.0	0.35	ug/L			05/24/22 05:26	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			05/24/22 05:26	1
cis-1,3-Dichloropropene	<0.42		1.0	0.42	ug/L			05/24/22 05:26	1
Dibromochloromethane	<0.49		1.0	0.49	ug/L			05/24/22 05:26	1
1,2-Dibromo-3-Chloropropane	<2.0		5.0	2.0	ug/L			05/24/22 05:26	1
1,2-Dibromoethane (EDB)	<0.39		1.0	0.39	ug/L			05/24/22 05:26	1
Dibromomethane	<0.27		1.0	0.27	ug/L			05/24/22 05:26	1
1,2-Dichlorobenzene	<0.33		1.0	0.33	ug/L			05/24/22 05:26	1
1,3-Dichlorobenzene	<0.40		1.0	0.40	ug/L			05/24/22 05:26	1
1,4-Dichlorobenzene	<0.36		1.0	0.36	ug/L			05/24/22 05:26	1
Dichlorodifluoromethane	<0.67		3.0	0.67	ug/L			05/24/22 05:26	1
1,1-Dichloroethane	<0.41		1.0	0.41	ug/L			05/24/22 05:26	1
1,2-Dichloroethane	<0.39		1.0	0.39	ug/L			05/24/22 05:26	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			05/24/22 05:26	1
1,2-Dichloropropane	<0.43		1.0	0.43	ug/L			05/24/22 05:26	1
1,3-Dichloropropane	<0.36		1.0	0.36	ug/L			05/24/22 05:26	1
2,2-Dichloropropane	<0.44		1.0	0.44	ug/L			05/24/22 05:26	1
1,1-Dichloropropene	<0.30		1.0	0.30	ug/L			05/24/22 05:26	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			05/24/22 05:26	1
Hexachlorobutadiene	<0.45		1.0	0.45	ug/L			05/24/22 05:26	1
Isopropylbenzene	<0.39		1.0	0.39	ug/L			05/24/22 05:26	1
Isopropyl ether	<0.28		1.0	0.28	ug/L			05/24/22 05:26	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			05/24/22 05:26	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			05/24/22 05:26	1
Naphthalene	<0.34		1.0	0.34	ug/L			05/24/22 05:26	1
n-Butylbenzene	<0.39		1.0	0.39	ug/L			05/24/22 05:26	1
N-Propylbenzene	<0.41		1.0	0.41	ug/L			05/24/22 05:26	1
p-Isopropyltoluene	0.42	J	1.0	0.36	ug/L			05/24/22 05:26	1
sec-Butylbenzene	<0.40		1.0	0.40	ug/L			05/24/22 05:26	1
Styrene	<0.39		1.0	0.39	ug/L			05/24/22 05:26	1
tert-Butylbenzene	<0.40		1.0	0.40	ug/L			05/24/22 05:26	1
1,1,1,2-Tetrachloroethane	<0.46		1.0	0.46	ug/L			05/24/22 05:26	1
1,1,2,2-Tetrachloroethane	<0.40		1.0	0.40	ug/L			05/24/22 05:26	1
Tetrachloroethene	3.7		1.0	0.37	ug/L			05/24/22 05:26	1
Toluene	<0.15		0.50	0.15	ug/L			05/24/22 05:26	1
trans-1,2-Dichloroethene	<0.35		1.0	0.35	ug/L			05/24/22 05:26	1
trans-1,3-Dichloropropene	<0.36		1.0	0.36	ug/L			05/24/22 05:26	1

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Client Sample Results

Client: SCS Engineers
Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: MW-3

Lab Sample ID: 500-216625-3

Date Collected: 05/12/22 16:45

Matrix: Water

Date Received: 05/14/22 10:15

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3-Trichlorobenzene	<0.46		1.0	0.46	ug/L			05/24/22 05:26	1
1,2,4-Trichlorobenzene	<0.34		1.0	0.34	ug/L			05/24/22 05:26	1
1,1,1-Trichloroethane	<0.38		1.0	0.38	ug/L			05/24/22 05:26	1
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			05/24/22 05:26	1
Trichloroethene	<0.16		0.50	0.16	ug/L			05/24/22 05:26	1
Trichlorofluoromethane	<0.43		1.0	0.43	ug/L			05/24/22 05:26	1
1,2,3-Trichloropropane	<0.41		2.0	0.41	ug/L			05/24/22 05:26	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			05/24/22 05:26	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			05/24/22 05:26	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			05/24/22 05:26	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			05/24/22 05:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		72 - 124					05/24/22 05:26	1
Dibromofluoromethane (Surr)	102		75 - 120					05/24/22 05:26	1
1,2-Dichloroethane-d4 (Surr)	96		75 - 126					05/24/22 05:26	1
Toluene-d8 (Surr)	98		75 - 120					05/24/22 05:26	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	5.1		4.4	2.1	ng/L		05/26/22 12:47	05/29/22 04:50	1
Perfluoropentanoic acid (PFPeA)	3.6		1.8	0.43	ng/L		05/26/22 12:47	05/29/22 04:50	1
Perfluorohexanoic acid (PFHxA)	12		1.8	0.51	ng/L		05/26/22 12:47	05/29/22 04:50	1
Perfluoroheptanoic acid (PFHpA)	6.3		1.8	0.22	ng/L		05/26/22 12:47	05/29/22 04:50	1
Perfluorooctanoic acid (PFOA)	33		1.8	0.75	ng/L		05/26/22 12:47	05/29/22 04:50	1
Perfluorononanoic acid (PFNA)	0.52	J	1.8	0.24	ng/L		05/26/22 12:47	05/29/22 04:50	1
Perfluorodecanoic acid (PFDA)	<0.27		1.8	0.27	ng/L		05/26/22 12:47	05/29/22 04:50	1
Perfluoroundecanoic acid (PFUnA)	<0.97		1.8	0.97	ng/L		05/26/22 12:47	05/29/22 04:50	1
Perfluorododecanoic acid (PFDoA)	<0.49		1.8	0.49	ng/L		05/26/22 12:47	05/29/22 04:50	1
Perfluorotridecanoic acid (PFTrDA)	<1.1		1.8	1.1	ng/L		05/26/22 12:47	05/29/22 04:50	1
Perfluorotetradecanoic acid (PFTeA)	<0.65		1.8	0.65	ng/L		05/26/22 12:47	05/29/22 04:50	1
Perfluorobutanesulfonic acid (PFBS)	11		1.8	0.18	ng/L		05/26/22 12:47	05/29/22 04:50	1
Perfluoropentanesulfonic acid (PFPeS)	1.7	J	1.8	0.27	ng/L		05/26/22 12:47	05/29/22 04:50	1
Perfluorohexanesulfonic acid (PFHxS)	220		1.8	0.50	ng/L		05/26/22 12:47	05/29/22 04:50	1
Perfluoroheptanesulfonic acid (PFHpS)	2.9		1.8	0.17	ng/L		05/26/22 12:47	05/29/22 04:50	1
Perfluorooctanesulfonic acid (PFOS)	26	C	1.8	0.48	ng/L		05/26/22 12:47	05/29/22 04:50	1
Perfluorononanesulfonic acid (PFNS)	<0.33		1.8	0.33	ng/L		05/26/22 12:47	05/29/22 04:50	1
Perfluorodecanesulfonic acid (PFDS)	<0.28		1.8	0.28	ng/L		05/26/22 12:47	05/29/22 04:50	1
Perfluorododecanesulfonic acid (PFDoS)	<0.86		1.8	0.86	ng/L		05/26/22 12:47	05/29/22 04:50	1
Perfluorooctanesulfonamide (FOSA)	<0.87		1.8	0.87	ng/L		05/26/22 12:47	05/29/22 04:50	1
NEtFOSA	<0.77		1.8	0.77	ng/L		05/26/22 12:47	05/29/22 04:50	1
NMeFOSA	<0.38		1.8	0.38	ng/L		05/26/22 12:47	05/29/22 04:50	1
NMeFOSAA	<1.1		4.4	1.1	ng/L		05/26/22 12:47	05/29/22 04:50	1
NEtFOSAA	<1.1		4.4	1.1	ng/L		05/26/22 12:47	05/29/22 04:50	1
NMeFOSE	<1.2		3.5	1.2	ng/L		05/26/22 12:47	05/29/22 04:50	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: MW-3
Date Collected: 05/12/22 16:45
Date Received: 05/14/22 10:15

Lab Sample ID: 500-216625-3
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSE	<0.75		1.8	0.75	ng/L		05/26/22 12:47	05/29/22 04:50	1
4:2 FTS	<0.21		1.8	0.21	ng/L		05/26/22 12:47	05/29/22 04:50	1
6:2 FTS	<2.2		4.4	2.2	ng/L		05/26/22 12:47	05/29/22 04:50	1
8:2 FTS	<0.41		1.8	0.41	ng/L		05/26/22 12:47	05/29/22 04:50	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.35		1.8	0.35	ng/L		05/26/22 12:47	05/29/22 04:50	1
HFPO-DA (GenX)	<1.3		3.5	1.3	ng/L		05/26/22 12:47	05/29/22 04:50	1
9Cl-PF3ONS	<0.21		1.8	0.21	ng/L		05/26/22 12:47	05/29/22 04:50	1
11Cl-PF3OUdS	<0.28		1.8	0.28	ng/L		05/26/22 12:47	05/29/22 04:50	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	97		25 - 150				05/26/22 12:47	05/29/22 04:50	1
13C5 PFPeA	121		25 - 150				05/26/22 12:47	05/29/22 04:50	1
13C2 PFHxA	93		25 - 150				05/26/22 12:47	05/29/22 04:50	1
13C4 PFHpA	86		25 - 150				05/26/22 12:47	05/29/22 04:50	1
13C4 PFOA	95		25 - 150				05/26/22 12:47	05/29/22 04:50	1
13C5 PFNA	104		25 - 150				05/26/22 12:47	05/29/22 04:50	1
13C2 PFDA	108		25 - 150				05/26/22 12:47	05/29/22 04:50	1
13C2 PFUnA	102		25 - 150				05/26/22 12:47	05/29/22 04:50	1
13C2 PFDoA	105		25 - 150				05/26/22 12:47	05/29/22 04:50	1
13C2 PFTeDA	104		25 - 150				05/26/22 12:47	05/29/22 04:50	1
13C3 PFBS	112		25 - 150				05/26/22 12:47	05/29/22 04:50	1
18O2 PFHxS	104		25 - 150				05/26/22 12:47	05/29/22 04:50	1
13C4 PFOS	97		25 - 150				05/26/22 12:47	05/29/22 04:50	1
13C8 FOSA	108		10 - 150				05/26/22 12:47	05/29/22 04:50	1
d3-NMeFOSAA	115		25 - 150				05/26/22 12:47	05/29/22 04:50	1
d5-NEtFOSAA	123		25 - 150				05/26/22 12:47	05/29/22 04:50	1
d-N-MeFOSA-M	88		10 - 150				05/26/22 12:47	05/29/22 04:50	1
d-N-EtFOSA-M	92		10 - 150				05/26/22 12:47	05/29/22 04:50	1
d7-N-MeFOSE-M	107		10 - 150				05/26/22 12:47	05/29/22 04:50	1
d9-N-EtFOSE-M	111		10 - 150				05/26/22 12:47	05/29/22 04:50	1
M2-4:2 FTS	124		25 - 150				05/26/22 12:47	05/29/22 04:50	1
M2-6:2 FTS	133		25 - 150				05/26/22 12:47	05/29/22 04:50	1
M2-8:2 FTS	119		25 - 150				05/26/22 12:47	05/29/22 04:50	1
13C3 HFPO-DA	92		25 - 150				05/26/22 12:47	05/29/22 04:50	1
13C2 10:2 FTS	107		25 - 150				05/26/22 12:47	05/29/22 04:50	1

Client Sample Results

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: MW-3 DUP

Lab Sample ID: 500-216625-4

Date Collected: 05/12/22 16:45

Matrix: Water

Date Received: 05/14/22 10:15

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			05/24/22 05:50	1
Bromobenzene	<0.36		1.0	0.36	ug/L			05/24/22 05:50	1
Bromochloromethane	<0.43		1.0	0.43	ug/L			05/24/22 05:50	1
Bromodichloromethane	<0.37		1.0	0.37	ug/L			05/24/22 05:50	1
Bromoform	<0.48		1.0	0.48	ug/L			05/24/22 05:50	1
Bromomethane	<0.80		3.0	0.80	ug/L			05/24/22 05:50	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			05/24/22 05:50	1
Chlorobenzene	<0.39		1.0	0.39	ug/L			05/24/22 05:50	1
Chloroethane	<0.51		1.0	0.51	ug/L			05/24/22 05:50	1
Chloroform	<0.37		2.0	0.37	ug/L			05/24/22 05:50	1
Chloromethane	<0.32		1.0	0.32	ug/L			05/24/22 05:50	1
2-Chlorotoluene	<0.31		1.0	0.31	ug/L			05/24/22 05:50	1
4-Chlorotoluene	<0.35		1.0	0.35	ug/L			05/24/22 05:50	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			05/24/22 05:50	1
cis-1,3-Dichloropropene	<0.42		1.0	0.42	ug/L			05/24/22 05:50	1
Dibromochloromethane	<0.49		1.0	0.49	ug/L			05/24/22 05:50	1
1,2-Dibromo-3-Chloropropane	<2.0		5.0	2.0	ug/L			05/24/22 05:50	1
1,2-Dibromoethane (EDB)	<0.39		1.0	0.39	ug/L			05/24/22 05:50	1
Dibromomethane	<0.27		1.0	0.27	ug/L			05/24/22 05:50	1
1,2-Dichlorobenzene	<0.33		1.0	0.33	ug/L			05/24/22 05:50	1
1,3-Dichlorobenzene	<0.40		1.0	0.40	ug/L			05/24/22 05:50	1
1,4-Dichlorobenzene	<0.36		1.0	0.36	ug/L			05/24/22 05:50	1
Dichlorodifluoromethane	<0.67		3.0	0.67	ug/L			05/24/22 05:50	1
1,1-Dichloroethane	<0.41		1.0	0.41	ug/L			05/24/22 05:50	1
1,2-Dichloroethane	<0.39		1.0	0.39	ug/L			05/24/22 05:50	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			05/24/22 05:50	1
1,2-Dichloropropane	<0.43		1.0	0.43	ug/L			05/24/22 05:50	1
1,3-Dichloropropane	<0.36		1.0	0.36	ug/L			05/24/22 05:50	1
2,2-Dichloropropane	<0.44		1.0	0.44	ug/L			05/24/22 05:50	1
1,1-Dichloropropene	<0.30		1.0	0.30	ug/L			05/24/22 05:50	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			05/24/22 05:50	1
Hexachlorobutadiene	<0.45		1.0	0.45	ug/L			05/24/22 05:50	1
Isopropylbenzene	<0.39		1.0	0.39	ug/L			05/24/22 05:50	1
Isopropyl ether	<0.28		1.0	0.28	ug/L			05/24/22 05:50	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			05/24/22 05:50	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			05/24/22 05:50	1
Naphthalene	<0.34		1.0	0.34	ug/L			05/24/22 05:50	1
n-Butylbenzene	<0.39		1.0	0.39	ug/L			05/24/22 05:50	1
N-Propylbenzene	<0.41		1.0	0.41	ug/L			05/24/22 05:50	1
p-Isopropyltoluene	<0.36		1.0	0.36	ug/L			05/24/22 05:50	1
sec-Butylbenzene	<0.40		1.0	0.40	ug/L			05/24/22 05:50	1
Styrene	<0.39		1.0	0.39	ug/L			05/24/22 05:50	1
tert-Butylbenzene	<0.40		1.0	0.40	ug/L			05/24/22 05:50	1
1,1,1,2-Tetrachloroethane	<0.46		1.0	0.46	ug/L			05/24/22 05:50	1
1,1,2,2-Tetrachloroethane	<0.40		1.0	0.40	ug/L			05/24/22 05:50	1
Tetrachloroethene	3.7		1.0	0.37	ug/L			05/24/22 05:50	1
Toluene	<0.15		0.50	0.15	ug/L			05/24/22 05:50	1
trans-1,2-Dichloroethene	<0.35		1.0	0.35	ug/L			05/24/22 05:50	1
trans-1,3-Dichloropropene	<0.36		1.0	0.36	ug/L			05/24/22 05:50	1

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Client Sample Results

Client: SCS Engineers
Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: MW-3 DUP

Lab Sample ID: 500-216625-4

Date Collected: 05/12/22 16:45

Matrix: Water

Date Received: 05/14/22 10:15

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3-Trichlorobenzene	<0.46		1.0	0.46	ug/L			05/24/22 05:50	1
1,2,4-Trichlorobenzene	<0.34		1.0	0.34	ug/L			05/24/22 05:50	1
1,1,1-Trichloroethane	<0.38		1.0	0.38	ug/L			05/24/22 05:50	1
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			05/24/22 05:50	1
Trichloroethene	<0.16		0.50	0.16	ug/L			05/24/22 05:50	1
Trichlorofluoromethane	<0.43		1.0	0.43	ug/L			05/24/22 05:50	1
1,2,3-Trichloropropane	<0.41		2.0	0.41	ug/L			05/24/22 05:50	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			05/24/22 05:50	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			05/24/22 05:50	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			05/24/22 05:50	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			05/24/22 05:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		72 - 124		05/24/22 05:50	1
Dibromofluoromethane (Surr)	103		75 - 120		05/24/22 05:50	1
1,2-Dichloroethane-d4 (Surr)	98		75 - 126		05/24/22 05:50	1
Toluene-d8 (Surr)	98		75 - 120		05/24/22 05:50	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	4.5		4.3	2.1	ng/L		05/26/22 12:47	05/29/22 05:00	1
Perfluoropentanoic acid (PFPeA)	3.4		1.7	0.42	ng/L		05/26/22 12:47	05/29/22 05:00	1
Perfluorohexanoic acid (PFHxA)	12		1.7	0.50	ng/L		05/26/22 12:47	05/29/22 05:00	1
Perfluoroheptanoic acid (PFHpA)	6.3		1.7	0.22	ng/L		05/26/22 12:47	05/29/22 05:00	1
Perfluorooctanoic acid (PFOA)	36		1.7	0.73	ng/L		05/26/22 12:47	05/29/22 05:00	1
Perfluorononanoic acid (PFNA)	0.64	J	1.7	0.23	ng/L		05/26/22 12:47	05/29/22 05:00	1
Perfluorodecanoic acid (PFDA)	<0.27		1.7	0.27	ng/L		05/26/22 12:47	05/29/22 05:00	1
Perfluoroundecanoic acid (PFUnA)	<0.95		1.7	0.95	ng/L		05/26/22 12:47	05/29/22 05:00	1
Perfluorododecanoic acid (PFDoA)	<0.47		1.7	0.47	ng/L		05/26/22 12:47	05/29/22 05:00	1
Perfluorotridecanoic acid (PFTrDA)	<1.1		1.7	1.1	ng/L		05/26/22 12:47	05/29/22 05:00	1
Perfluorotetradecanoic acid (PFTeA)	<0.63		1.7	0.63	ng/L		05/26/22 12:47	05/29/22 05:00	1
Perfluorobutanesulfonic acid (PFBS)	11		1.7	0.17	ng/L		05/26/22 12:47	05/29/22 05:00	1
Perfluoropentanesulfonic acid (PFPeS)	1.7		1.7	0.26	ng/L		05/26/22 12:47	05/29/22 05:00	1
Perfluorohexanesulfonic acid (PFHxS)	220		1.7	0.49	ng/L		05/26/22 12:47	05/29/22 05:00	1
Perfluoroheptanesulfonic acid (PFHpS)	3.8		1.7	0.16	ng/L		05/26/22 12:47	05/29/22 05:00	1
Perfluorooctanesulfonic acid (PFOS)	26	C	1.7	0.47	ng/L		05/26/22 12:47	05/29/22 05:00	1
Perfluorononanesulfonic acid (PFNS)	<0.32		1.7	0.32	ng/L		05/26/22 12:47	05/29/22 05:00	1
Perfluorodecanesulfonic acid (PFDS)	<0.28		1.7	0.28	ng/L		05/26/22 12:47	05/29/22 05:00	1
Perfluorododecanesulfonic acid (PFDoS)	<0.84		1.7	0.84	ng/L		05/26/22 12:47	05/29/22 05:00	1
Perfluorooctanesulfonamide (FOSA)	1.1	J	1.7	0.85	ng/L		05/26/22 12:47	05/29/22 05:00	1
NEtFOSA	<0.75		1.7	0.75	ng/L		05/26/22 12:47	05/29/22 05:00	1
NMeFOSA	<0.37		1.7	0.37	ng/L		05/26/22 12:47	05/29/22 05:00	1
NMeFOSAA	<1.0		4.3	1.0	ng/L		05/26/22 12:47	05/29/22 05:00	1
NEtFOSAA	<1.1		4.3	1.1	ng/L		05/26/22 12:47	05/29/22 05:00	1
NMeFOSE	<1.2		3.4	1.2	ng/L		05/26/22 12:47	05/29/22 05:00	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: MW-3 DUP

Lab Sample ID: 500-216625-4

Date Collected: 05/12/22 16:45

Matrix: Water

Date Received: 05/14/22 10:15

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSE	<0.73		1.7	0.73	ng/L		05/26/22 12:47	05/29/22 05:00	1
4:2 FTS	<0.21		1.7	0.21	ng/L		05/26/22 12:47	05/29/22 05:00	1
6:2 FTS	<2.2		4.3	2.2	ng/L		05/26/22 12:47	05/29/22 05:00	1
8:2 FTS	<0.40		1.7	0.40	ng/L		05/26/22 12:47	05/29/22 05:00	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.34		1.7	0.34	ng/L		05/26/22 12:47	05/29/22 05:00	1
HFPO-DA (GenX)	<1.3		3.4	1.3	ng/L		05/26/22 12:47	05/29/22 05:00	1
9CI-PF3ONS	<0.21		1.7	0.21	ng/L		05/26/22 12:47	05/29/22 05:00	1
11CI-PF3OUdS	<0.28		1.7	0.28	ng/L		05/26/22 12:47	05/29/22 05:00	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	89		25 - 150				05/26/22 12:47	05/29/22 05:00	1
13C5 PFPeA	110		25 - 150				05/26/22 12:47	05/29/22 05:00	1
13C2 PFHxA	83		25 - 150				05/26/22 12:47	05/29/22 05:00	1
13C4 PFHpA	79		25 - 150				05/26/22 12:47	05/29/22 05:00	1
13C4 PFOA	81		25 - 150				05/26/22 12:47	05/29/22 05:00	1
13C5 PFNA	94		25 - 150				05/26/22 12:47	05/29/22 05:00	1
13C2 PFDA	101		25 - 150				05/26/22 12:47	05/29/22 05:00	1
13C2 PFUnA	92		25 - 150				05/26/22 12:47	05/29/22 05:00	1
13C2 PFDoA	90		25 - 150				05/26/22 12:47	05/29/22 05:00	1
13C2 PFTeDA	93		25 - 150				05/26/22 12:47	05/29/22 05:00	1
13C3 PFBS	101		25 - 150				05/26/22 12:47	05/29/22 05:00	1
18O2 PFHxS	100		25 - 150				05/26/22 12:47	05/29/22 05:00	1
13C4 PFOS	92		25 - 150				05/26/22 12:47	05/29/22 05:00	1
13C8 FOSA	100		10 - 150				05/26/22 12:47	05/29/22 05:00	1
d3-NMeFOSAA	99		25 - 150				05/26/22 12:47	05/29/22 05:00	1
d5-NEtFOSAA	110		25 - 150				05/26/22 12:47	05/29/22 05:00	1
d-N-MeFOSA-M	78		10 - 150				05/26/22 12:47	05/29/22 05:00	1
d-N-EtFOSA-M	81		10 - 150				05/26/22 12:47	05/29/22 05:00	1
d7-N-MeFOSE-M	95		10 - 150				05/26/22 12:47	05/29/22 05:00	1
d9-N-EtFOSE-M	98		10 - 150				05/26/22 12:47	05/29/22 05:00	1
M2-4:2 FTS	101		25 - 150				05/26/22 12:47	05/29/22 05:00	1
M2-6:2 FTS	126		25 - 150				05/26/22 12:47	05/29/22 05:00	1
M2-8:2 FTS	107		25 - 150				05/26/22 12:47	05/29/22 05:00	1
13C3 HFPO-DA	83		25 - 150				05/26/22 12:47	05/29/22 05:00	1
13C2 10:2 FTS	97		25 - 150				05/26/22 12:47	05/29/22 05:00	1

Client Sample Results

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: MW-4

Lab Sample ID: 500-216625-5

Date Collected: 05/12/22 16:00

Matrix: Water

Date Received: 05/14/22 10:15

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			05/24/22 06:13	1
Bromobenzene	<0.36		1.0	0.36	ug/L			05/24/22 06:13	1
Bromochloromethane	<0.43		1.0	0.43	ug/L			05/24/22 06:13	1
Bromodichloromethane	<0.37		1.0	0.37	ug/L			05/24/22 06:13	1
Bromoform	<0.48		1.0	0.48	ug/L			05/24/22 06:13	1
Bromomethane	<0.80		3.0	0.80	ug/L			05/24/22 06:13	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			05/24/22 06:13	1
Chlorobenzene	<0.39		1.0	0.39	ug/L			05/24/22 06:13	1
Chloroethane	<0.51		1.0	0.51	ug/L			05/24/22 06:13	1
Chloroform	<0.37		2.0	0.37	ug/L			05/24/22 06:13	1
Chloromethane	<0.32	F1	1.0	0.32	ug/L			05/24/22 06:13	1
2-Chlorotoluene	<0.31		1.0	0.31	ug/L			05/24/22 06:13	1
4-Chlorotoluene	<0.35		1.0	0.35	ug/L			05/24/22 06:13	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			05/24/22 06:13	1
cis-1,3-Dichloropropene	<0.42		1.0	0.42	ug/L			05/24/22 06:13	1
Dibromochloromethane	<0.49		1.0	0.49	ug/L			05/24/22 06:13	1
1,2-Dibromo-3-Chloropropane	<2.0		5.0	2.0	ug/L			05/24/22 06:13	1
1,2-Dibromoethane (EDB)	<0.39		1.0	0.39	ug/L			05/24/22 06:13	1
Dibromomethane	<0.27		1.0	0.27	ug/L			05/24/22 06:13	1
1,2-Dichlorobenzene	<0.33		1.0	0.33	ug/L			05/24/22 06:13	1
1,3-Dichlorobenzene	<0.40		1.0	0.40	ug/L			05/24/22 06:13	1
1,4-Dichlorobenzene	<0.36		1.0	0.36	ug/L			05/24/22 06:13	1
Dichlorodifluoromethane	<0.67		3.0	0.67	ug/L			05/24/22 06:13	1
1,1-Dichloroethane	<0.41		1.0	0.41	ug/L			05/24/22 06:13	1
1,2-Dichloroethane	<0.39		1.0	0.39	ug/L			05/24/22 06:13	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			05/24/22 06:13	1
1,2-Dichloropropane	<0.43		1.0	0.43	ug/L			05/24/22 06:13	1
1,3-Dichloropropane	<0.36		1.0	0.36	ug/L			05/24/22 06:13	1
2,2-Dichloropropane	<0.44		1.0	0.44	ug/L			05/24/22 06:13	1
1,1-Dichloropropene	<0.30		1.0	0.30	ug/L			05/24/22 06:13	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			05/24/22 06:13	1
Hexachlorobutadiene	<0.45		1.0	0.45	ug/L			05/24/22 06:13	1
Isopropylbenzene	<0.39		1.0	0.39	ug/L			05/24/22 06:13	1
Isopropyl ether	<0.28		1.0	0.28	ug/L			05/24/22 06:13	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			05/24/22 06:13	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			05/24/22 06:13	1
Naphthalene	<0.34		1.0	0.34	ug/L			05/24/22 06:13	1
n-Butylbenzene	<0.39		1.0	0.39	ug/L			05/24/22 06:13	1
N-Propylbenzene	<0.41		1.0	0.41	ug/L			05/24/22 06:13	1
p-Isopropyltoluene	<0.36		1.0	0.36	ug/L			05/24/22 06:13	1
sec-Butylbenzene	<0.40		1.0	0.40	ug/L			05/24/22 06:13	1
Styrene	<0.39		1.0	0.39	ug/L			05/24/22 06:13	1
tert-Butylbenzene	<0.40		1.0	0.40	ug/L			05/24/22 06:13	1
1,1,1,2-Tetrachloroethane	<0.46		1.0	0.46	ug/L			05/24/22 06:13	1
1,1,2,2-Tetrachloroethane	<0.40		1.0	0.40	ug/L			05/24/22 06:13	1
Tetrachloroethene	4.9		1.0	0.37	ug/L			05/24/22 06:13	1
Toluene	<0.15		0.50	0.15	ug/L			05/24/22 06:13	1
trans-1,2-Dichloroethene	<0.35		1.0	0.35	ug/L			05/24/22 06:13	1
trans-1,3-Dichloropropene	<0.36		1.0	0.36	ug/L			05/24/22 06:13	1

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Client Sample Results

Client: SCS Engineers
Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: MW-4

Lab Sample ID: 500-216625-5

Date Collected: 05/12/22 16:00

Matrix: Water

Date Received: 05/14/22 10:15

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3-Trichlorobenzene	<0.46		1.0	0.46	ug/L			05/24/22 06:13	1
1,2,4-Trichlorobenzene	<0.34		1.0	0.34	ug/L			05/24/22 06:13	1
1,1,1-Trichloroethane	<0.38		1.0	0.38	ug/L			05/24/22 06:13	1
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			05/24/22 06:13	1
Trichloroethene	<0.16		0.50	0.16	ug/L			05/24/22 06:13	1
Trichlorofluoromethane	<0.43		1.0	0.43	ug/L			05/24/22 06:13	1
1,2,3-Trichloropropane	<0.41		2.0	0.41	ug/L			05/24/22 06:13	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			05/24/22 06:13	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			05/24/22 06:13	1
Vinyl chloride	<0.20	F1	1.0	0.20	ug/L			05/24/22 06:13	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			05/24/22 06:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		72 - 124		05/24/22 06:13	1
Dibromofluoromethane (Surr)	103		75 - 120		05/24/22 06:13	1
1,2-Dichloroethane-d4 (Surr)	97		75 - 126		05/24/22 06:13	1
Toluene-d8 (Surr)	98		75 - 120		05/24/22 06:13	1

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	9.3		4.4	2.1	ng/L		05/26/22 12:47	05/29/22 07:32	1
Perfluoropentanoic acid (PFPeA)	6.1		1.8	0.43	ng/L		05/26/22 12:47	05/29/22 07:32	1
Perfluorohexanoic acid (PFHxA)	34		1.8	0.51	ng/L		05/26/22 12:47	05/29/22 07:32	1
Perfluoroheptanoic acid (PFHpA)	15		1.8	0.22	ng/L		05/26/22 12:47	05/29/22 07:32	1
Perfluorooctanoic acid (PFOA)	71		1.8	0.75	ng/L		05/26/22 12:47	05/29/22 07:32	1
Perfluorononanoic acid (PFNA)	<0.24		1.8	0.24	ng/L		05/26/22 12:47	05/29/22 07:32	1
Perfluorodecanoic acid (PFDA)	<0.27		1.8	0.27	ng/L		05/26/22 12:47	05/29/22 07:32	1
Perfluoroundecanoic acid (PFUnA)	<0.97		1.8	0.97	ng/L		05/26/22 12:47	05/29/22 07:32	1
Perfluorododecanoic acid (PFDoA)	<0.48		1.8	0.48	ng/L		05/26/22 12:47	05/29/22 07:32	1
Perfluorotridecanoic acid (PFTrDA)	<1.1		1.8	1.1	ng/L		05/26/22 12:47	05/29/22 07:32	1
Perfluorotetradecanoic acid (PFTeA)	<0.64		1.8	0.64	ng/L		05/26/22 12:47	05/29/22 07:32	1
Perfluorobutanesulfonic acid (PFBS)	17		1.8	0.18	ng/L		05/26/22 12:47	05/29/22 07:32	1
Perfluoropentanesulfonic acid (PFPeS)	7.8		1.8	0.26	ng/L		05/26/22 12:47	05/29/22 07:32	1
Perfluoroheptanesulfonic acid (PFHpS)	4.8		1.8	0.17	ng/L		05/26/22 12:47	05/29/22 07:32	1
Perfluorooctanesulfonic acid (PFOS)	45 C		1.8	0.47	ng/L		05/26/22 12:47	05/29/22 07:32	1
Perfluorononanesulfonic acid (PFNS)	<0.33		1.8	0.33	ng/L		05/26/22 12:47	05/29/22 07:32	1
Perfluorodecanesulfonic acid (PFDS)	<0.28		1.8	0.28	ng/L		05/26/22 12:47	05/29/22 07:32	1
Perfluorododecanesulfonic acid (PFDoS)	<0.85		1.8	0.85	ng/L		05/26/22 12:47	05/29/22 07:32	1
Perfluorooctanesulfonamide (FOSA)	<0.86		1.8	0.86	ng/L		05/26/22 12:47	05/29/22 07:32	1
NEtFOSA	<0.76		1.8	0.76	ng/L		05/26/22 12:47	05/29/22 07:32	1
NMeFOSA	<0.38		1.8	0.38	ng/L		05/26/22 12:47	05/29/22 07:32	1
NMeFOSAA	<1.1		4.4	1.1	ng/L		05/26/22 12:47	05/29/22 07:32	1
NEtFOSAA	<1.1		4.4	1.1	ng/L		05/26/22 12:47	05/29/22 07:32	1
NMeFOSE	<1.2		3.5	1.2	ng/L		05/26/22 12:47	05/29/22 07:32	1
NEtFOSE	<0.75		1.8	0.75	ng/L		05/26/22 12:47	05/29/22 07:32	1
4:2 FTS	<0.21		1.8	0.21	ng/L		05/26/22 12:47	05/29/22 07:32	1

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Client Sample Results

Client: SCS Engineers
Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: MW-4
Date Collected: 05/12/22 16:00
Date Received: 05/14/22 10:15

Lab Sample ID: 500-216625-5
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
6:2 FTS	<2.2		4.4	2.2	ng/L		05/26/22 12:47	05/29/22 07:32	1
8:2 FTS	<0.40		1.8	0.40	ng/L		05/26/22 12:47	05/29/22 07:32	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.35		1.8	0.35	ng/L		05/26/22 12:47	05/29/22 07:32	1
HFPO-DA (GenX)	<1.3		3.5	1.3	ng/L		05/26/22 12:47	05/29/22 07:32	1
9CI-PF3ONS	<0.21		1.8	0.21	ng/L		05/26/22 12:47	05/29/22 07:32	1
11CI-PF3OUdS	<0.28		1.8	0.28	ng/L		05/26/22 12:47	05/29/22 07:32	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	88		25 - 150	05/26/22 12:47	05/29/22 07:32	1
13C5 PFPeA	112		25 - 150	05/26/22 12:47	05/29/22 07:32	1
13C2 PFHxA	85		25 - 150	05/26/22 12:47	05/29/22 07:32	1
13C4 PFHpA	76		25 - 150	05/26/22 12:47	05/29/22 07:32	1
13C4 PFOA	87		25 - 150	05/26/22 12:47	05/29/22 07:32	1
13C5 PFNA	94		25 - 150	05/26/22 12:47	05/29/22 07:32	1
13C2 PFDA	100		25 - 150	05/26/22 12:47	05/29/22 07:32	1
13C2 PFUnA	92		25 - 150	05/26/22 12:47	05/29/22 07:32	1
13C2 PFDoA	93		25 - 150	05/26/22 12:47	05/29/22 07:32	1
13C2 PFTeDA	90		25 - 150	05/26/22 12:47	05/29/22 07:32	1
13C3 PFBS	103		25 - 150	05/26/22 12:47	05/29/22 07:32	1
13C4 PFOS	91		25 - 150	05/26/22 12:47	05/29/22 07:32	1
13C8 FOSA	100		10 - 150	05/26/22 12:47	05/29/22 07:32	1
d3-NMeFOSAA	106		25 - 150	05/26/22 12:47	05/29/22 07:32	1
d5-NEtFOSAA	116		25 - 150	05/26/22 12:47	05/29/22 07:32	1
d-N-MeFOSA-M	78		10 - 150	05/26/22 12:47	05/29/22 07:32	1
d-N-EtFOSA-M	83		10 - 150	05/26/22 12:47	05/29/22 07:32	1
d7-N-MeFOSE-M	96		10 - 150	05/26/22 12:47	05/29/22 07:32	1
d9-N-EtFOSE-M	103		10 - 150	05/26/22 12:47	05/29/22 07:32	1
M2-4:2 FTS	113		25 - 150	05/26/22 12:47	05/29/22 07:32	1
M2-6:2 FTS	116		25 - 150	05/26/22 12:47	05/29/22 07:32	1
M2-8:2 FTS	108		25 - 150	05/26/22 12:47	05/29/22 07:32	1
13C3 HFPO-DA	80		25 - 150	05/26/22 12:47	05/29/22 07:32	1
13C2 10:2 FTS	98		25 - 150	05/26/22 12:47	05/29/22 07:32	1

Method: 537 (modified) - Fluorinated Alkyl Substances - DL

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanesulfonic acid (PFHxS)	820		18	5.0	ng/L		05/26/22 12:47	05/29/22 06:32	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
18O2 PFHxS	94		25 - 150	05/26/22 12:47	05/29/22 06:32	10

Client Sample Results

Client: SCS Engineers
Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: MW-5

Lab Sample ID: 500-216625-6

Date Collected: 05/12/22 13:55

Matrix: Water

Date Received: 05/14/22 10:15

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.3	J	4.5	2.2	ng/L		05/26/22 12:47	05/29/22 05:11	1
Perfluoropentanoic acid (PFPeA)	1.3	J	1.8	0.44	ng/L		05/26/22 12:47	05/29/22 05:11	1
Perfluorohexanoic acid (PFHxA)	6.6		1.8	0.52	ng/L		05/26/22 12:47	05/29/22 05:11	1
Perfluoroheptanoic acid (PFHpA)	2.6		1.8	0.23	ng/L		05/26/22 12:47	05/29/22 05:11	1
Perfluorooctanoic acid (PFOA)	8.4		1.8	0.77	ng/L		05/26/22 12:47	05/29/22 05:11	1
Perfluorononanoic acid (PFNA)	<0.24		1.8	0.24	ng/L		05/26/22 12:47	05/29/22 05:11	1
Perfluorodecanoic acid (PFDA)	<0.28		1.8	0.28	ng/L		05/26/22 12:47	05/29/22 05:11	1
Perfluoroundecanoic acid (PFUnA)	<0.99		1.8	0.99	ng/L		05/26/22 12:47	05/29/22 05:11	1
Perfluorododecanoic acid (PFDoA)	<0.50		1.8	0.50	ng/L		05/26/22 12:47	05/29/22 05:11	1
Perfluorotridecanoic acid (PFTrDA)	<1.2		1.8	1.2	ng/L		05/26/22 12:47	05/29/22 05:11	1
Perfluorotetradecanoic acid (PFTeA)	<0.66		1.8	0.66	ng/L		05/26/22 12:47	05/29/22 05:11	1
Perfluorobutanesulfonic acid (PFBS)	4.7		1.8	0.18	ng/L		05/26/22 12:47	05/29/22 05:11	1
Perfluoropentanesulfonic acid (PFPeS)	1.5	J	1.8	0.27	ng/L		05/26/22 12:47	05/29/22 05:11	1
Perfluorohexanesulfonic acid (PFHxS)	98		1.8	0.51	ng/L		05/26/22 12:47	05/29/22 05:11	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.17		1.8	0.17	ng/L		05/26/22 12:47	05/29/22 05:11	1
Perfluorooctanesulfonic acid (PFOS)	15	C	1.8	0.49	ng/L		05/26/22 12:47	05/29/22 05:11	1
Perfluorononanesulfonic acid (PFNS)	<0.33		1.8	0.33	ng/L		05/26/22 12:47	05/29/22 05:11	1
Perfluorodecanesulfonic acid (PFDS)	<0.29		1.8	0.29	ng/L		05/26/22 12:47	05/29/22 05:11	1
Perfluorododecanesulfonic acid (PFDoS)	<0.87		1.8	0.87	ng/L		05/26/22 12:47	05/29/22 05:11	1
Perfluorooctanesulfonamide (FOSA)	<0.88		1.8	0.88	ng/L		05/26/22 12:47	05/29/22 05:11	1
NEtFOSA	<0.78		1.8	0.78	ng/L		05/26/22 12:47	05/29/22 05:11	1
NMeFOSA	<0.39		1.8	0.39	ng/L		05/26/22 12:47	05/29/22 05:11	1
NMeFOSAA	<1.1		4.5	1.1	ng/L		05/26/22 12:47	05/29/22 05:11	1
NEtFOSAA	<1.2		4.5	1.2	ng/L		05/26/22 12:47	05/29/22 05:11	1
NMeFOSE	<1.3		3.6	1.3	ng/L		05/26/22 12:47	05/29/22 05:11	1
NEtFOSE	<0.77		1.8	0.77	ng/L		05/26/22 12:47	05/29/22 05:11	1
4:2 FTS	<0.22		1.8	0.22	ng/L		05/26/22 12:47	05/29/22 05:11	1
6:2 FTS	<2.3		4.5	2.3	ng/L		05/26/22 12:47	05/29/22 05:11	1
8:2 FTS	<0.41		1.8	0.41	ng/L		05/26/22 12:47	05/29/22 05:11	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.36		1.8	0.36	ng/L		05/26/22 12:47	05/29/22 05:11	1
HFPO-DA (GenX)	<1.4		3.6	1.4	ng/L		05/26/22 12:47	05/29/22 05:11	1
9CI-PF3ONS	<0.22		1.8	0.22	ng/L		05/26/22 12:47	05/29/22 05:11	1
11CI-PF3OUdS	<0.29		1.8	0.29	ng/L		05/26/22 12:47	05/29/22 05:11	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	107		25 - 150	05/26/22 12:47	05/29/22 05:11	1
13C5 PFPeA	136		25 - 150	05/26/22 12:47	05/29/22 05:11	1
13C2 PFHxA	104		25 - 150	05/26/22 12:47	05/29/22 05:11	1
13C4 PFHpA	94		25 - 150	05/26/22 12:47	05/29/22 05:11	1
13C4 PFOA	100		25 - 150	05/26/22 12:47	05/29/22 05:11	1
13C5 PFNA	109		25 - 150	05/26/22 12:47	05/29/22 05:11	1
13C2 PFDA	117		25 - 150	05/26/22 12:47	05/29/22 05:11	1
13C2 PFUnA	108		25 - 150	05/26/22 12:47	05/29/22 05:11	1
13C2 PFDoA	107		25 - 150	05/26/22 12:47	05/29/22 05:11	1
13C2 PFTeDA	105		25 - 150	05/26/22 12:47	05/29/22 05:11	1

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Client Sample Results

Client: SCS Engineers
Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: MW-5

Date Collected: 05/12/22 13:55

Date Received: 05/14/22 10:15

Lab Sample ID: 500-216625-6

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C3 PFBS	119		25 - 150	05/26/22 12:47	05/29/22 05:11	1
18O2 PFHxS	114		25 - 150	05/26/22 12:47	05/29/22 05:11	1
13C4 PFOS	108		25 - 150	05/26/22 12:47	05/29/22 05:11	1
13C8 FOSA	117		10 - 150	05/26/22 12:47	05/29/22 05:11	1
d3-NMeFOSAA	119		25 - 150	05/26/22 12:47	05/29/22 05:11	1
d5-NEtFOSAA	124		25 - 150	05/26/22 12:47	05/29/22 05:11	1
d-N-MeFOSA-M	96		10 - 150	05/26/22 12:47	05/29/22 05:11	1
d-N-EtFOSA-M	95		10 - 150	05/26/22 12:47	05/29/22 05:11	1
d7-N-MeFOSE-M	111		10 - 150	05/26/22 12:47	05/29/22 05:11	1
d9-N-EtFOSE-M	115		10 - 150	05/26/22 12:47	05/29/22 05:11	1
M2-4:2 FTS	136		25 - 150	05/26/22 12:47	05/29/22 05:11	1
M2-6:2 FTS	144		25 - 150	05/26/22 12:47	05/29/22 05:11	1
M2-8:2 FTS	126		25 - 150	05/26/22 12:47	05/29/22 05:11	1
13C3 HFPO-DA	97		25 - 150	05/26/22 12:47	05/29/22 05:11	1
13C2 10:2 FTS	116		25 - 150	05/26/22 12:47	05/29/22 05:11	1

Client Sample Results

Client: SCS Engineers
Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: MW-8
Date Collected: 05/12/22 12:00
Date Received: 05/14/22 10:15

Lab Sample ID: 500-216625-7
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.3	J	4.4	2.1	ng/L		05/26/22 12:47	05/29/22 05:51	1
Perfluoropentanoic acid (PFPeA)	0.52	J	1.7	0.43	ng/L		05/26/22 12:47	05/29/22 05:51	1
Perfluorohexanoic acid (PFHxA)	0.64	J	1.7	0.51	ng/L		05/26/22 12:47	05/29/22 05:51	1
Perfluoroheptanoic acid (PFHpA)	0.44	J	1.7	0.22	ng/L		05/26/22 12:47	05/29/22 05:51	1
Perfluorooctanoic acid (PFOA)	1.1	J	1.7	0.74	ng/L		05/26/22 12:47	05/29/22 05:51	1
Perfluorononanoic acid (PFNA)	<0.24		1.7	0.24	ng/L		05/26/22 12:47	05/29/22 05:51	1
Perfluorodecanoic acid (PFDA)	<0.27		1.7	0.27	ng/L		05/26/22 12:47	05/29/22 05:51	1
Perfluoroundecanoic acid (PFUnA)	<0.96		1.7	0.96	ng/L		05/26/22 12:47	05/29/22 05:51	1
Perfluorododecanoic acid (PFDoA)	<0.48		1.7	0.48	ng/L		05/26/22 12:47	05/29/22 05:51	1
Perfluorotridecanoic acid (PFTrDA)	<1.1		1.7	1.1	ng/L		05/26/22 12:47	05/29/22 05:51	1
Perfluorotetradecanoic acid (PFTeA)	<0.64		1.7	0.64	ng/L		05/26/22 12:47	05/29/22 05:51	1
Perfluorobutanesulfonic acid (PFBS)	2.5		1.7	0.17	ng/L		05/26/22 12:47	05/29/22 05:51	1
Perfluoropentanesulfonic acid (PFPeS)	<0.26		1.7	0.26	ng/L		05/26/22 12:47	05/29/22 05:51	1
Perfluorohexanesulfonic acid (PFHxS)	8.4		1.7	0.50	ng/L		05/26/22 12:47	05/29/22 05:51	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.17		1.7	0.17	ng/L		05/26/22 12:47	05/29/22 05:51	1
Perfluorooctanesulfonic acid (PFOS)	2.9		1.7	0.47	ng/L		05/26/22 12:47	05/29/22 05:51	1
Perfluorononanesulfonic acid (PFNS)	<0.32		1.7	0.32	ng/L		05/26/22 12:47	05/29/22 05:51	1
Perfluorodecanesulfonic acid (PFDS)	<0.28		1.7	0.28	ng/L		05/26/22 12:47	05/29/22 05:51	1
Perfluorododecanesulfonic acid (PFDoS)	<0.85		1.7	0.85	ng/L		05/26/22 12:47	05/29/22 05:51	1
Perfluorooctanesulfonamide (FOSA)	<0.86		1.7	0.86	ng/L		05/26/22 12:47	05/29/22 05:51	1
NEtFOSA	<0.76		1.7	0.76	ng/L		05/26/22 12:47	05/29/22 05:51	1
NMeFOSA	<0.38		1.7	0.38	ng/L		05/26/22 12:47	05/29/22 05:51	1
NMeFOSAA	<1.0		4.4	1.0	ng/L		05/26/22 12:47	05/29/22 05:51	1
NEtFOSAA	<1.1		4.4	1.1	ng/L		05/26/22 12:47	05/29/22 05:51	1
NMeFOSE	<1.2		3.5	1.2	ng/L		05/26/22 12:47	05/29/22 05:51	1
NEtFOSE	<0.74		1.7	0.74	ng/L		05/26/22 12:47	05/29/22 05:51	1
4:2 FTS	<0.21		1.7	0.21	ng/L		05/26/22 12:47	05/29/22 05:51	1
6:2 FTS	<2.2		4.4	2.2	ng/L		05/26/22 12:47	05/29/22 05:51	1
8:2 FTS	<0.40		1.7	0.40	ng/L		05/26/22 12:47	05/29/22 05:51	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.35		1.7	0.35	ng/L		05/26/22 12:47	05/29/22 05:51	1
HFPO-DA (GenX)	<1.3		3.5	1.3	ng/L		05/26/22 12:47	05/29/22 05:51	1
9CI-PF3ONS	<0.21		1.7	0.21	ng/L		05/26/22 12:47	05/29/22 05:51	1
11CI-PF3OUdS	<0.28		1.7	0.28	ng/L		05/26/22 12:47	05/29/22 05:51	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	98		25 - 150				05/26/22 12:47	05/29/22 05:51	1
13C5 PFPeA	127		25 - 150				05/26/22 12:47	05/29/22 05:51	1
13C2 PFHxA	98		25 - 150				05/26/22 12:47	05/29/22 05:51	1
13C4 PFHpA	90		25 - 150				05/26/22 12:47	05/29/22 05:51	1
13C4 PFOA	96		25 - 150				05/26/22 12:47	05/29/22 05:51	1
13C5 PFNA	107		25 - 150				05/26/22 12:47	05/29/22 05:51	1
13C2 PFDA	108		25 - 150				05/26/22 12:47	05/29/22 05:51	1
13C2 PFUnA	104		25 - 150				05/26/22 12:47	05/29/22 05:51	1
13C2 PFDoA	100		25 - 150				05/26/22 12:47	05/29/22 05:51	1
13C2 PFTeDA	98		25 - 150				05/26/22 12:47	05/29/22 05:51	1

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Client Sample Results

Client: SCS Engineers
Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: MW-8
Date Collected: 05/12/22 12:00
Date Received: 05/14/22 10:15

Lab Sample ID: 500-216625-7
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C3 PFBS	112		25 - 150	05/26/22 12:47	05/29/22 05:51	1
18O2 PFHxS	111		25 - 150	05/26/22 12:47	05/29/22 05:51	1
13C4 PFOS	104		25 - 150	05/26/22 12:47	05/29/22 05:51	1
13C8 FOSA	111		10 - 150	05/26/22 12:47	05/29/22 05:51	1
d3-NMeFOSAA	113		25 - 150	05/26/22 12:47	05/29/22 05:51	1
d5-NEtFOSAA	121		25 - 150	05/26/22 12:47	05/29/22 05:51	1
d-N-MeFOSA-M	89		10 - 150	05/26/22 12:47	05/29/22 05:51	1
d-N-EtFOSA-M	88		10 - 150	05/26/22 12:47	05/29/22 05:51	1
d7-N-MeFOSE-M	104		10 - 150	05/26/22 12:47	05/29/22 05:51	1
d9-N-EtFOSE-M	103		10 - 150	05/26/22 12:47	05/29/22 05:51	1
M2-4:2 FTS	122		25 - 150	05/26/22 12:47	05/29/22 05:51	1
M2-6:2 FTS	136		25 - 150	05/26/22 12:47	05/29/22 05:51	1
M2-8:2 FTS	116		25 - 150	05/26/22 12:47	05/29/22 05:51	1
13C3 HFPO-DA	93		25 - 150	05/26/22 12:47	05/29/22 05:51	1
13C2 10:2 FTS	106		25 - 150	05/26/22 12:47	05/29/22 05:51	1

Client Sample Results

Client: SCS Engineers
Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: Equipment Blank

Lab Sample ID: 500-216625-8

Date Collected: 05/12/22 10:50

Matrix: Water

Date Received: 05/14/22 10:15

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.2		4.6	2.2	ng/L		05/26/22 12:47	05/29/22 06:01	1
Perfluoropentanoic acid (PFPeA)	<0.45		1.9	0.45	ng/L		05/26/22 12:47	05/29/22 06:01	1
Perfluorohexanoic acid (PFHxA)	<0.54		1.9	0.54	ng/L		05/26/22 12:47	05/29/22 06:01	1
Perfluoroheptanoic acid (PFHpA)	<0.23		1.9	0.23	ng/L		05/26/22 12:47	05/29/22 06:01	1
Perfluorooctanoic acid (PFOA)	<0.79		1.9	0.79	ng/L		05/26/22 12:47	05/29/22 06:01	1
Perfluorononanoic acid (PFNA)	<0.25		1.9	0.25	ng/L		05/26/22 12:47	05/29/22 06:01	1
Perfluorodecanoic acid (PFDA)	<0.29		1.9	0.29	ng/L		05/26/22 12:47	05/29/22 06:01	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.9	1.0	ng/L		05/26/22 12:47	05/29/22 06:01	1
Perfluorododecanoic acid (PFDoA)	<0.51		1.9	0.51	ng/L		05/26/22 12:47	05/29/22 06:01	1
Perfluorotridecanoic acid (PFTrDA)	<1.2		1.9	1.2	ng/L		05/26/22 12:47	05/29/22 06:01	1
Perfluorotetradecanoic acid (PFTeA)	<0.68		1.9	0.68	ng/L		05/26/22 12:47	05/29/22 06:01	1
Perfluorobutanesulfonic acid (PFBS)	<0.19		1.9	0.19	ng/L		05/26/22 12:47	05/29/22 06:01	1
Perfluoropentanesulfonic acid (PFPeS)	<0.28		1.9	0.28	ng/L		05/26/22 12:47	05/29/22 06:01	1
Perfluorohexanesulfonic acid (PFHxS)	<0.53		1.9	0.53	ng/L		05/26/22 12:47	05/29/22 06:01	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.18		1.9	0.18	ng/L		05/26/22 12:47	05/29/22 06:01	1
Perfluorooctanesulfonic acid (PFOS)	<0.50		1.9	0.50	ng/L		05/26/22 12:47	05/29/22 06:01	1
Perfluorononanesulfonic acid (PFNS)	<0.34		1.9	0.34	ng/L		05/26/22 12:47	05/29/22 06:01	1
Perfluorodecanesulfonic acid (PFDS)	<0.30		1.9	0.30	ng/L		05/26/22 12:47	05/29/22 06:01	1
Perfluorododecanesulfonic acid (PFDoS)	<0.90		1.9	0.90	ng/L		05/26/22 12:47	05/29/22 06:01	1
Perfluorooctanesulfonamide (FOSA)	<0.91		1.9	0.91	ng/L		05/26/22 12:47	05/29/22 06:01	1
NEtFOSA	<0.81		1.9	0.81	ng/L		05/26/22 12:47	05/29/22 06:01	1
NMeFOSA	<0.40		1.9	0.40	ng/L		05/26/22 12:47	05/29/22 06:01	1
NMeFOSAA	<1.1		4.6	1.1	ng/L		05/26/22 12:47	05/29/22 06:01	1
NEtFOSAA	<1.2		4.6	1.2	ng/L		05/26/22 12:47	05/29/22 06:01	1
NMeFOSE	<1.3		3.7	1.3	ng/L		05/26/22 12:47	05/29/22 06:01	1
NEtFOSE	<0.79		1.9	0.79	ng/L		05/26/22 12:47	05/29/22 06:01	1
4:2 FTS	<0.22		1.9	0.22	ng/L		05/26/22 12:47	05/29/22 06:01	1
6:2 FTS	<2.3		4.6	2.3	ng/L		05/26/22 12:47	05/29/22 06:01	1
8:2 FTS	<0.43		1.9	0.43	ng/L		05/26/22 12:47	05/29/22 06:01	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.37		1.9	0.37	ng/L		05/26/22 12:47	05/29/22 06:01	1
HFPO-DA (GenX)	<1.4		3.7	1.4	ng/L		05/26/22 12:47	05/29/22 06:01	1
9Cl-PF3ONS	<0.22		1.9	0.22	ng/L		05/26/22 12:47	05/29/22 06:01	1
11Cl-PF3OUdS	<0.30		1.9	0.30	ng/L		05/26/22 12:47	05/29/22 06:01	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	103		25 - 150	05/26/22 12:47	05/29/22 06:01	1
13C5 PFPeA	121		25 - 150	05/26/22 12:47	05/29/22 06:01	1
13C2 PFHxA	94		25 - 150	05/26/22 12:47	05/29/22 06:01	1
13C4 PFHpA	88		25 - 150	05/26/22 12:47	05/29/22 06:01	1
13C4 PFOA	96		25 - 150	05/26/22 12:47	05/29/22 06:01	1
13C5 PFNA	105		25 - 150	05/26/22 12:47	05/29/22 06:01	1
13C2 PFDA	113		25 - 150	05/26/22 12:47	05/29/22 06:01	1
13C2 PFUnA	109		25 - 150	05/26/22 12:47	05/29/22 06:01	1
13C2 PFDoA	102		25 - 150	05/26/22 12:47	05/29/22 06:01	1
13C2 PFTeDA	97		25 - 150	05/26/22 12:47	05/29/22 06:01	1
13C3 PFBS	115		25 - 150	05/26/22 12:47	05/29/22 06:01	1
18O2 PFHxS	115		25 - 150	05/26/22 12:47	05/29/22 06:01	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: Equipment Blank

Lab Sample ID: 500-216625-8

Date Collected: 05/12/22 10:50

Matrix: Water

Date Received: 05/14/22 10:15

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFOS	107		25 - 150	05/26/22 12:47	05/29/22 06:01	1
13C8 FOSA	108		10 - 150	05/26/22 12:47	05/29/22 06:01	1
d3-NMeFOSAA	116		25 - 150	05/26/22 12:47	05/29/22 06:01	1
d5-NEtFOSAA	118		25 - 150	05/26/22 12:47	05/29/22 06:01	1
d-N-MeFOSA-M	82		10 - 150	05/26/22 12:47	05/29/22 06:01	1
d-N-EtFOSA-M	83		10 - 150	05/26/22 12:47	05/29/22 06:01	1
d7-N-MeFOSE-M	106		10 - 150	05/26/22 12:47	05/29/22 06:01	1
d9-N-EtFOSE-M	109		10 - 150	05/26/22 12:47	05/29/22 06:01	1
M2-4:2 FTS	130		25 - 150	05/26/22 12:47	05/29/22 06:01	1
M2-6:2 FTS	141		25 - 150	05/26/22 12:47	05/29/22 06:01	1
M2-8:2 FTS	116		25 - 150	05/26/22 12:47	05/29/22 06:01	1
13C3 HFPO-DA	89		25 - 150	05/26/22 12:47	05/29/22 06:01	1
13C2 10:2 FTS	109		25 - 150	05/26/22 12:47	05/29/22 06:01	1

Client Sample Results

Client: SCS Engineers
Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: Field Blank

Lab Sample ID: 500-216625-9

Date Collected: 05/12/22 10:45

Matrix: Water

Date Received: 05/14/22 10:15

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.1		4.3	2.1	ng/L		05/26/22 12:47	05/29/22 06:11	1
Perfluoropentanoic acid (PFPeA)	<0.43		1.7	0.43	ng/L		05/26/22 12:47	05/29/22 06:11	1
Perfluorohexanoic acid (PFHxA)	<0.50		1.7	0.50	ng/L		05/26/22 12:47	05/29/22 06:11	1
Perfluoroheptanoic acid (PFHpA)	<0.22		1.7	0.22	ng/L		05/26/22 12:47	05/29/22 06:11	1
Perfluorooctanoic acid (PFOA)	<0.74		1.7	0.74	ng/L		05/26/22 12:47	05/29/22 06:11	1
Perfluorononanoic acid (PFNA)	<0.23		1.7	0.23	ng/L		05/26/22 12:47	05/29/22 06:11	1
Perfluorodecanoic acid (PFDA)	<0.27		1.7	0.27	ng/L		05/26/22 12:47	05/29/22 06:11	1
Perfluoroundecanoic acid (PFUnA)	<0.96		1.7	0.96	ng/L		05/26/22 12:47	05/29/22 06:11	1
Perfluorododecanoic acid (PFDoA)	<0.48		1.7	0.48	ng/L		05/26/22 12:47	05/29/22 06:11	1
Perfluorotridecanoic acid (PFTrDA)	<1.1		1.7	1.1	ng/L		05/26/22 12:47	05/29/22 06:11	1
Perfluorotetradecanoic acid (PFTeA)	<0.63		1.7	0.63	ng/L		05/26/22 12:47	05/29/22 06:11	1
Perfluorobutanesulfonic acid (PFBS)	<0.17		1.7	0.17	ng/L		05/26/22 12:47	05/29/22 06:11	1
Perfluoropentanesulfonic acid (PFPeS)	<0.26		1.7	0.26	ng/L		05/26/22 12:47	05/29/22 06:11	1
Perfluorohexanesulfonic acid (PFHxS)	<0.50		1.7	0.50	ng/L		05/26/22 12:47	05/29/22 06:11	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.17		1.7	0.17	ng/L		05/26/22 12:47	05/29/22 06:11	1
Perfluorooctanesulfonic acid (PFOS)	<0.47		1.7	0.47	ng/L		05/26/22 12:47	05/29/22 06:11	1
Perfluorononanesulfonic acid (PFNS)	<0.32		1.7	0.32	ng/L		05/26/22 12:47	05/29/22 06:11	1
Perfluorodecanesulfonic acid (PFDS)	<0.28		1.7	0.28	ng/L		05/26/22 12:47	05/29/22 06:11	1
Perfluorododecanesulfonic acid (PFDoS)	<0.84		1.7	0.84	ng/L		05/26/22 12:47	05/29/22 06:11	1
Perfluorooctanesulfonamide (FOSA)	<0.85		1.7	0.85	ng/L		05/26/22 12:47	05/29/22 06:11	1
NEtFOSA	<0.76		1.7	0.76	ng/L		05/26/22 12:47	05/29/22 06:11	1
NMeFOSA	<0.37		1.7	0.37	ng/L		05/26/22 12:47	05/29/22 06:11	1
NMeFOSAA	<1.0		4.3	1.0	ng/L		05/26/22 12:47	05/29/22 06:11	1
NEtFOSAA	<1.1		4.3	1.1	ng/L		05/26/22 12:47	05/29/22 06:11	1
NMeFOSE	<1.2		3.5	1.2	ng/L		05/26/22 12:47	05/29/22 06:11	1
NEtFOSE	<0.74		1.7	0.74	ng/L		05/26/22 12:47	05/29/22 06:11	1
4:2 FTS	<0.21		1.7	0.21	ng/L		05/26/22 12:47	05/29/22 06:11	1
6:2 FTS	<2.2		4.3	2.2	ng/L		05/26/22 12:47	05/29/22 06:11	1
8:2 FTS	<0.40		1.7	0.40	ng/L		05/26/22 12:47	05/29/22 06:11	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.35		1.7	0.35	ng/L		05/26/22 12:47	05/29/22 06:11	1
HFPO-DA (GenX)	<1.3		3.5	1.3	ng/L		05/26/22 12:47	05/29/22 06:11	1
9Cl-PF3ONS	<0.21		1.7	0.21	ng/L		05/26/22 12:47	05/29/22 06:11	1
11Cl-PF3OUdS	<0.28		1.7	0.28	ng/L		05/26/22 12:47	05/29/22 06:11	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	103		25 - 150	05/26/22 12:47	05/29/22 06:11	1
13C5 PFPeA	130		25 - 150	05/26/22 12:47	05/29/22 06:11	1
13C2 PFHxA	97		25 - 150	05/26/22 12:47	05/29/22 06:11	1
13C4 PFHpA	90		25 - 150	05/26/22 12:47	05/29/22 06:11	1
13C4 PFOA	98		25 - 150	05/26/22 12:47	05/29/22 06:11	1
13C5 PFNA	106		25 - 150	05/26/22 12:47	05/29/22 06:11	1
13C2 PFDA	117		25 - 150	05/26/22 12:47	05/29/22 06:11	1
13C2 PFUnA	110		25 - 150	05/26/22 12:47	05/29/22 06:11	1
13C2 PFDoA	107		25 - 150	05/26/22 12:47	05/29/22 06:11	1
13C2 PFTeDA	106		25 - 150	05/26/22 12:47	05/29/22 06:11	1
13C3 PFBS	114		25 - 150	05/26/22 12:47	05/29/22 06:11	1
18O2 PFHxS	111		25 - 150	05/26/22 12:47	05/29/22 06:11	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: Field Blank

Lab Sample ID: 500-216625-9

Date Collected: 05/12/22 10:45

Matrix: Water

Date Received: 05/14/22 10:15

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFOS	104		25 - 150	05/26/22 12:47	05/29/22 06:11	1
13C8 FOSA	110		10 - 150	05/26/22 12:47	05/29/22 06:11	1
d3-NMeFOSAA	120		25 - 150	05/26/22 12:47	05/29/22 06:11	1
d5-NEtFOSAA	127		25 - 150	05/26/22 12:47	05/29/22 06:11	1
d-N-MeFOSA-M	86		10 - 150	05/26/22 12:47	05/29/22 06:11	1
d-N-EtFOSA-M	93		10 - 150	05/26/22 12:47	05/29/22 06:11	1
d7-N-MeFOSE-M	114		10 - 150	05/26/22 12:47	05/29/22 06:11	1
d9-N-EtFOSE-M	118		10 - 150	05/26/22 12:47	05/29/22 06:11	1
M2-4:2 FTS	132		25 - 150	05/26/22 12:47	05/29/22 06:11	1
M2-6:2 FTS	138		25 - 150	05/26/22 12:47	05/29/22 06:11	1
M2-8:2 FTS	125		25 - 150	05/26/22 12:47	05/29/22 06:11	1
13C3 HFPO-DA	93		25 - 150	05/26/22 12:47	05/29/22 06:11	1
13C2 10:2 FTS	114		25 - 150	05/26/22 12:47	05/29/22 06:11	1

Client Sample Results

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: Trip Blank

Lab Sample ID: 500-216625-10

Date Collected: 05/12/22 08:00

Matrix: Water

Date Received: 05/14/22 10:15

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			05/24/22 06:36	1
Bromobenzene	<0.36		1.0	0.36	ug/L			05/24/22 06:36	1
Bromochloromethane	<0.43		1.0	0.43	ug/L			05/24/22 06:36	1
Bromodichloromethane	<0.37		1.0	0.37	ug/L			05/24/22 06:36	1
Bromoform	<0.48		1.0	0.48	ug/L			05/24/22 06:36	1
Bromomethane	<0.80		3.0	0.80	ug/L			05/24/22 06:36	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			05/24/22 06:36	1
Chlorobenzene	<0.39		1.0	0.39	ug/L			05/24/22 06:36	1
Chloroethane	<0.51		1.0	0.51	ug/L			05/24/22 06:36	1
Chloroform	<0.37		2.0	0.37	ug/L			05/24/22 06:36	1
Chloromethane	<0.32		1.0	0.32	ug/L			05/24/22 06:36	1
2-Chlorotoluene	<0.31		1.0	0.31	ug/L			05/24/22 06:36	1
4-Chlorotoluene	<0.35		1.0	0.35	ug/L			05/24/22 06:36	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			05/24/22 06:36	1
cis-1,3-Dichloropropene	<0.42		1.0	0.42	ug/L			05/24/22 06:36	1
Dibromochloromethane	<0.49		1.0	0.49	ug/L			05/24/22 06:36	1
1,2-Dibromo-3-Chloropropane	<2.0		5.0	2.0	ug/L			05/24/22 06:36	1
1,2-Dibromoethane (EDB)	<0.39		1.0	0.39	ug/L			05/24/22 06:36	1
Dibromomethane	<0.27		1.0	0.27	ug/L			05/24/22 06:36	1
1,2-Dichlorobenzene	<0.33		1.0	0.33	ug/L			05/24/22 06:36	1
1,3-Dichlorobenzene	<0.40		1.0	0.40	ug/L			05/24/22 06:36	1
1,4-Dichlorobenzene	<0.36		1.0	0.36	ug/L			05/24/22 06:36	1
Dichlorodifluoromethane	<0.67		3.0	0.67	ug/L			05/24/22 06:36	1
1,1-Dichloroethane	<0.41		1.0	0.41	ug/L			05/24/22 06:36	1
1,2-Dichloroethane	<0.39		1.0	0.39	ug/L			05/24/22 06:36	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			05/24/22 06:36	1
1,2-Dichloropropane	<0.43		1.0	0.43	ug/L			05/24/22 06:36	1
1,3-Dichloropropane	<0.36		1.0	0.36	ug/L			05/24/22 06:36	1
2,2-Dichloropropane	<0.44		1.0	0.44	ug/L			05/24/22 06:36	1
1,1-Dichloropropene	<0.30		1.0	0.30	ug/L			05/24/22 06:36	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			05/24/22 06:36	1
Hexachlorobutadiene	<0.45		1.0	0.45	ug/L			05/24/22 06:36	1
Isopropylbenzene	<0.39		1.0	0.39	ug/L			05/24/22 06:36	1
Isopropyl ether	<0.28		1.0	0.28	ug/L			05/24/22 06:36	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			05/24/22 06:36	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			05/24/22 06:36	1
Naphthalene	<0.34		1.0	0.34	ug/L			05/24/22 06:36	1
n-Butylbenzene	<0.39		1.0	0.39	ug/L			05/24/22 06:36	1
N-Propylbenzene	<0.41		1.0	0.41	ug/L			05/24/22 06:36	1
p-Isopropyltoluene	<0.36		1.0	0.36	ug/L			05/24/22 06:36	1
sec-Butylbenzene	<0.40		1.0	0.40	ug/L			05/24/22 06:36	1
Styrene	<0.39		1.0	0.39	ug/L			05/24/22 06:36	1
tert-Butylbenzene	<0.40		1.0	0.40	ug/L			05/24/22 06:36	1
1,1,1,2-Tetrachloroethane	<0.46		1.0	0.46	ug/L			05/24/22 06:36	1
1,1,2,2-Tetrachloroethane	<0.40		1.0	0.40	ug/L			05/24/22 06:36	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			05/24/22 06:36	1
Toluene	<0.15		0.50	0.15	ug/L			05/24/22 06:36	1
trans-1,2-Dichloroethene	<0.35		1.0	0.35	ug/L			05/24/22 06:36	1
trans-1,3-Dichloropropene	<0.36		1.0	0.36	ug/L			05/24/22 06:36	1

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Client Sample Results

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: Trip Blank

Lab Sample ID: 500-216625-10

Date Collected: 05/12/22 08:00

Matrix: Water

Date Received: 05/14/22 10:15

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3-Trichlorobenzene	<0.46		1.0	0.46	ug/L			05/24/22 06:36	1
1,2,4-Trichlorobenzene	<0.34		1.0	0.34	ug/L			05/24/22 06:36	1
1,1,1-Trichloroethane	<0.38		1.0	0.38	ug/L			05/24/22 06:36	1
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			05/24/22 06:36	1
Trichloroethene	<0.16		0.50	0.16	ug/L			05/24/22 06:36	1
Trichlorofluoromethane	<0.43		1.0	0.43	ug/L			05/24/22 06:36	1
1,2,3-Trichloropropane	<0.41		2.0	0.41	ug/L			05/24/22 06:36	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			05/24/22 06:36	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			05/24/22 06:36	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			05/24/22 06:36	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			05/24/22 06:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		72 - 124		05/24/22 06:36	1
Dibromofluoromethane (Surr)	104		75 - 120		05/24/22 06:36	1
1,2-Dichloroethane-d4 (Surr)	100		75 - 126		05/24/22 06:36	1
Toluene-d8 (Surr)	97		75 - 120		05/24/22 06:36	1

Definitions/Glossary

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Reported value was between the limit of detection and the limit of quantitation.

LCMS

Qualifier	Qualifier Description
C	See Case Narrative
J	Reported value was between the limit of detection and the limit of quantitation.

Glossary

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

QC Association Summary

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

GC/MS VOA

Analysis Batch: 658136

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-216625-3	MW-3	Total/NA	Water	8260B	
500-216625-4	MW-3 DUP	Total/NA	Water	8260B	
500-216625-5	MW-4	Total/NA	Water	8260B	
500-216625-10	Trip Blank	Total/NA	Water	8260B	
MB 500-658136/6	Method Blank	Total/NA	Water	8260B	
LCS 500-658136/4	Lab Control Sample	Total/NA	Water	8260B	
500-216625-5 MS	MW-4	Total/NA	Water	8260B	
500-216625-5 MSD	MW-4	Total/NA	Water	8260B	

LCMS

Prep Batch: 590681

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-216625-1	MW-1R	Total/NA	Water	3535	
500-216625-2	MW-2	Total/NA	Water	3535	
500-216625-3	MW-3	Total/NA	Water	3535	
500-216625-4	MW-3 DUP	Total/NA	Water	3535	
500-216625-5	MW-4	Total/NA	Water	3535	
500-216625-5 - DL	MW-4	Total/NA	Water	3535	
500-216625-6	MW-5	Total/NA	Water	3535	
500-216625-7	MW-8	Total/NA	Water	3535	
500-216625-8	Equipment Blank	Total/NA	Water	3535	
500-216625-9	Field Blank	Total/NA	Water	3535	
MB 320-590681/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-590681/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-590681/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 591309

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-216625-1	MW-1R	Total/NA	Water	537 (modified)	590681
500-216625-2	MW-2	Total/NA	Water	537 (modified)	590681
500-216625-3	MW-3	Total/NA	Water	537 (modified)	590681
500-216625-4	MW-3 DUP	Total/NA	Water	537 (modified)	590681
500-216625-5 - DL	MW-4	Total/NA	Water	537 (modified)	590681
500-216625-5	MW-4	Total/NA	Water	537 (modified)	590681
500-216625-6	MW-5	Total/NA	Water	537 (modified)	590681
500-216625-7	MW-8	Total/NA	Water	537 (modified)	590681
500-216625-8	Equipment Blank	Total/NA	Water	537 (modified)	590681
500-216625-9	Field Blank	Total/NA	Water	537 (modified)	590681
MB 320-590681/1-A	Method Blank	Total/NA	Water	537 (modified)	590681
LCS 320-590681/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	590681
LCSD 320-590681/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	590681

Surrogate Summary

Client: SCS Engineers
Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB	DBFM	DCA	TOL
		(72-124)	(75-120)	(75-126)	(75-120)
500-216625-3	MW-3	88	102	96	98
500-216625-4	MW-3 DUP	90	103	98	98
500-216625-5	MW-4	87	103	97	98
500-216625-5 MS	MW-4	91	103	94	99
500-216625-5 MSD	MW-4	87	101	95	100
500-216625-10	Trip Blank	89	104	100	97
LCS 500-658136/4	Lab Control Sample	89	96	90	101
MB 500-658136/6	Method Blank	85	104	99	98

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane (Surr)

DCA = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

QC Sample Results

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 500-658136/6
Matrix: Water
Analysis Batch: 658136

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

Analyte	MB	MB	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	<0.15		0.50	0.15	ug/L			05/24/22 00:15	1
Bromobenzene	<0.36		1.0	0.36	ug/L			05/24/22 00:15	1
Bromochloromethane	<0.43		1.0	0.43	ug/L			05/24/22 00:15	1
Bromodichloromethane	<0.37		1.0	0.37	ug/L			05/24/22 00:15	1
Bromoform	<0.48		1.0	0.48	ug/L			05/24/22 00:15	1
Bromomethane	<0.80		3.0	0.80	ug/L			05/24/22 00:15	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/L			05/24/22 00:15	1
Chlorobenzene	<0.39		1.0	0.39	ug/L			05/24/22 00:15	1
Chloroethane	<0.51		1.0	0.51	ug/L			05/24/22 00:15	1
Chloroform	<0.37		2.0	0.37	ug/L			05/24/22 00:15	1
Chloromethane	<0.32		1.0	0.32	ug/L			05/24/22 00:15	1
2-Chlorotoluene	<0.31		1.0	0.31	ug/L			05/24/22 00:15	1
4-Chlorotoluene	<0.35		1.0	0.35	ug/L			05/24/22 00:15	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/L			05/24/22 00:15	1
cis-1,3-Dichloropropene	<0.42		1.0	0.42	ug/L			05/24/22 00:15	1
Dibromochloromethane	<0.49		1.0	0.49	ug/L			05/24/22 00:15	1
1,2-Dibromo-3-Chloropropane	<2.0		5.0	2.0	ug/L			05/24/22 00:15	1
1,2-Dibromoethane (EDB)	<0.39		1.0	0.39	ug/L			05/24/22 00:15	1
Dibromomethane	<0.27		1.0	0.27	ug/L			05/24/22 00:15	1
1,2-Dichlorobenzene	<0.33		1.0	0.33	ug/L			05/24/22 00:15	1
1,3-Dichlorobenzene	<0.40		1.0	0.40	ug/L			05/24/22 00:15	1
1,4-Dichlorobenzene	<0.36		1.0	0.36	ug/L			05/24/22 00:15	1
Dichlorodifluoromethane	<0.67		3.0	0.67	ug/L			05/24/22 00:15	1
1,1-Dichloroethane	<0.41		1.0	0.41	ug/L			05/24/22 00:15	1
1,2-Dichloroethane	<0.39		1.0	0.39	ug/L			05/24/22 00:15	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/L			05/24/22 00:15	1
1,2-Dichloropropane	<0.43		1.0	0.43	ug/L			05/24/22 00:15	1
1,3-Dichloropropane	<0.36		1.0	0.36	ug/L			05/24/22 00:15	1
2,2-Dichloropropane	<0.44		1.0	0.44	ug/L			05/24/22 00:15	1
1,1-Dichloropropene	<0.30		1.0	0.30	ug/L			05/24/22 00:15	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			05/24/22 00:15	1
Hexachlorobutadiene	<0.45		1.0	0.45	ug/L			05/24/22 00:15	1
Isopropylbenzene	<0.39		1.0	0.39	ug/L			05/24/22 00:15	1
Isopropyl ether	<0.28		1.0	0.28	ug/L			05/24/22 00:15	1
Methylene Chloride	<1.6		5.0	1.6	ug/L			05/24/22 00:15	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/L			05/24/22 00:15	1
Naphthalene	0.420	J	1.0	0.34	ug/L			05/24/22 00:15	1
n-Butylbenzene	<0.39		1.0	0.39	ug/L			05/24/22 00:15	1
N-Propylbenzene	<0.41		1.0	0.41	ug/L			05/24/22 00:15	1
p-Isopropyltoluene	<0.36		1.0	0.36	ug/L			05/24/22 00:15	1
sec-Butylbenzene	<0.40		1.0	0.40	ug/L			05/24/22 00:15	1
Styrene	<0.39		1.0	0.39	ug/L			05/24/22 00:15	1
tert-Butylbenzene	<0.40		1.0	0.40	ug/L			05/24/22 00:15	1
1,1,1,2-Tetrachloroethane	<0.46		1.0	0.46	ug/L			05/24/22 00:15	1
1,1,2,2-Tetrachloroethane	<0.40		1.0	0.40	ug/L			05/24/22 00:15	1
Tetrachloroethene	<0.37		1.0	0.37	ug/L			05/24/22 00:15	1
Toluene	<0.15		0.50	0.15	ug/L			05/24/22 00:15	1
trans-1,2-Dichloroethene	<0.35		1.0	0.35	ug/L			05/24/22 00:15	1

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QC Sample Results

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 500-658136/6
Matrix: Water
Analysis Batch: 658136

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

Analyte	MB MB		LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
trans-1,3-Dichloropropene	<0.36		1.0	0.36	ug/L			05/24/22 00:15	1
1,2,3-Trichlorobenzene	<0.46		1.0	0.46	ug/L			05/24/22 00:15	1
1,2,4-Trichlorobenzene	<0.34		1.0	0.34	ug/L			05/24/22 00:15	1
1,1,1-Trichloroethane	<0.38		1.0	0.38	ug/L			05/24/22 00:15	1
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/L			05/24/22 00:15	1
Trichloroethene	<0.16		0.50	0.16	ug/L			05/24/22 00:15	1
Trichlorofluoromethane	<0.43		1.0	0.43	ug/L			05/24/22 00:15	1
1,2,3-Trichloropropane	<0.41		2.0	0.41	ug/L			05/24/22 00:15	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/L			05/24/22 00:15	1
1,3,5-Trimethylbenzene	<0.25		1.0	0.25	ug/L			05/24/22 00:15	1
Vinyl chloride	<0.20		1.0	0.20	ug/L			05/24/22 00:15	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			05/24/22 00:15	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	85		72 - 124		05/24/22 00:15	1
Dibromofluoromethane (Surr)	104		75 - 120		05/24/22 00:15	1
1,2-Dichloroethane-d4 (Surr)	99		75 - 126		05/24/22 00:15	1
Toluene-d8 (Surr)	98		75 - 120		05/24/22 00:15	1

Lab Sample ID: LCS 500-658136/4
Matrix: Water
Analysis Batch: 658136

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

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec Limits
		Result	Qualifier				
Benzene	50.0	49.2		ug/L		98	70 - 120
Bromobenzene	50.0	49.2		ug/L		98	70 - 122
Bromochloromethane	50.0	49.2		ug/L		98	65 - 122
Bromodichloromethane	50.0	48.8		ug/L		98	69 - 120
Bromoform	50.0	52.6		ug/L		105	56 - 132
Bromomethane	50.0	57.9		ug/L		116	40 - 152
Carbon tetrachloride	50.0	52.0		ug/L		104	59 - 133
Chlorobenzene	50.0	50.1		ug/L		100	70 - 120
Chloroethane	50.0	57.1		ug/L		114	48 - 136
Chloroform	50.0	46.3		ug/L		93	70 - 120
Chloromethane	50.0	32.1		ug/L		64	56 - 152
2-Chlorotoluene	50.0	48.6		ug/L		97	70 - 125
4-Chlorotoluene	50.0	48.6		ug/L		97	68 - 124
cis-1,2-Dichloroethene	50.0	48.2		ug/L		96	70 - 125
cis-1,3-Dichloropropene	50.0	45.9		ug/L		92	64 - 127
Dibromochloromethane	50.0	50.5		ug/L		101	68 - 125
1,2-Dibromo-3-Chloropropane	50.0	42.6		ug/L		85	56 - 123
1,2-Dibromoethane (EDB)	50.0	47.3		ug/L		95	70 - 125
Dibromomethane	50.0	48.1		ug/L		96	70 - 120
1,2-Dichlorobenzene	50.0	49.9		ug/L		100	70 - 125
1,3-Dichlorobenzene	50.0	49.1		ug/L		98	70 - 125
1,4-Dichlorobenzene	50.0	49.1		ug/L		98	70 - 120
Dichlorodifluoromethane	50.0	36.2		ug/L		72	40 - 159
1,1-Dichloroethane	50.0	43.6		ug/L		87	70 - 125

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QC Sample Results

Client: SCS Engineers
Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 500-658136/4
Matrix: Water
Analysis Batch: 658136

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2-Dichloroethane	50.0	45.4		ug/L		91	68 - 127
1,1-Dichloroethene	50.0	51.4		ug/L		103	67 - 122
1,2-Dichloropropane	50.0	42.5		ug/L		85	67 - 130
1,3-Dichloropropane	50.0	47.3		ug/L		95	62 - 136
2,2-Dichloropropane	50.0	44.8		ug/L		90	58 - 139
1,1-Dichloropropene	50.0	50.3		ug/L		101	70 - 121
Ethylbenzene	50.0	48.1		ug/L		96	70 - 123
Hexachlorobutadiene	50.0	54.4		ug/L		109	51 - 150
Isopropylbenzene	50.0	50.9		ug/L		102	70 - 126
Methylene Chloride	50.0	46.9		ug/L		94	69 - 125
Methyl tert-butyl ether	50.0	43.5		ug/L		87	55 - 123
Naphthalene	50.0	44.7		ug/L		89	53 - 144
n-Butylbenzene	50.0	52.9		ug/L		106	68 - 125
N-Propylbenzene	50.0	51.4		ug/L		103	69 - 127
p-Isopropyltoluene	50.0	51.9		ug/L		104	70 - 125
sec-Butylbenzene	50.0	53.6		ug/L		107	70 - 123
Styrene	50.0	51.3		ug/L		103	70 - 120
tert-Butylbenzene	50.0	51.6		ug/L		103	70 - 121
1,1,1,2-Tetrachloroethane	50.0	47.6		ug/L		95	70 - 125
1,1,2,2-Tetrachloroethane	50.0	45.7		ug/L		91	62 - 140
Tetrachloroethene	50.0	58.9		ug/L		118	70 - 128
Toluene	50.0	49.0		ug/L		98	70 - 125
trans-1,2-Dichloroethene	50.0	49.7		ug/L		99	70 - 125
trans-1,3-Dichloropropene	50.0	44.7		ug/L		89	62 - 128
1,2,3-Trichlorobenzene	50.0	46.1		ug/L		92	51 - 145
1,2,4-Trichlorobenzene	50.0	48.1		ug/L		96	57 - 137
1,1,1-Trichloroethane	50.0	51.1		ug/L		102	70 - 125
1,1,2-Trichloroethane	50.0	49.5		ug/L		99	71 - 130
Trichloroethene	50.0	51.3		ug/L		103	70 - 125
Trichlorofluoromethane	50.0	49.4		ug/L		99	55 - 128
1,2,3-Trichloropropane	50.0	46.2		ug/L		92	50 - 133
1,2,4-Trimethylbenzene	50.0	49.6		ug/L		99	70 - 123
1,3,5-Trimethylbenzene	50.0	50.3		ug/L		101	70 - 123
Vinyl chloride	50.0	39.2		ug/L		78	64 - 126
Xylenes, Total	100	99.1		ug/L		99	70 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	89		72 - 124
Dibromofluoromethane (Surr)	96		75 - 120
1,2-Dichloroethane-d4 (Surr)	90		75 - 126
Toluene-d8 (Surr)	101		75 - 120

Lab Sample ID: 500-216625-5 MS
Matrix: Water
Analysis Batch: 658136

Client Sample ID: MW-4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.15		50.0	48.4		ug/L		97	70 - 120

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QC Sample Results

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 500-216625-5 MS
Matrix: Water
Analysis Batch: 658136

Client Sample ID: MW-4
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Bromobenzene	<0.36		50.0	49.6		ug/L		99	70 - 122
Bromochloromethane	<0.43		50.0	52.1		ug/L		104	65 - 122
Bromodichloromethane	<0.37		50.0	49.6		ug/L		99	69 - 120
Bromoform	<0.48		50.0	52.7		ug/L		105	56 - 132
Bromomethane	<0.80		50.0	50.5		ug/L		101	40 - 152
Carbon tetrachloride	<0.38		50.0	47.9		ug/L		96	59 - 133
Chlorobenzene	<0.39		50.0	49.1		ug/L		98	70 - 120
Chloroethane	<0.51		50.0	46.5		ug/L		93	48 - 136
Chloroform	<0.37		50.0	47.0		ug/L		94	70 - 120
Chloromethane	<0.32	F1	50.0	27.0	F1	ug/L		54	56 - 152
2-Chlorotoluene	<0.31		50.0	46.6		ug/L		93	70 - 125
4-Chlorotoluene	<0.35		50.0	46.7		ug/L		93	68 - 124
cis-1,2-Dichloroethene	<0.41		50.0	48.6		ug/L		97	70 - 125
cis-1,3-Dichloropropene	<0.42		50.0	44.4		ug/L		89	64 - 127
Dibromochloromethane	<0.49		50.0	51.4		ug/L		103	68 - 125
1,2-Dibromo-3-Chloropropane	<2.0		50.0	42.9		ug/L		86	56 - 123
1,2-Dibromoethane (EDB)	<0.39		50.0	47.4		ug/L		95	70 - 125
Dibromomethane	<0.27		50.0	49.2		ug/L		98	70 - 120
1,2-Dichlorobenzene	<0.33		50.0	49.6		ug/L		99	70 - 125
1,3-Dichlorobenzene	<0.40		50.0	48.4		ug/L		97	70 - 125
1,4-Dichlorobenzene	<0.36		50.0	48.3		ug/L		97	70 - 120
Dichlorodifluoromethane	<0.67		50.0	20.7		ug/L		41	40 - 159
1,1-Dichloroethane	<0.41		50.0	43.5		ug/L		87	70 - 125
1,2-Dichloroethane	<0.39		50.0	46.7		ug/L		93	68 - 127
1,1-Dichloroethene	<0.39		50.0	48.2		ug/L		96	67 - 122
1,2-Dichloropropane	<0.43		50.0	44.3		ug/L		89	67 - 130
1,3-Dichloropropane	<0.36		50.0	48.1		ug/L		96	62 - 136
2,2-Dichloropropane	<0.44		50.0	39.5		ug/L		79	58 - 139
1,1-Dichloropropene	<0.30		50.0	46.6		ug/L		93	70 - 121
Ethylbenzene	<0.18		50.0	45.1		ug/L		90	70 - 123
Hexachlorobutadiene	<0.45		50.0	48.6		ug/L		97	51 - 150
Isopropylbenzene	<0.39		50.0	47.8		ug/L		96	70 - 126
Methylene Chloride	<1.6		50.0	50.5		ug/L		101	69 - 125
Methyl tert-butyl ether	<0.39		50.0	44.7		ug/L		89	55 - 123
Naphthalene	<0.34		50.0	42.8		ug/L		86	53 - 144
n-Butylbenzene	<0.39		50.0	47.3		ug/L		95	68 - 125
N-Propylbenzene	<0.41		50.0	47.4		ug/L		95	69 - 127
p-Isopropyltoluene	<0.36		50.0	47.9		ug/L		96	70 - 125
sec-Butylbenzene	<0.40		50.0	49.2		ug/L		98	70 - 123
Styrene	<0.39		50.0	49.3		ug/L		99	70 - 120
tert-Butylbenzene	<0.40		50.0	47.4		ug/L		95	70 - 121
1,1,1,2-Tetrachloroethane	<0.46		50.0	47.2		ug/L		94	70 - 125
1,1,1,2,2-Tetrachloroethane	<0.40		50.0	46.8		ug/L		94	62 - 140
Tetrachloroethene	4.9		50.0	57.8		ug/L		106	70 - 128
Toluene	<0.15		50.0	47.2		ug/L		94	70 - 125
trans-1,2-Dichloroethene	<0.35		50.0	48.1		ug/L		96	70 - 125
trans-1,3-Dichloropropene	<0.36		50.0	43.7		ug/L		87	62 - 128
1,2,3-Trichlorobenzene	<0.46		50.0	45.1		ug/L		90	51 - 145
1,2,4-Trichlorobenzene	<0.34		50.0	44.5		ug/L		89	57 - 137

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QC Sample Results

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 500-216625-5 MS
Matrix: Water
Analysis Batch: 658136

Client Sample ID: MW-4
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec
	Result	Qualifier	Added	Result	Qualifier				
1,1,1-Trichloroethane	<0.38		50.0	47.3		ug/L		95	70 - 125
1,1,2-Trichloroethane	<0.35		50.0	49.6		ug/L		99	71 - 130
Trichloroethene	<0.16		50.0	48.5		ug/L		97	70 - 125
Trichlorofluoromethane	<0.43		50.0	39.4		ug/L		79	55 - 128
1,2,3-Trichloropropane	<0.41		50.0	47.5		ug/L		95	50 - 133
1,2,4-Trimethylbenzene	<0.36		50.0	46.9		ug/L		94	70 - 123
1,3,5-Trimethylbenzene	<0.25		50.0	46.6		ug/L		93	70 - 123
Vinyl chloride	<0.20	F1	50.0	29.0	F1	ug/L		58	64 - 126
Xylenes, Total	<0.22		100	94.0		ug/L		94	70 - 125
MS MS									
Surrogate	%Recovery	Qualifier	Limits						
4-Bromofluorobenzene (Surr)	91		72 - 124						
Dibromofluoromethane (Surr)	103		75 - 120						
1,2-Dichloroethane-d4 (Surr)	94		75 - 126						
Toluene-d8 (Surr)	99		75 - 120						

Lab Sample ID: 500-216625-5 MSD
Matrix: Water
Analysis Batch: 658136

Client Sample ID: MW-4
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier						
Benzene	<0.15		50.0	47.6		ug/L		95	70 - 120	2	20
Bromobenzene	<0.36		50.0	46.9		ug/L		94	70 - 122	6	20
Bromochloromethane	<0.43		50.0	51.5		ug/L		103	65 - 122	1	20
Bromodichloromethane	<0.37		50.0	48.0		ug/L		96	69 - 120	3	20
Bromoform	<0.48		50.0	51.1		ug/L		102	56 - 132	3	20
Bromomethane	<0.80		50.0	55.4		ug/L		111	40 - 152	9	20
Carbon tetrachloride	<0.38		50.0	47.1		ug/L		94	59 - 133	2	20
Chlorobenzene	<0.39		50.0	48.5		ug/L		97	70 - 120	1	20
Chloroethane	<0.51		50.0	49.5		ug/L		99	48 - 136	6	20
Chloroform	<0.37		50.0	46.6		ug/L		93	70 - 120	1	20
Chloromethane	<0.32	F1	50.0	28.6		ug/L		57	56 - 152	6	20
2-Chlorotoluene	<0.31		50.0	44.5		ug/L		89	70 - 125	5	20
4-Chlorotoluene	<0.35		50.0	45.1		ug/L		90	68 - 124	4	20
cis-1,2-Dichloroethene	<0.41		50.0	47.7		ug/L		95	70 - 125	2	20
cis-1,3-Dichloropropene	<0.42		50.0	44.2		ug/L		88	64 - 127	1	20
Dibromochloromethane	<0.49		50.0	50.0		ug/L		100	68 - 125	3	20
1,2-Dibromo-3-Chloropropane	<2.0		50.0	41.5		ug/L		83	56 - 123	3	20
1,2-Dibromoethane (EDB)	<0.39		50.0	46.1		ug/L		92	70 - 125	3	20
Dibromomethane	<0.27		50.0	47.5		ug/L		95	70 - 120	3	20
1,2-Dichlorobenzene	<0.33		50.0	47.8		ug/L		96	70 - 125	4	20
1,3-Dichlorobenzene	<0.40		50.0	46.3		ug/L		93	70 - 125	4	20
1,4-Dichlorobenzene	<0.36		50.0	46.2		ug/L		92	70 - 120	4	20
Dichlorodifluoromethane	<0.67		50.0	23.8		ug/L		48	40 - 159	14	20
1,1-Dichloroethane	<0.41		50.0	43.7		ug/L		87	70 - 125	0	20
1,2-Dichloroethane	<0.39		50.0	45.5		ug/L		91	68 - 127	3	20
1,1-Dichloroethene	<0.39		50.0	46.7		ug/L		93	67 - 122	3	20
1,2-Dichloropropane	<0.43		50.0	43.7		ug/L		87	67 - 130	1	20

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QC Sample Results

Client: SCS Engineers
Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 500-216625-5 MSD

Matrix: Water

Analysis Batch: 658136

Client Sample ID: MW-4

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,3-Dichloropropane	<0.36		50.0	46.6		ug/L		93	62 - 136	3	20
2,2-Dichloropropane	<0.44		50.0	40.1		ug/L		80	58 - 139	1	20
1,1-Dichloropropene	<0.30		50.0	45.8		ug/L		92	70 - 121	2	20
Ethylbenzene	<0.18		50.0	44.4		ug/L		89	70 - 123	2	20
Hexachlorobutadiene	<0.45		50.0	45.0		ug/L		90	51 - 150	8	20
Isopropylbenzene	<0.39		50.0	45.2		ug/L		90	70 - 126	6	20
Methylene Chloride	<1.6		50.0	49.1		ug/L		98	69 - 125	3	20
Methyl tert-butyl ether	<0.39		50.0	43.5		ug/L		87	55 - 123	3	20
Naphthalene	<0.34		50.0	43.6		ug/L		87	53 - 144	2	20
n-Butylbenzene	<0.39		50.0	44.9		ug/L		90	68 - 125	5	20
N-Propylbenzene	<0.41		50.0	44.9		ug/L		90	69 - 127	5	20
p-Isopropyltoluene	<0.36		50.0	45.0		ug/L		90	70 - 125	6	20
sec-Butylbenzene	<0.40		50.0	46.2		ug/L		92	70 - 123	6	20
Styrene	<0.39		50.0	49.3		ug/L		99	70 - 120	0	20
tert-Butylbenzene	<0.40		50.0	45.6		ug/L		91	70 - 121	4	20
1,1,1,2-Tetrachloroethane	<0.46		50.0	48.4		ug/L		97	70 - 125	3	20
1,1,2,2-Tetrachloroethane	<0.40		50.0	43.3		ug/L		87	62 - 140	8	20
Tetrachloroethene	4.9		50.0	56.1		ug/L		102	70 - 128	3	20
Toluene	<0.15		50.0	47.2		ug/L		94	70 - 125	0	20
trans-1,2-Dichloroethene	<0.35		50.0	47.3		ug/L		95	70 - 125	2	20
trans-1,3-Dichloropropene	<0.36		50.0	43.0		ug/L		86	62 - 128	2	20
1,2,3-Trichlorobenzene	<0.46		50.0	45.1		ug/L		90	51 - 145	0	20
1,2,4-Trichlorobenzene	<0.34		50.0	44.1		ug/L		88	57 - 137	1	20
1,1,1-Trichloroethane	<0.38		50.0	46.0		ug/L		92	70 - 125	3	20
1,1,2-Trichloroethane	<0.35		50.0	49.1		ug/L		98	71 - 130	1	20
Trichloroethene	<0.16		50.0	46.6		ug/L		93	70 - 125	4	20
Trichlorofluoromethane	<0.43		50.0	41.3		ug/L		83	55 - 128	5	20
1,2,3-Trichloropropane	<0.41		50.0	44.8		ug/L		90	50 - 133	6	20
1,2,4-Trimethylbenzene	<0.36		50.0	45.3		ug/L		91	70 - 123	3	20
1,3,5-Trimethylbenzene	<0.25		50.0	44.5		ug/L		89	70 - 123	5	20
Vinyl chloride	<0.20	F1	50.0	33.7		ug/L		67	64 - 126	15	20
Xylenes, Total	<0.22		100	92.8		ug/L		93	70 - 125	1	20

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
4-Bromofluorobenzene (Surr)	87		72 - 124
Dibromofluoromethane (Surr)	101		75 - 120
1,2-Dichloroethane-d4 (Surr)	95		75 - 126
Toluene-d8 (Surr)	100		75 - 120

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 320-590681/1-A

Matrix: Water

Analysis Batch: 591309

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 590681

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.4		5.0	2.4	ng/L		05/26/22 12:47	05/29/22 03:40	1
Perfluoropentanoic acid (PFPeA)	<0.49		2.0	0.49	ng/L		05/26/22 12:47	05/29/22 03:40	1
Perfluorohexanoic acid (PFHxA)	<0.58		2.0	0.58	ng/L		05/26/22 12:47	05/29/22 03:40	1

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QC Sample Results

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-590681/1-A
Matrix: Water
Analysis Batch: 591309

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 590681

Analyte	MB	MB	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluoroheptanoic acid (PFHpA)	<0.25		2.0	0.25	ng/L		05/26/22 12:47	05/29/22 03:40	1
Perfluorooctanoic acid (PFOA)	<0.85		2.0	0.85	ng/L		05/26/22 12:47	05/29/22 03:40	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		05/26/22 12:47	05/29/22 03:40	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		05/26/22 12:47	05/29/22 03:40	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		05/26/22 12:47	05/29/22 03:40	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		05/26/22 12:47	05/29/22 03:40	1
Perfluorotridecanoic acid (PFTrDA)	<1.3		2.0	1.3	ng/L		05/26/22 12:47	05/29/22 03:40	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		05/26/22 12:47	05/29/22 03:40	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		2.0	0.20	ng/L		05/26/22 12:47	05/29/22 03:40	1
Perfluoropentanesulfonic acid (PFPeS)	<0.30		2.0	0.30	ng/L		05/26/22 12:47	05/29/22 03:40	1
Perfluorohexanesulfonic acid (PFHxS)	<0.57		2.0	0.57	ng/L		05/26/22 12:47	05/29/22 03:40	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.19		2.0	0.19	ng/L		05/26/22 12:47	05/29/22 03:40	1
Perfluorooctanesulfonic acid (PFOS)	<0.54		2.0	0.54	ng/L		05/26/22 12:47	05/29/22 03:40	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		05/26/22 12:47	05/29/22 03:40	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		05/26/22 12:47	05/29/22 03:40	1
Perfluorododecanesulfonic acid (PFDoS)	<0.97		2.0	0.97	ng/L		05/26/22 12:47	05/29/22 03:40	1
Perfluorooctanesulfonamide (FOSA)	<0.98		2.0	0.98	ng/L		05/26/22 12:47	05/29/22 03:40	1
NEtFOSA	<0.87		2.0	0.87	ng/L		05/26/22 12:47	05/29/22 03:40	1
NMeFOSA	<0.43		2.0	0.43	ng/L		05/26/22 12:47	05/29/22 03:40	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		05/26/22 12:47	05/29/22 03:40	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		05/26/22 12:47	05/29/22 03:40	1
NMeFOSE	<1.4		4.0	1.4	ng/L		05/26/22 12:47	05/29/22 03:40	1
NEtFOSE	<0.85		2.0	0.85	ng/L		05/26/22 12:47	05/29/22 03:40	1
4:2 FTS	<0.24		2.0	0.24	ng/L		05/26/22 12:47	05/29/22 03:40	1
6:2 FTS	<2.5		5.0	2.5	ng/L		05/26/22 12:47	05/29/22 03:40	1
8:2 FTS	<0.46		2.0	0.46	ng/L		05/26/22 12:47	05/29/22 03:40	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.40		2.0	0.40	ng/L		05/26/22 12:47	05/29/22 03:40	1
HFPO-DA (GenX)	<1.5		4.0	1.5	ng/L		05/26/22 12:47	05/29/22 03:40	1
9Cl-PF3ONS	<0.24		2.0	0.24	ng/L		05/26/22 12:47	05/29/22 03:40	1
11Cl-PF3OUdS	<0.32		2.0	0.32	ng/L		05/26/22 12:47	05/29/22 03:40	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C4 PFBA	92		25 - 150	05/26/22 12:47	05/29/22 03:40	1
13C5 PFPeA	107		25 - 150	05/26/22 12:47	05/29/22 03:40	1
13C2 PFHxA	85		25 - 150	05/26/22 12:47	05/29/22 03:40	1
13C4 PFHpA	79		25 - 150	05/26/22 12:47	05/29/22 03:40	1
13C4 PFOA	87		25 - 150	05/26/22 12:47	05/29/22 03:40	1
13C5 PFNA	95		25 - 150	05/26/22 12:47	05/29/22 03:40	1
13C2 PFDA	100		25 - 150	05/26/22 12:47	05/29/22 03:40	1
13C2 PFUnA	94		25 - 150	05/26/22 12:47	05/29/22 03:40	1
13C2 PFDoA	96		25 - 150	05/26/22 12:47	05/29/22 03:40	1
13C2 PFTrDA	94		25 - 150	05/26/22 12:47	05/29/22 03:40	1
13C3 PFBS	96		25 - 150	05/26/22 12:47	05/29/22 03:40	1
18O2 PFHxS	91		25 - 150	05/26/22 12:47	05/29/22 03:40	1
13C4 PFOS	88		25 - 150	05/26/22 12:47	05/29/22 03:40	1
13C8 FOSA	92		10 - 150	05/26/22 12:47	05/29/22 03:40	1

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QC Sample Results

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 320-590681/1-A
Matrix: Water
Analysis Batch: 591309

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 590681

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
d3-NMeFOSAA	104		25 - 150	05/26/22 12:47	05/29/22 03:40	1
d5-NEtFOSAA	108		25 - 150	05/26/22 12:47	05/29/22 03:40	1
d-N-MeFOSA-M	77		10 - 150	05/26/22 12:47	05/29/22 03:40	1
d-N-EtFOSA-M	79		10 - 150	05/26/22 12:47	05/29/22 03:40	1
d7-N-MeFOSE-M	98		10 - 150	05/26/22 12:47	05/29/22 03:40	1
d9-N-EtFOSE-M	101		10 - 150	05/26/22 12:47	05/29/22 03:40	1
M2-4:2 FTS	111		25 - 150	05/26/22 12:47	05/29/22 03:40	1
M2-6:2 FTS	121		25 - 150	05/26/22 12:47	05/29/22 03:40	1
M2-8:2 FTS	107		25 - 150	05/26/22 12:47	05/29/22 03:40	1
13C3 HFPO-DA	83		25 - 150	05/26/22 12:47	05/29/22 03:40	1
13C2 10:2 FTS	97		25 - 150	05/26/22 12:47	05/29/22 03:40	1

Lab Sample ID: LCS 320-590681/2-A
Matrix: Water
Analysis Batch: 591309

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 590681

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	40.0	42.6		ng/L		106	60 - 135
Perfluoropentanoic acid (PFPeA)	40.0	41.4		ng/L		104	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	40.6		ng/L		101	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	41.0		ng/L		103	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	39.4		ng/L		99	60 - 135
Perfluorononanoic acid (PFNA)	40.0	40.3		ng/L		101	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	41.9		ng/L		105	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	42.4		ng/L		106	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	41.1		ng/L		103	60 - 135
Perfluorotridecanoic acid (PFTrDA)	40.0	40.4		ng/L		101	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	39.0		ng/L		98	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.4	38.6		ng/L		109	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.5	36.7		ng/L		98	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	36.4	35.8		ng/L		98	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	38.1	42.3		ng/L		111	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.1	40.4		ng/L		109	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.4	42.6		ng/L		111	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	45.7		ng/L		119	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.7	33.2		ng/L		86	60 - 135
Perfluorooctanesulfonamide (FOSA)	40.0	41.1		ng/L		103	60 - 135
NEtFOSA	40.0	40.2		ng/L		101	60 - 135
NMeFOSA	40.0	42.3		ng/L		106	60 - 135

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QC Sample Results

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 320-590681/2-A
Matrix: Water
Analysis Batch: 591309

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 590681

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
NMeFOSAA	40.0	39.5		ng/L		99	60 - 135
NEtFOSAA	40.0	40.3		ng/L		101	60 - 135
NMeFOSE	40.0	40.0		ng/L		100	60 - 135
NEtFOSE	40.0	40.3		ng/L		101	60 - 135
4:2 FTS	37.4	34.9		ng/L		94	60 - 135
6:2 FTS	37.9	32.5		ng/L		86	60 - 135
8:2 FTS	38.3	43.3		ng/L		113	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.7	34.7		ng/L		92	60 - 135
HFPO-DA (GenX)	40.0	43.7		ng/L		109	60 - 135
9Cl-PF3ONS	37.3	37.8		ng/L		101	60 - 135
11Cl-PF3OUdS	37.7	38.2		ng/L		101	60 - 135

Isotope Dilution	LCS %Recovery	LCS Qualifier	Limits
13C4 PFBA	95		25 - 150
13C5 PFPeA	115		25 - 150
13C2 PFHxA	89		25 - 150
13C4 PFHpA	84		25 - 150
13C4 PFOA	93		25 - 150
13C5 PFNA	100		25 - 150
13C2 PFDA	108		25 - 150
13C2 PFUnA	99		25 - 150
13C2 PFDaA	102		25 - 150
13C2 PFTeDA	99		25 - 150
13C3 PFBS	99		25 - 150
18O2 PFHxS	100		25 - 150
13C4 PFOS	96		25 - 150
13C8 FOSA	99		10 - 150
d3-NMeFOSAA	114		25 - 150
d5-NEtFOSAA	115		25 - 150
d-N-MeFOSA-M	83		10 - 150
d-N-EtFOSA-M	85		10 - 150
d7-N-MeFOSE-M	104		10 - 150
d9-N-EtFOSE-M	107		10 - 150
M2-4:2 FTS	116		25 - 150
M2-6:2 FTS	121		25 - 150
M2-8:2 FTS	111		25 - 150
13C3 HFPO-DA	86		25 - 150
13C2 10:2 FTS	105		25 - 150

Lab Sample ID: LCSD 320-590681/3-A
Matrix: Water
Analysis Batch: 591309

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 590681

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	40.0	45.3		ng/L		113	60 - 135	6	30
Perfluoropentanoic acid (PFPeA)	40.0	43.4		ng/L		109	60 - 135	5	30
Perfluorohexanoic acid (PFHxA)	40.0	43.0		ng/L		108	60 - 135	6	30
Perfluoroheptanoic acid (PFHpA)	40.0	40.6		ng/L		101	60 - 135	1	30

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QC Sample Results

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-590681/3-A
Matrix: Water
Analysis Batch: 591309

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 590681

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorooctanoic acid (PFOA)	40.0	42.3		ng/L		106	60 - 135	7	30
Perfluorononanoic acid (PFNA)	40.0	41.4		ng/L		104	60 - 135	3	30
Perfluorodecanoic acid (PFDA)	40.0	42.6		ng/L		107	60 - 135	2	30
Perfluoroundecanoic acid (PFUnA)	40.0	43.3		ng/L		108	60 - 135	2	30
Perfluorododecanoic acid (PFDoA)	40.0	41.2		ng/L		103	60 - 135	0	30
Perfluorotridecanoic acid (PFTrDA)	40.0	42.6		ng/L		107	60 - 135	5	30
Perfluorotetradecanoic acid (PFTeA)	40.0	39.1		ng/L		98	60 - 135	0	30
Perfluorobutanesulfonic acid (PFBS)	35.4	37.4		ng/L		106	60 - 135	3	30
Perfluoropentanesulfonic acid (PFPeS)	37.5	35.5		ng/L		95	60 - 135	3	30
Perfluorohexanesulfonic acid (PFHxS)	36.4	38.3		ng/L		105	60 - 135	7	30
Perfluoroheptanesulfonic acid (PFHpS)	38.1	43.6		ng/L		114	60 - 135	3	30
Perfluorooctanesulfonic acid (PFOS)	37.1	42.3		ng/L		114	60 - 135	5	30
Perfluorononanesulfonic acid (PFNS)	38.4	43.3		ng/L		113	60 - 135	2	30
Perfluorodecanesulfonic acid (PFDS)	38.6	46.3		ng/L		120	60 - 135	1	30
Perfluorododecanesulfonic acid (PFDoS)	38.7	32.9		ng/L		85	60 - 135	1	30
Perfluorooctanesulfonamide (FOSA)	40.0	41.6		ng/L		104	60 - 135	1	30
NEtFOSA	40.0	39.7		ng/L		99	60 - 135	1	30
NMeFOSA	40.0	42.4		ng/L		106	60 - 135	0	30
NMeFOSAA	40.0	42.7		ng/L		107	60 - 135	8	30
NEtFOSAA	40.0	41.0		ng/L		103	60 - 135	2	30
NMeFOSE	40.0	40.6		ng/L		102	60 - 135	2	30
NEtFOSE	40.0	41.8		ng/L		104	60 - 135	4	30
4:2 FTS	37.4	37.7		ng/L		101	60 - 135	8	30
6:2 FTS	37.9	29.6		ng/L		78	60 - 135	9	30
8:2 FTS	38.3	42.5		ng/L		111	60 - 135	2	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.7	36.1		ng/L		96	60 - 135	4	30
HFPO-DA (GenX)	40.0	43.6		ng/L		109	60 - 135	0	30
9Cl-PF3ONS	37.3	39.9		ng/L		107	60 - 135	5	30
11Cl-PF3OUdS	37.7	37.4		ng/L		99	60 - 135	2	30

Isotope Dilution	LCSD %Recovery	LCSD Qualifier	LCSD Limits
13C4 PFBA	92		25 - 150
13C5 PFPeA	110		25 - 150
13C2 PFHxA	85		25 - 150
13C4 PFHpA	82		25 - 150
13C4 PFOA	85		25 - 150
13C5 PFNA	96		25 - 150
13C2 PFDA	101		25 - 150

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QC Sample Results

Client: SCS Engineers
Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCSD 320-590681/3-A
Matrix: Water
Analysis Batch: 591309

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 590681

<i>Isotope Dilution</i>	<i>LCSD LCSD</i>		<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C2 PFUnA	95		25 - 150
13C2 PFDoA	96		25 - 150
13C2 PFTeDA	96		25 - 150
13C3 PFBS	103		25 - 150
18O2 PFHxS	97		25 - 150
13C4 PFOS	94		25 - 150
13C8 FOSA	96		10 - 150
d3-NMeFOSAA	105		25 - 150
d5-NEtFOSAA	110		25 - 150
d-N-MeFOSA-M	81		10 - 150
d-N-EtFOSA-M	83		10 - 150
d7-N-MeFOSE-M	103		10 - 150
d9-N-EtFOSE-M	101		10 - 150
M2-4:2 FTS	105		25 - 150
M2-6:2 FTS	125		25 - 150
M2-8:2 FTS	111		25 - 150
13C3 HFPO-DA	84		25 - 150
13C2 10:2 FTS	102		25 - 150

Lab Chronicle

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: MW-1R
Date Collected: 05/12/22 13:15
Date Received: 05/14/22 10:15

Lab Sample ID: 500-216625-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			590681	05/26/22 12:47	DVC	TAL SAC
Total/NA	Analysis	537 (modified)		1	591309	05/29/22 04:30	S1M	TAL SAC

Client Sample ID: MW-2
Date Collected: 05/12/22 14:15
Date Received: 05/14/22 10:15

Lab Sample ID: 500-216625-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			590681	05/26/22 12:47	DVC	TAL SAC
Total/NA	Analysis	537 (modified)		1	591309	05/29/22 04:40	S1M	TAL SAC

Client Sample ID: MW-3
Date Collected: 05/12/22 16:45
Date Received: 05/14/22 10:15

Lab Sample ID: 500-216625-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	658136	05/24/22 05:26	PMF	TAL CHI
Total/NA	Prep	3535			590681	05/26/22 12:47	DVC	TAL SAC
Total/NA	Analysis	537 (modified)		1	591309	05/29/22 04:50	S1M	TAL SAC

Client Sample ID: MW-3 DUP
Date Collected: 05/12/22 16:45
Date Received: 05/14/22 10:15

Lab Sample ID: 500-216625-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	658136	05/24/22 05:50	PMF	TAL CHI
Total/NA	Prep	3535			590681	05/26/22 12:47	DVC	TAL SAC
Total/NA	Analysis	537 (modified)		1	591309	05/29/22 05:00	S1M	TAL SAC

Client Sample ID: MW-4
Date Collected: 05/12/22 16:00
Date Received: 05/14/22 10:15

Lab Sample ID: 500-216625-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	658136	05/24/22 06:13	PMF	TAL CHI
Total/NA	Prep	3535	DL		590681	05/26/22 12:47	DVC	TAL SAC
Total/NA	Analysis	537 (modified)	DL	10	591309	05/29/22 06:32	S1M	TAL SAC
Total/NA	Prep	3535			590681	05/26/22 12:47	DVC	TAL SAC
Total/NA	Analysis	537 (modified)		1	591309	05/29/22 07:32	S1M	TAL SAC

Lab Chronicle

Client: SCS Engineers
Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Client Sample ID: MW-5

Date Collected: 05/12/22 13:55

Date Received: 05/14/22 10:15

Lab Sample ID: 500-216625-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			590681	05/26/22 12:47	DVC	TAL SAC
Total/NA	Analysis	537 (modified)		1	591309	05/29/22 05:11	S1M	TAL SAC

Client Sample ID: MW-8

Date Collected: 05/12/22 12:00

Date Received: 05/14/22 10:15

Lab Sample ID: 500-216625-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			590681	05/26/22 12:47	DVC	TAL SAC
Total/NA	Analysis	537 (modified)		1	591309	05/29/22 05:51	S1M	TAL SAC

Client Sample ID: Equipment Blank

Date Collected: 05/12/22 10:50

Date Received: 05/14/22 10:15

Lab Sample ID: 500-216625-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			590681	05/26/22 12:47	DVC	TAL SAC
Total/NA	Analysis	537 (modified)		1	591309	05/29/22 06:01	S1M	TAL SAC

Client Sample ID: Field Blank

Date Collected: 05/12/22 10:45

Date Received: 05/14/22 10:15

Lab Sample ID: 500-216625-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			590681	05/26/22 12:47	DVC	TAL SAC
Total/NA	Analysis	537 (modified)		1	591309	05/29/22 06:11	S1M	TAL SAC

Client Sample ID: Trip Blank

Date Collected: 05/12/22 08:00

Date Received: 05/14/22 10:15

Lab Sample ID: 500-216625-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	658136	05/24/22 06:36	PMF	TAL CHI

Laboratory References:

TAL CHI = Eurofins Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

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

Accreditation/Certification Summary

Client: SCS Engineers
Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Laboratory: Eurofins Chicago

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-22

Laboratory: Eurofins Sacramento

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

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	998204680	08-31-22

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FedEx
 TRK# 5776 0597 6068
 0221

SATURDAY 12:00P
 PRIORITY OVERNIGHT

XO JOTA

60484
 IL-US ORD



978245 05/13 577J6/1BD6/FE4A



FedEx Sat



500-216625 Wayb

RT 715
 ST 15
 12:00
 6068
 05 14

SDR
 ery

151967 REV 3/21

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 500-216625-1

Login Number: 216625

List Number: 1

Creator: Buckley, Paula M

List Source: Eurofins Chicago

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.4
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 500-216625-1

Login Number: 216625

List Number: 2

Creator: Simmons, Jason C

List Source: Eurofins Sacramento

List Creation: 05/18/22 01:36 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	1945730
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.7c
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Isotope Dilution Summary

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFBA (25-150)	PFPeA (25-150)	PFHxA (25-150)	C4PFHA (25-150)	PFOA (25-150)	PFNA (25-150)	PFDA (25-150)	PFUnA (25-150)
500-216625-1	MW-1R	100	127	97	90	97	104	114	104
500-216625-2	MW-2	101	133	97	90	97	102	114	109
500-216625-3	MW-3	97	121	93	86	95	104	108	102
500-216625-4	MW-3 DUP	89	110	83	79	81	94	101	92
500-216625-5 - DL	MW-4								
500-216625-5	MW-4	88	112	85	76	87	94	100	92
500-216625-6	MW-5	107	136	104	94	100	109	117	108
500-216625-7	MW-8	98	127	98	90	96	107	108	104
500-216625-8	Equipment Blank	103	121	94	88	96	105	113	109
500-216625-9	Field Blank	103	130	97	90	98	106	117	110
LCS 320-590681/2-A	Lab Control Sample	95	115	89	84	93	100	108	99
LCSD 320-590681/3-A	Lab Control Sample Dup	92	110	85	82	85	96	101	95
MB 320-590681/1-A	Method Blank	92	107	85	79	87	95	100	94

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFDoA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
500-216625-1	MW-1R	102	98	117	109	103	111	113	122
500-216625-2	MW-2	103	104	113	105	99	109	115	125
500-216625-3	MW-3	105	104	112	104	97	108	115	123
500-216625-4	MW-3 DUP	90	93	101	100	92	100	99	110
500-216625-5 - DL	MW-4				94				
500-216625-5	MW-4	93	90	103		91	100	106	116
500-216625-6	MW-5	107	105	119	114	108	117	119	124
500-216625-7	MW-8	100	98	112	111	104	111	113	121
500-216625-8	Equipment Blank	102	97	115	115	107	108	116	118
500-216625-9	Field Blank	107	106	114	111	104	110	120	127
LCS 320-590681/2-A	Lab Control Sample	102	99	99	100	96	99	114	115
LCSD 320-590681/3-A	Lab Control Sample Dup	96	96	103	97	94	96	105	110
MB 320-590681/1-A	Method Blank	96	94	96	91	88	92	104	108

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	dMeFOSA (10-150)	dEtFOSA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)
500-216625-1	MW-1R	88	86	99	104	135	142	117	90
500-216625-2	MW-2	93	97	110	108	132	135	114	91
500-216625-3	MW-3	88	92	107	111	124	133	119	92
500-216625-4	MW-3 DUP	78	81	95	98	101	126	107	83
500-216625-5 - DL	MW-4								
500-216625-5	MW-4	78	83	96	103	113	116	108	80
500-216625-6	MW-5	96	95	111	115	136	144	126	97
500-216625-7	MW-8	89	88	104	103	122	136	116	93
500-216625-8	Equipment Blank	82	83	106	109	130	141	116	89
500-216625-9	Field Blank	86	93	114	118	132	138	125	93
LCS 320-590681/2-A	Lab Control Sample	83	85	104	107	116	121	111	86
LCSD 320-590681/3-A	Lab Control Sample Dup	81	83	103	101	105	125	111	84
MB 320-590681/1-A	Method Blank	77	79	98	101	111	121	107	83

		Percent Isotope Dilution Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	M102FTS (25-150)
500-216625-1	MW-1R	104

Eurofins Chicago

Isotope Dilution Summary

Client: SCS Engineers
 Project/Site: Black Hawk Junction - 25221094.00

Job ID: 500-216625-1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Water

Prep Type: Total/NA

Percent Isotope Dilution Recovery (Acceptance Limits)

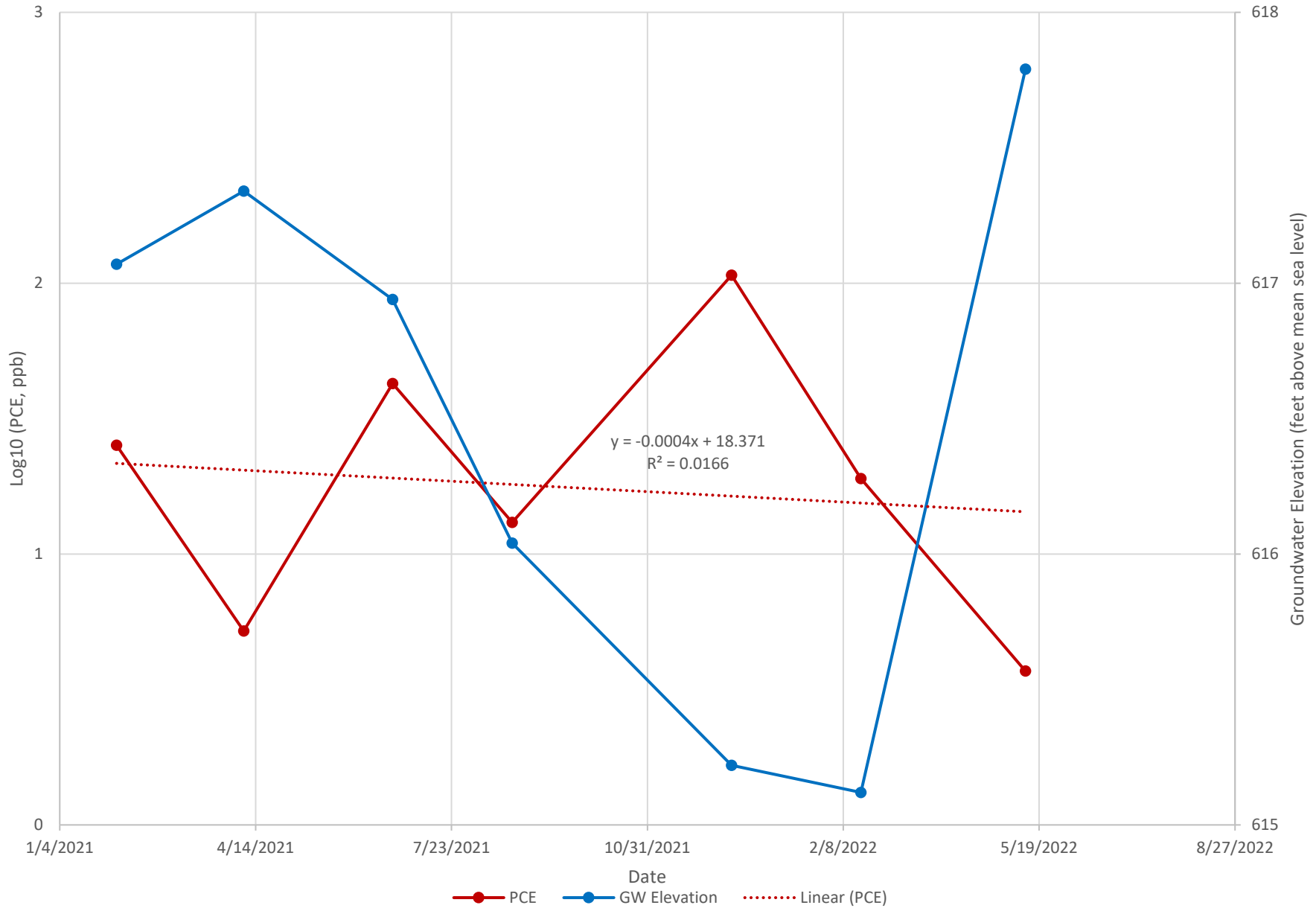
Lab Sample ID	Client Sample ID	M102FTS (25-150)
500-216625-2	MW-2	105
500-216625-3	MW-3	107
500-216625-4	MW-3 DUP	97
500-216625-5 - DL	MW-4	
500-216625-5	MW-4	98
500-216625-6	MW-5	116
500-216625-7	MW-8	106
500-216625-8	Equipment Blank	109
500-216625-9	Field Blank	114
LCS 320-590681/2-A	Lab Control Sample	105
LCSD 320-590681/3-A	Lab Control Sample Dup	102
MB 320-590681/1-A	Method Blank	97

Surrogate Legend

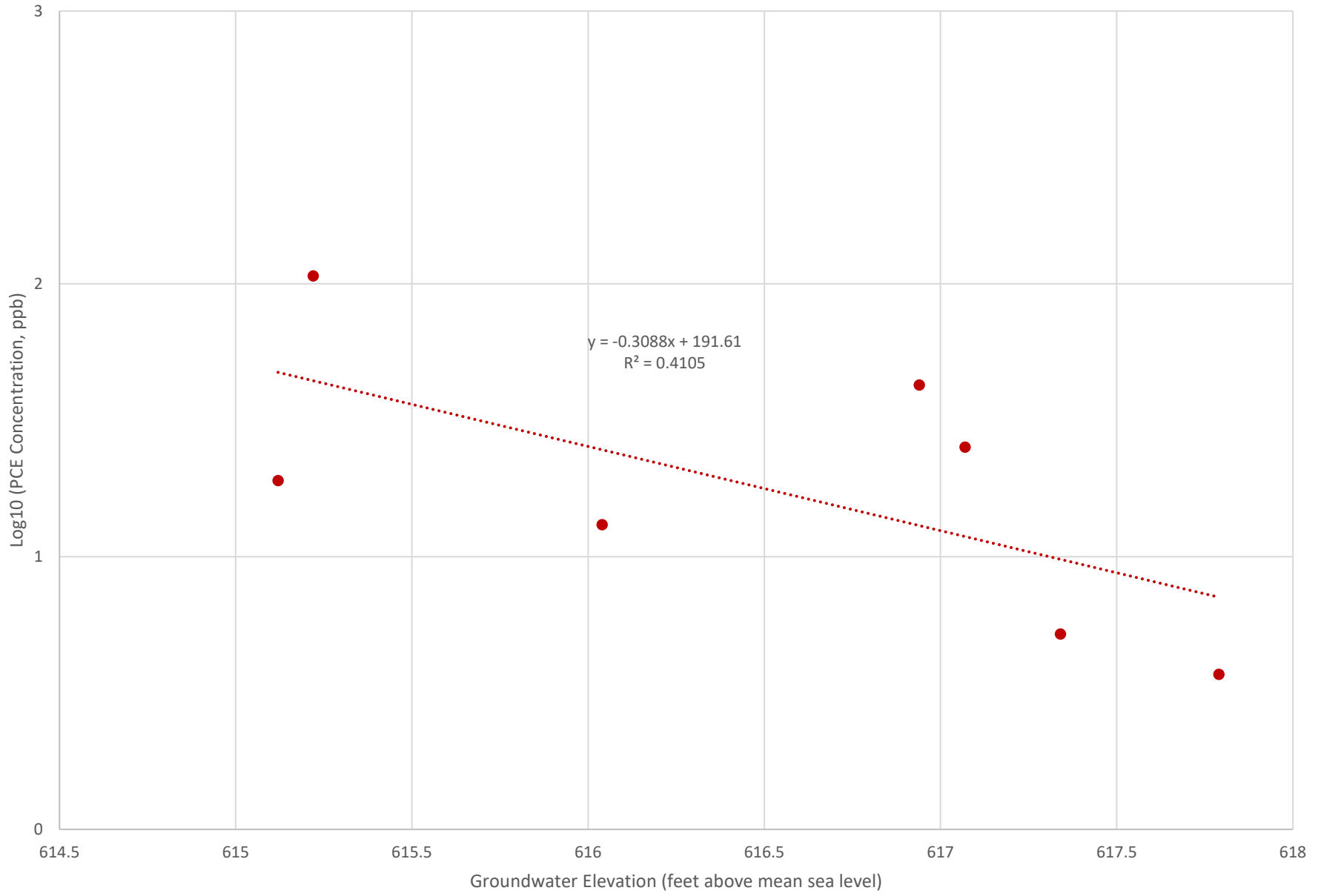
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- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDaA = 13C2 PFDaA
- PFTDA = 13C2 PFTeDA
- C3PFBS = 13C3 PFBS
- PFHxS = 18O2 PFHxS
- PFOS = 13C4 PFOS
- PFOSA = 13C8 FOSA
- d3NMFOS = d3-NMeFOSAA
- d5NEFOS = d5-NEtFOSAA
- dMeFOSA = d-N-MeFOSA-M
- dEtFOSA = d-N-EtFOSA-M
- NMFM = d7-N-MeFOSE-M
- NEFM = d9-N-EtFOSE-M
- M242FTS = M2-4:2 FTS
- M262FTS = M2-6:2 FTS
- M282FTS = M2-8:2 FTS
- HFPODA = 13C3 HFPO-DA
- M102FTS = 13C2 10:2 FTS

Attachment B
Groundwater Trend Plots

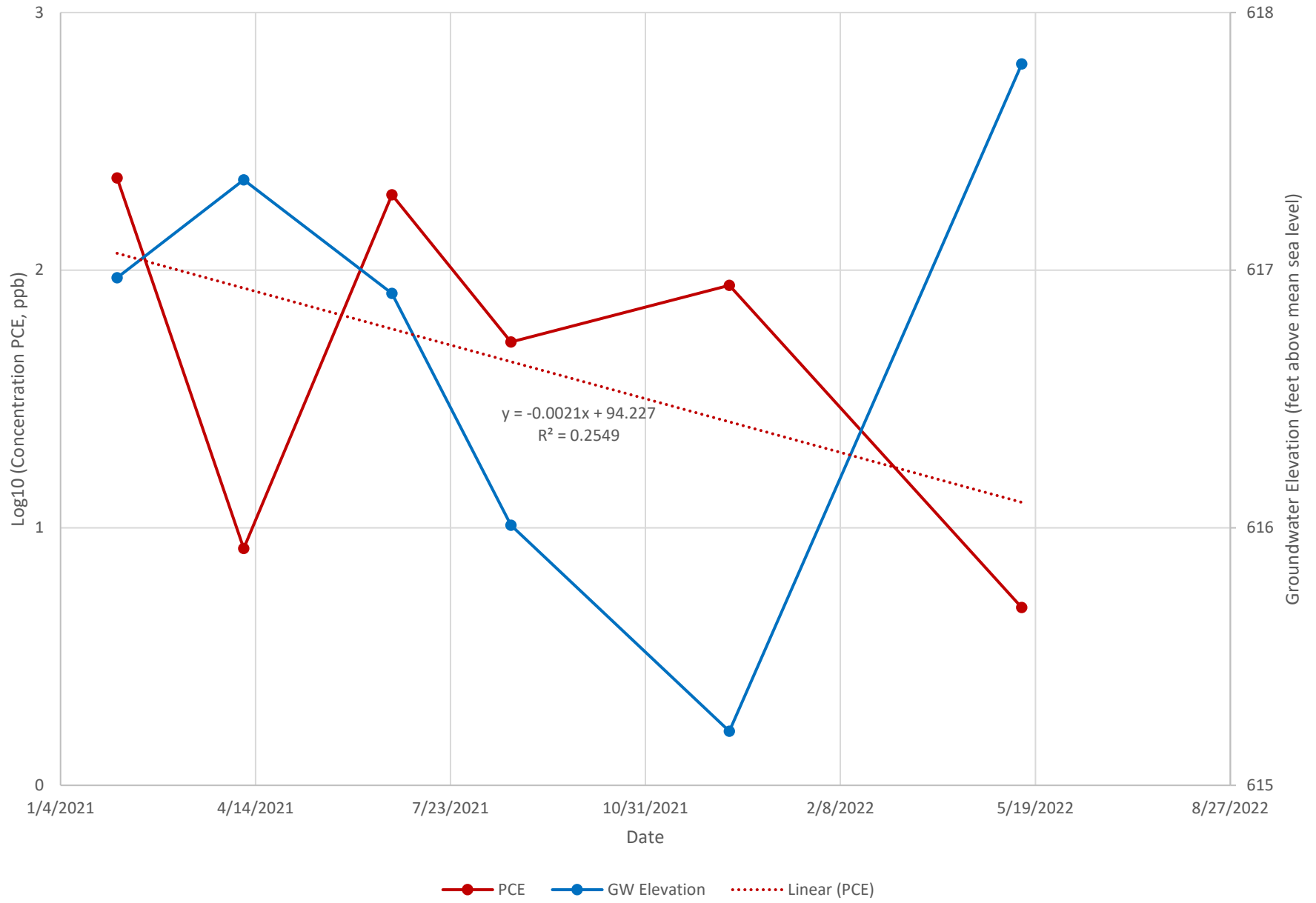
MW-03



MW-03



MW-04



MW-04

