

**Notice:** This form may be used to comply with the requirements of s. NR 716.14 (2), Wis. Adm. Code; however, use of this form is not required. An alternate format may be used. The rule requires that notification be provided to 1) property owners when someone else is conducting the sampling, 2) to occupants of property belonging to the responsible person, and 3) to owners and occupants of property that does not belong to the responsible person but has been affected by contamination arising on his or her property. Notification is required within 10 business days of receiving the sample results. Personal information collected will be used for program administration and may be provided to requesters to the extent required by Wisconsin's Open Records law [ss. 19.31-19.39, Wis. Stats.].

**NOTE:** Under s. NR 716.14, Wis. Adm. Code, the responsible party must also submit sample results and other required information to the DNR. We recommend that copies of the sample results notifications be included with that submittal, along with all attachments. Using the same format used for data presentation for a closure request may be helpful to all parties. See s. NR 716.14, Wis. Adm. Code for the full list of information to be submitted to the DNR.

**Notification of Property Owners and Occupants:**

This notification form has been provided to you in order to provide the results of environmental sampling that has been conducted on property that you own or occupy. Samples were collected in accordance with the methods identified in the site investigation work plan, in accordance with s. NR. 716.09 and 716.13, Wis. Adm. Code. This sampling was conducted as a result of contamination originating at the following location.

**Site Information**

Site Name		DNR ID # (BRRTS #)	
Blackhawk Drycleaners		02-12-552357	
Address	City	State	ZIP Code
700 East Blackhawk Avenue	Prairie du Chien	WI	53821

**Responsible Party**

The person(s) responsible for completing this environmental investigation is:

Property Owner

Redevelopment Authority (RDA) of the City of Prairie du Chien

Address	City	State	ZIP Code
P.O. Box 324	Prairie du Chien	WI	53821
Contact Person	Phone Number (include area code)		
Chad Abram	(608) 326-6406		

Person or company that collected samples

SCS Engineers

**Sample Results (Results Attached)**

Reason for Sampling:  Routine  Other (define) Soil VOC and PFAS and groundwater PFAS.

The contaminants that have been identified at this time on property that you own or occupy include:

Contaminant	In Soil?		In Groundwater?	
	Yes	No	Yes	No
Gasoline	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Diesel or Fuel Oil	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Solvents	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Heavy Metals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pesticides	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other: <u>PFAS</u>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>

This sampling event included sampling of a drinking water well. <input type="radio"/> Yes <input checked="" type="radio"/> No
If yes, the sampled drinking water well had detectable contaminants. <input type="radio"/> Yes <input type="radio"/> No

**Contaminants in Vapor**

	Yes	No
Indoor Air	<input type="radio"/>	<input checked="" type="radio"/>
Sub-slab	<input type="radio"/>	<input checked="" type="radio"/>
Exterior Soil Gas	<input checked="" type="radio"/>	<input type="radio"/>

# Site Investigation Sample Results Notification

Form 4400-249 (R 03/14)

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## Attached are:

- A map that shows the locations from which samples were collected. (The map needs to meet the requirements of s. NR 716.15 (4), Wis. Adm. Code.)
- A data table with specific contaminant levels at each sample location and whether or not the sample results exceed state standards.
- A copy of the laboratory results.

**You are not identified as the person that is responsible for this contamination.** However, your cooperation is important. Property owners may become legally responsible for contamination if they do not allow access to the person that is responsible so that person may complete the environmental investigation and clean up activities.

**Option for written exemption:** You have the option of requesting a written liability exemption from the DNR for contamination that originated on another property, or on property that you lease. To do this, you must present an adequate environmental assessment of your property and pay a \$700 fee for review of this information. If you are interested in this option, please see DNR publication # RR 589, "When Contamination Crosses a Property Line - Rights and Responsibilities of Property Owners", available at: [dnr.wi.gov/files/PDF/pubs/rr/rr589.pdf](http://dnr.wi.gov/files/PDF/pubs/rr/rr589.pdf).

## Contact Information

Please address questions regarding this notification, or requests for additional information to the contact person listed above, or to one of the following contacts:

### Environmental Consultant

Company Name		Contact Person Last Name		First Name	
SCS Engineers		Langdon		Robert	
Address			City	State	ZIP Code
2830 Dairy Drive			Madison	WI	53718
Phone # (inc. area code)	Email				
(608) 212-3995	rlangdon@scsengineers.com				

Select which agency:  Natural Resources       Agriculture, Trade and Consumer Protection

### State of Wisconsin Department of Natural Resources

Contact Person Last Name		First Name		Phone # (inc. area code)	
Vitale		Matt		(715) 492-1222	
Address			City	State	ZIP Code
1300 West Clairemont Avenue			Eau Claire	WI	54701-6127
Email					
Matthew.Vitale@wisconsin.gov					





02/22/2024 10:00 AM (P:\Projects\25221094\00\Drawings\172022 14 14 17.dwg)

PROJECT NO.	25221094.00	DRAWN BY:	KP
DRAWN:	04/05/2021	CHECKED BY:	MRH
REVISED:	08/17/2022	APPROVED BY:	REL 07/17/2022
CLIENT	PRAIRIE DU CHIEN REDEVELOPMENT AUTHORITY		
ENGINEER	<b>SCS ENGINEERS</b> 2830 DARTY DRIVE WADSWORTH, WI 53718-6751 PHONE: (608) 224-2838		
SITE PLAN	BLACKHAWK JUNCTION REDEVELOPMENT 700 EAST BLACKHAWK AVENUE PRAIRIE DU CHIEN, WISCONSIN		
FIGURE	2		

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)	⊞	TEST PIT
—ST—	STORM SEWER (BURIED)	⊞	ABANDONED MONITORING WELL
—T—	TELEPHONE (BURIED)	⊞	MONITORING WELL
—W—	WATER MAIN (BURIED)	⊞	PIEZOMETER

- NOTES:
- SEPTEMBER 2018 AERIAL PHOTOGRAPH SOURCES: ESRI, DIGITALGLOBE, GEOEYE, I-CUBED, USDA FSA, USGS, AEX, GETMAPPING, AERGRID, IGN, IGP, SWISSTOPO, AND THE GIS USER COMMUNITY.
  - 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.
  - 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.
  - 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.
  - SITE BOUNDARY AND LOT DETAILS FROM VERBICHER CERTIFIED SURVEY MAP DATED JUNE 29, 2021.
  - BORING AND WELL LOCATIONS ARE APPROXIMATE. UTILITY LOCATIONS ARE APPROXIMATE AND SHOULD NOT BE USED FOR LOCATING.





**Table 1. Soil Analytical Results Summary - VOCs and DRO**  
**Blackhawk Junction - Prairie du Chien, WI / SCS Engineers Project #25221094.00**  
 (Results are in µg/kg, except where otherwise noted)

Sample	Date	Depth (feet)	PID (ppm)	Lab Notes	DRO (mg/kg)	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC	Other VOCs
GP-1	4/16/2009	8-10	1.5	--	NA	<9	NA	NA	NA	NA	ND
	4/16/2009	20-22	3	--	NA	<9	NA	NA	NA	NA	ND
GP-2	4/16/2009	12-14	4	--	NA	<9	NA	NA	NA	NA	ND
	4/16/2009	20-22	48	--	NA	<9	NA	NA	NA	NA	ND
GP-3	4/16/2009	10-12	4	--	NA	<b>16</b>	NA	NA	NA	NA	ND
	4/16/2009	20-22	2	--	NA	<b>59</b>	NA	NA	NA	NA	ND
GP-4	7/24/2009	4-6	5	--	NA	<9	NA	NA	NA	NA	ND
	7/24/2009	20-22	5	--	NA	<b>32</b>	NA	NA	NA	NA	ND
GP-6	2/17/2010	2-4	2	--	NA	<9.2	NA	NA	NA	NA	ND
	2/17/2010	24-26	1.5	--	NA	<b>150</b>	NA	NA	NA	NA	ND
GP-7	2/17/2010	2-4	2	--	NA	<b>310</b>	NA	NA	NA	NA	ND
	2/17/2010	22-24	1.5	--	NA	<9	NA	NA	NA	NA	ND
SB-01-SS	3/10/2020	23-25	<2	--	NA	<29.5	<26.2	<17.3	<28.5	<12.4	ND
SB-02-SS	3/10/2020	23-25	<2	--	NA	<30.0	<26.7	<17.6	<29.0	<12.6	ND
SB-03-SS	3/10/2020	23-25	<2	--	NA	<b>29.8</b> J	<26.1	<17.2	<28.4	<12.3	ND
SB-04-SS	3/10/2020	23-25	<2	--	NA	<28.3	<25.2	<16.6	<27.3	<11.8	ND
SB-05-SS	3/11/2020	4-8	<2	--	<3.5	<30.1	<26.8	<17.7	<29.1	<12.6	ND
SB-06-SS	3/11/2020	4-8	<2	--	<3.5	<28.2	<25.1	<16.6	<27.3	<11.8	ND
SB-07-SS	3/11/2020	4-8	<2	--	<b>7.1</b> J	<27.6	<24.6	<16.2	<26.7	<11.6	ND
SB-08-SS	3/11/2020	4-8	<2	--	<2.8	<25.4	<22.6	<14.9	<24.6	<10.7	ND
DP-1	9/20/2021	3-4	0.0	--	NA	<25.3	<24.4	<13.9	<14.1	<13.2	ND
	9/20/2021	7-8	0.0	--	NA	<20.6	<19.9	<11.4	<11.5	<10.7	ND
DP-2	9/20/2021	3-4	0.0	--	NA	<21.4	<20.7	<11.8	<11.9	<11.2	ND
	9/20/2021	7-8	0.0	--	NA	<20.9	<20.1	<11.5	<11.6	<10.9	ND
DP-3	9/20/2021	2-4	0.0	--	NA	<21.2	<20.5	<11.7	<11.8	<11.1	ND
	9/20/2021	7-8	0.0	--	NA	<21.3	<20.5	<11.7	<11.8	<11.1	ND
DP-4	9/20/2021	3-4	0.9	--	NA	<23.7	<22.8	<13.0	<13.2	<12.3	ND
	9/20/2021	7-8	1.1	--	NA	<13.7	<13.2	<7.6	<7.6	<7.1	ND

**Table 1. Soil Analytical Results Summary - VOCs and DRO**  
**Blackhawk Junction - Prairie du Chien, WI / SCS Engineers Project #25221094.00**  
 (Results are in µg/kg, except where otherwise noted)

Sample	Date	Depth (feet)	PID (ppm)	Lab Notes	DRO (mg/kg)	PCE	TCE	cis-1,2-DCE	trans-1,2-DCE	VC	Other VOCs
TP-1	8/12/2022	2-4	1.7	(1)	NA	<b><u>290</u></b>	<12	<29	<25	<19	ND
TP-2	8/12/2022	2-4	2.5	(1)	NA	<b><u>310</u></b>	<12	<30	<26	<19	ND
TP-3	8/12/2022	2-4	1.4	(1)	NA	<20	<9.1	<23	<19	<15	ND
TP-4	8/12/2022	2-4	3.1	(1)	NA	<b><u>580</u></b>	<11	<29	<25	<18	ND
TP-5	8/12/2022	2-4	1.7	(1)	NA	<b><u>180</u></b>	<11	<27	<23	<17	ND
Trip Blank	3/11/2020	--	--	--	NA	<23.7	<21.1	<13.9	<22.9	<9.9	ND
	9/20/2021	--	--	--	NA	<19.4	<18.7	<10.7	<10.8	<10.1	ND
	8/12/2022	--	--	(1)	NA	<19	<8.2	<20	<18	<13	ND
NR 720 Groundwater Pathway RCLs with a Wisconsin-Default Dilution Factor of 2					NE	4.5	3.6	41.2	62.6	0.1	
NR 720 Non-Industrial Direct Contact RCLs					NE	33,000	1,300	156,000	1,560,000	67	
NR 720 Industrial Direct Contact RCLs					NE	145,000	8,410	2,340,000	1,850,000	2,080	
CAS No.					68334-30-5	127-18-4	79-01-6	156-59-2	156-60-5	75-01-4	

Abbreviations:

µg/kg = micrograms per kilogram or parts per billion (ppb)  
 mg/kg = milligrams per kilogram or parts per million (ppm)  
 CAS No. = Chemical Abstracts Service Number  
 RCLs = Residual Contaminant Levels

DRO = Diesel Range Organics  
 PID = Photoionization Detector  
 ppm = PID measured in ppm as isobutylene  
 VOCs = Volatile Organic Compounds

PCE = Tetrachloroethene  
 TCE = Trichloroethene  
 DCE = Dichloroethene  
 VC = Vinyl Chloride

-- = Not Applicable  
 NA = Not Analyzed  
 ND = Not Detected

Notes:

**Bold+underlined** values exceed an NR 720 RCL, as of December 2018.

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).

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

9/20/2021 samples collected by SCS Engineers.

Laboratory Notes/Qualifiers:

J = Estimated concentration at or above the limit of detection (LOD) and below the limit of quantitation (LOQ).

(1) Dichlorodifluoromethane = LCS or LCSD is outside acceptance limits.

Created by: LMH Date: 9/29/2021  
 Last revision by: AJR Date: 8/29/2022  
 Checked by: JSN Date: 8/29/2022  
 Proj Mgr QA/QC: REL Date: 9/20/2022

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**Table 3. Soil Analytical Results Summary - PFAS**  
**Blackhawk Junction - Prairie du Chien, WI / SCS Engineers Project #25221094.00**  
 (Results are in µg/kg unless noted)

Free acid name (EPA Dashboard)  Acronym (EPA Dashboard with Free acid CAS # below)			Sulfonic Acids						Sulfonamides, Sulfomidoacetic acids, Sulfonamidoethanols					Replacement Chemicals					
			Perfluoronanesulfonic acid	Perfluorodecanesulfonic acid	Perfluorododecanesulfonic acid	4:2 Fluorotelomer sulfonic acid	6:2 Fluorotelomer sulfonic acid	8:2 Fluorotelomer sulfonic acid	Perfluorooctanesulfonamide	N-Ethylperfluorooctanesulfonamide	N-Methylperfluorooctanesulfonamide	2-(N-Methylperfluorooctanesulfonamido)acetic acid	2-(N-Ethylperfluorooctanesulfonamido)acetic acid	N-Methylperfluorooctanesulfonamidoethanol	N-Ethylperfluorooctanesulfonamidoethanol	Perfluoro-2-methyl-3-oxahexanoic acid	4,8-Dioxa-3H-perfluorononanoic acid	9-chlorohexadecafluoro-3-oxanonane-1-sulfonic acid [C8]	11-chloroicosadecafluoro-3-oxaundecane-1-sulfonic acid [C10]
Acronym (EPA Dashboard)			PFNS	PFDS	PFDoS	4:2 FTS	6:2 FTS	8:2 FTS	FOSA	N-EtFOSA	N-MeFOSA	N-MeFOSAA	N-EtFOSAA	N-MeFOSE	N-EtFOSE	GenX	ADONA	9Cl-PF3ONS	11Cl-PF3OUds
Free Acid CAS#			68259-12-1	335-77-3	79780-39-5	757124-72-4	27619-97-2	39108-34-4	754-91-6	4151-50-2	31506-32-8	2355-31-9	2991-50-6	4151-50-2	1691-99-2	13252-13-6	919005-14-4	756426-58-1	763051-92-9
Sample	Date	Depth (feet)																	
TP-1 (2-4')	8/12/2022	2-4	<0.035	<0.063	<0.057	<0.062	<0.033	<0.042	<0.040	<0.057	<0.059	<0.028	<0.058	<0.057	<0.034	<0.050	<0.047 F1	<0.042	<0.038
TP-2 (2-4')	8/12/2022	2-4	<0.035	<0.064	<0.057	<0.062	<0.033	<0.043	<0.040	<0.057	<0.060	<0.028	<0.059	<0.057	<0.034	<0.050	<0.048	<0.043	<0.038
TP-3 (2-4')	8/12/2022	2-4	<0.028	<0.049	<0.045	<0.048	<0.026	<0.033	<0.031	<0.045	<0.047	<0.022	<0.046	<0.045	<0.027	<0.039	<0.037	<0.033	<0.029
TP-4 (2-4')	8/12/2022	2-4	<0.034	<0.061	<0.055	<0.060	<0.032	<0.041	<0.039	<0.055	<0.057	<0.027	<0.056	<0.055	<0.033	<0.048	<0.046	<0.041	<0.036
TP-5 (2-4')	8/12/2022	2-4	<0.029	<0.052	<0.047	<0.051	<0.027	<0.035	<0.033	<0.047	<0.049	<0.023	<0.048	<0.047	<0.028	<0.041	<0.039	<0.035	<0.031
Non-Industrial Direct Contact RCL			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

Abbreviations:  
 ug/kg = micrograms per kilogram                      NE = Not Established                      RCL = Residual Contaminant Level

Lab Notes:  
 F1 = MS and/or MSD recovery exceeds control limits.  
 J = Reported value was between the limit of detection and the limit of quantitation.

Created by: LMH                      Date: 9/20/2022  
 Last revision by: LMH                      Date: 9/20/2022  
 Checked by: REO                      Date: 9/20/2022  
 Proj Mgr QA/QC: REL                      Date: 9/20/2022

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Table 5. Groundwater Analytical Results Summary - PFAS  
 Blackhawk Junction - Prairie du Chien, WI / SCS Engineers Project #25221094.00  
 (Results are in ng/L)

Free Acid Name			Perfluorobutanoic acid	Perfluoropentanoic acid	Perfluorohexanoic acid	Perfluoroheptanoic acid	Perfluorooctanoic acid	Perfluorononanoic acid	Perfluorodecanoic acid	Perfluoroundecanoic acid	Perfluorododecanoic acid	Perfluorotridecanoic acid	Perfluorotetradecanoic acid	Perfluoropentadecanoic acid	Perfluorohexadecanoic acid	Perfluoroheptadecanoic acid	Perfluorooctadecanoic acid	Perfluorononadecanoic acid	Perfluorodecanesulfonic acid	Perfluoroundecanesulfonic acid	
Acronym:			PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnA	PFDoA	PFTriA	PFTeA	PFBS	PFPeS	PFHxS	PFHpS	PFOS	PFNS	PFDS	FOSA
Sample	Date	CAS #	375-22-4	2706-90-3	307-24-4	375-85-9	335-67-1	375-95-1	335-76-2	2058-94-8	307-55-1	72629-94-8	376-06-7	375-73-5	2706-91-4	355-46-4	375-92-8	1763-23-1	68259-12-1	335-77-3	754-91-6
MW-1	2/17/2022		5.9	6.6	4.0	3.0	6.5	<0.24	<0.28	<0.99	<0.49	<1.2	<0.65	3.5	<0.27	6.2	0.37 J	15	<0.33	<0.29	<0.88
	2/17/2022 (Dup)		5.4	6.7	3.8	2.8	6.7	<0.24	<0.28	<0.99	<0.50	<1.2	<0.66	3.2	<0.27	5.9	0.51 J	16	<0.33	<0.29	1.5 J
MW-1R	5/12/2022		3.3 J	3.4	2.4	2.6	5.7	<0.24	<0.28	<1.0	<0.50	<1.2	<0.66	4.4	<0.27	16	0.43 J	11	<0.34	<0.29	<0.89
	8/11/2022		5.3	5.8	2.8	2.9	4.3	<0.25	<0.28	<1.0	<0.50	<1.2	<0.66	7.1	<0.27	1.4 J	0.27 J	9 C	<0.34	<0.29	<0.89
	8/11/2022 (Dup)		3.5 J	3.8	2.2	2.9	3.5	<0.22	<0.26	<0.91	<0.45	<1.1	<0.60	6.9	<0.25	0.96 J	0.2 J	6.6 C	<0.31	<0.26	<0.81
MW-2	2/13/2021		3.7	1.6 J	2.9	2.8	11	<0.70	<0.53	<0.51	<0.46	<0.59	<0.45	2.1	<0.45	3.6	1.5 J	3.0 I	<0.42	<0.43	<0.78
	5/12/2022		7.1	6.1	4	4.1	7.8	<0.23	<0.27	<0.94	<0.47	<1.1	<0.62	3.1	0.33 J	6.9	0.45 J	7.8 C	<0.32	<0.27	0.94 J
	8/11/2022		3.5 J	2.8	2.3	4	5.7	<0.24	<0.28	<1.0	<0.50	<1.2	<0.66	2.7	0.42 J	9.3	0.36 J	2.5 C	<0.34	<0.29	<0.89
MW-3	12/13/2021		6.4	10	7.9	5.4	19	0.86 J	<0.56	<0.54	<0.48	<0.62	<0.47	4.2	<0.47	4.1	2.6	58	<0.44	<0.45	<0.81
	12/13/2021 (Dup)		6.4	9.9	7.0	5.7	22	1.0 J	<0.54	<0.51	<0.46	<0.59	<0.45	3.7	<0.45	4.1	2.3	55	<0.43	<0.43	<0.78
	5/12/2022		5.1	3.6	12.0	6.3	33	0.52 J	<0.27	<0.97	<0.49	<1.1	<0.65	11	1.7 J	220	2.9	26 C	<0.33	<0.28	<0.87
	5/12/2022 (Dup)		4.5	3.4	12.0	6.3	36	0.64 J	<0.27	<0.95	<0.47	<1.1	<0.63	11	1.7	220	3.8	26 C	<0.32	<0.28	1.1 J
	8/11/2022		4.8	5.1	5.6	3.9	13	0.36 J	<0.28	<0.99	<0.50	<1.2	<0.66	7.9	0.57 J	33	2.3	19	<0.33	<0.29	<0.89
MW-4	12/13/2021		9.0	12	16	14	30	7.4	<0.55	<0.52	<0.47	<0.60	<0.46	39	1.1 J	46	0.67 J	6.8	<0.43	<0.44	<0.79
	5/12/2022		9.3	6.1	34	15	71	<0.24	<0.27	<0.97	<0.48	<1.1	<0.64	17	7.8	820	4.8	45 C	<0.33	<0.28	<0.86
	8/11/2022		11.0	10	24	15	46	0.93 J	<0.27	<0.98	<0.49	<1.2	<0.65	85	5	460	1.8	29 C	<0.33	<0.28	<0.87
MW-5	2/17/2022		3.5 J	1.8	12	3.2	14	<0.24	<0.27	<0.97	<0.48	<1.1	<0.64	5.6	2.5	140	0.28 J	17 C	<0.33	<0.28	<0.86
	5/12/2022		3.3 J	1.3 J	6.6	2.6	8.4	<0.24	<0.28	<0.99	<0.50	<1.2	<0.66	4.7	1.5 J	98	<0.17	15 C	<0.33	<0.29	<0.88
	8/11/2022		9.2	5.6	27	11	50	<0.23	<0.26	<0.93	<0.47	<1.1	<0.62	18	7.1	470	1.6 J	58 C	<0.31	<0.27	<0.83
MW-6P	2/16/2022		<2.2	<0.44	0.63 J	<0.23	0.92 J	<0.24	<0.28	<0.99	<0.50	<1.2	<0.66	0.47 J	<0.27	4.7	<0.17	3.4 C	<0.33	<0.29	<0.88
MW-7	2/17/2022		2.6 J	<0.44	1.3 J	0.24 J	1.5 J	<0.25	<0.28	<1.0	<0.50	<1.2	<0.66	2.9	0.72 J	21	<0.17	<0.49	<0.34	<0.29	<0.89
MW-8	2/17/2022		2.6 J	0.7 J	0.89 J	0.35 J	0.86 J	<0.24	<0.27	<0.97	<0.49	<1.1	<0.64	1.6 J	<0.26	4.9	<0.17	2.5 C	<0.33	<0.28	<0.87
	5/12/2022		3.3 J	0.52 J	0.64 J	0.44 J	1.1 J	<0.24	<0.27	<0.96	<0.48	<1.1	<0.64	2.5	<0.26	8.4	<0.17	2.9	<0.32	<0.28	<0.86
	8/11/2022		4.3	1 J	1.6 J	0.77 J	1.7	<0.23	<0.27	<0.95	<0.48	<1.1	<0.63	43	0.28 J	9.6	<0.16	4.4	<0.32	<0.28	<0.85
MW-8P	2/17/2022		<2.2	<0.44	<0.52	<0.22	<0.76	<0.24	<0.28	<0.99	<0.49	<1.2	<0.66	<0.18	<0.27	<0.51	<0.17	<0.49	<0.33	<0.29	<0.88
Equipment Blank	12/13/2021		<0.43	<0.42	<0.42	<0.53	<0.57	<0.72	<0.55	<0.52	<0.47	<0.60	<0.46	<0.46	<0.46	<0.49	<0.40	<0.53	<0.43	<0.44	<0.79
	5/12/2022		<2.2	<0.45	<0.54	<0.23	<0.79	<0.25	<0.29	<1.0	<0.51	<1.2	<0.68	<0.19	<0.28	<0.53	<0.18	<0.50	<0.34	<0.30	<0.91
	8/11/2022		<2.2	<0.46	<0.54	<0.23	<0.79	<0.25	<0.29	<1.0	<0.51	<1.2	<0.68	<0.19	<0.28	<0.53	<0.18	<0.50	<0.35	<0.30	<0.91
Equipment Blank - Tube	2/16/2022		<2.2	<0.45	<0.54	<0.23	<0.79	<0.25	<0.29	<1.0	<0.51	<1.2	<0.68	<0.19	<0.28	<0.53	<0.18	<0.50	<0.34	<0.30	<0.91
Equipment Blank - Pipe	2/17/2022		<2.5	<0.50	<0.60	<0.26	<0.87	<0.28	<0.32	<1.1	<0.57	<1.3	<0.75	<0.21	<0.31	<0.59	<0.20	<0.56	<0.38	<0.33	<1.0
Field Blank	12/13/2021		<0.48	<0.47	<0.47	<0.60	<0.63	<0.80	<0.61	<0.59	<0.52	<0.67	<0.52	<0.51	<0.51	<0.55	<0.45	<0.59	<0.48	<0.49	<0.89
	2/16/2022		<2.2	<0.44	<0.52	<0.22	<0.76	<0.24	<0.28	<0.99	<0.49	<1.2	<0.65	<0.18	<0.27	<0.51	<0.17	<0.48	<0.33	<0.29	<0.88
	5/12/2022		<2.1	<0.43	<0.50	<0.22	<0.74	<0.23	<0.27	<0.96	<0.48	<1.1	<0.63	<0.17	<0.26	<0.50	<0.17	<0.47	<0.32	<0.28	<0.85
	8/11/2022		<2.1	<0.43	<0.51	<0.22	<0.75	<0.24	<0.27	<0.97	<0.49	<1.1	<0.64	<0.18	<0.26	<0.50	<0.17	<0.48	<0.33	<0.28	<0.87
U.S. EPA Health Advisory			NE	NE	NE	NE	70	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	70	NE	NE	NE

Table 5. Groundwater Analytical Results Summary - PFAS  
 Blackhawk Junction - Prairie du Chien, WI / SCS Engineers Project #25221094.00  
 (Results are in ng/L)

Free Acid Name			2-(N-Methylperfluorooctanesulfonamido)acetic acid	2-(N-Ethylperfluorooctanesulfonamido)acetic acid	4:2 Fluorotelomer sulfonic acid	6:2 Fluorotelomer sulfonic acid	8:2 Fluorotelomer sulfonic acid	N-Ethylperfluorooctanesulfonamide	N-Methylperfluorooctanesulfonamide	Perfluorododecanesulfonic acid	N-Methylperfluorooctanesulfonamideethanol	N-Ethylperfluorooctanesulfonamideethanol	Perfluoro(2-((6-chlorohexyloxy)ethyl)sulfonic acid)	Perfluoro-2-methyl-3-oxahexanoic acid (HFO-DA)	2-(8-Chloro-1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8-hexadecafluorooctyl)oxy-1,1,2,2-tetrafluoroethanesulfonic acid	DONA (a.k.a. 4,8-Dioxa-3H-perfluoronanoic acid (ADONA))	PFOS + PFOA Combined
Acronym:			N-MeFOSAA	N-EtFOSAA	4:2 FTS	6:2 FTS	8:2 FTS	N-EtFOSA	N-MeFOSA	PFDoS	N-MeFOSE	N-EtFOSE	F-538 Major/9Cl-PF3ONS	GenX	F-538 Minor/11Cl-PF3OUdS	DONA/ADONA	--
Sample	Date	CAS #	2355-31-9	2991-50-6	757124-72-4	27619-97-2	39108-34-4	4151-50-2	31506-32-8	79780-39-5	24448-09-7	1691-99-2	756426-58-1	13252-13-6	763051-92-9	919005-14-4	--
MW-1	2/17/2022		<1.1	<1.2	<0.21	<2.2	<0.41	<0.78	<0.39	<0.87	<1.3	<0.76	<0.21	<1.3	<0.29	<0.36	22
	2/17/2022 (Dup)		<1.1	<1.2	<0.22	<2.3	<0.41	<0.78	<0.39	<0.87	<1.3	<0.77	<0.22	<1.4	<0.29	<0.36	23
MW-1R	5/12/2022		<1.1	<1.2	<0.22	<2.3	<0.42	<0.79	<0.39	<0.88	<1.3	<0.77	<0.22	<1.4	<0.29	<0.36	17
	8/11/2022		<1.1	<1.2	<0.22	<2.3	<0.42	<0.79	<0.39	<0.88	<1.3	<0.77	<0.22	<1.4	<0.29	<0.36	13
	8/11/2022 (Dup)		<0.99	<1.1	<0.20	<2.1	<0.38	<0.72	<0.35	<0.80	<1.2	<0.70	<0.20	<1.2	<0.26	<0.33	10
MW-2	2/13/2021		<0.41	<0.53	<0.53	<0.61	<0.62	<0.58	<0.48	<0.44	<0.31	<0.47	<0.29	<0.50	<0.41	<0.49	14
	5/12/2022		<1.0	<1.1	<0.21	<2.1	<0.39	<0.74	<0.37	<0.83	<1.2	<0.73	<0.21	<1.3	<0.27	<0.34	16
	8/11/2022		<1.1	<1.2	<0.22	<2.3	<0.42	<0.79	<0.39	<0.88	<1.3	<0.77	<0.22	<1.4	<0.29	<0.36	8
MW-3	12/13/2021		<0.43	<0.55	<0.55	2.6	<0.65	<0.60	<0.51	<0.46	<0.33	<0.49	<0.30	<0.52	<0.43	<0.51	<u>77</u>
	12/13/2021 (Dup)		<0.41	<0.53	<0.53	4.2	0.72 J	<0.58	<0.49	<0.44	<0.31	<0.47	<0.29	<0.50	<0.42	<0.49	<u>77</u>
	5/12/2022		<1.1	<1.1	<0.21	<2.2	<0.41	<0.77	<0.38	<0.86	<1.2	<0.75	<0.21	<1.3	<0.28	<0.35	59
	5/12/2022 (Dup)		<1.0	<1.1	<0.21	<2.2	<0.40	<0.75	<0.37	<0.84	<1.2	<0.73	<0.21	<1.3	<0.28	<0.34	62
	8/11/2022		<1.1	<1.2	<0.22	<2.3	<0.42	<0.79	<0.39	<0.88	<1.3	<0.77	<0.22	<1.4	<0.29	<0.36	32
MW-4	12/13/2021		<0.42	<0.54	<0.54	1.2 J	<0.63	<0.59	<0.50	<0.45	<0.32	<0.48	<0.30	<0.51	<0.42	<0.50	37
	5/12/2022		<1.1	<1.1	<0.21	<2.2	<0.40	<0.76	<0.38	<0.85	<1.2	<0.75	<0.21	<1.3	<0.28	<0.35	<u>116</u>
	8/11/2022		<1.1	<1.2	<0.21	<2.2	<0.41	<0.77	<0.38	<0.86	<1.2	<0.75	<0.21	<1.3	<0.28	<0.35	<u>75</u>
MW-5	2/17/2022		<1.1	<1.1	<0.21	<2.2	<0.40	<0.77	<0.38	<0.85	<1.2	<0.75	<0.21	<1.3	<0.28	<0.35	31
	5/12/2022		<1.1	<1.2	<0.22	<2.3	<0.41	<0.78	<0.39	<0.87	<1.3	<0.77	<0.22	<1.4	<0.29	<0.36	23
	8/11/2022		<1.0	<1.1	<0.20	<2.1	<0.39	<0.74	<0.36	<0.82	<1.2	<0.72	<0.20	<1.3	<0.27	<0.34	<u>108</u>
MW-6P	2/16/2022		<1.1	<1.2	<0.22	<2.3	<0.42	<0.79	<0.39	<0.88	<1.3	<0.77	<0.22	<1.4	<0.29	<0.36	4
MW-7	2/17/2022		<1.1	<1.2	<0.22	<2.3	<0.42	<0.79	<0.39	<0.88	<1.3	<0.77	<0.22	<1.4	<0.29	<0.36	2
MW-8	2/17/2022		<1.1	<1.1	<0.21	<2.2	<0.41	<0.77	<0.38	<0.86	<1.2	<0.75	<0.21	<1.3	<0.28	<0.35	3
	5/12/2022		<1.0	<1.1	<0.21	<2.2	<0.40	<0.76	<0.38	<0.85	<1.2	<0.74	<0.21	<1.3	<0.28	<0.35	4
	8/11/2022		<1.0	<1.1	<0.21	<2.2	<0.40	<0.75	<0.37	<0.84	<1.2	<0.74	<0.21	<1.3	<0.28	<0.35	6
MW-8P	2/17/2022		<1.1	<1.2	<0.22	<2.2	<0.41	<0.78	<0.39	<0.87	<1.3	<0.76	<0.22	<1.3	<0.29	<0.36	ND
Equipment Blank	12/13/2021		<0.42	<0.54	<0.54	0.90 J	<0.63	<0.59	<0.49	<0.45	<0.32	<0.48	<0.30	<0.51	<0.42	<0.50	ND
	5/12/2022		<1.1	<1.2	<0.22	<2.3	<0.43	<0.81	<0.40	<0.90	<1.3	<0.79	<0.22	<1.4	<0.30	<0.37	ND
	8/11/2022		<1.1	<1.2	<0.22	<2.3	<0.43	<0.81	<0.40	<0.90	<1.3	<0.79	<0.22	<1.4	<0.30	<0.37	ND
Equipment Blank - Tube	2/16/2022		<1.1	<1.2	<0.22	<2.3	<0.43	<0.81	<0.40	<0.90	<1.3	<0.79	<0.22	<1.4	<0.30	<0.37	ND
Equipment Blank - Pipe	2/17/2022		<1.2	<1.3	<0.25	<2.6	<0.47	<0.89	<0.44	<1.0	<1.4	<0.87	<0.25	<1.5	<0.33	<0.41	ND
Field Blank	12/13/2021		<0.47	<0.60	<0.60	<0.70	<0.71	<0.66	<0.55	<0.50	<0.36	<0.54	<0.33	<0.57	<0.47	<0.56	ND
	2/16/2022		<1.1	<1.2	<0.22	<2.2	<0.41	<0.78	<0.39	<0.87	<1.3	<0.76	<0.22	<1.3	<0.29	<0.36	ND
	5/12/2022		<1.0	<1.1	<0.21	<2.2	<0.40	<0.76	<0.37	<0.84	<1.2	<0.74	<0.21	<1.3	<0.28	<0.35	ND
	8/11/2022		<1.1	<1.1	<0.21	<2.2	<0.41	<0.77	<0.38	<0.86	<1.2	<0.75	<0.21	<1.3	<0.28	<0.35	ND
U.S. EPA Health Advisory		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	70	

Abbreviations:  
 ng/L = nanogram per liter  
 CAS No. = Chemical Abstracts Service Number  
 PFAS = Per- and Polyfluoroalkyl Substances  
 -- = Not Applicable  
 Dup = Duplicate Sample  
 NE = Not Established  
 ND = Not Detected at the reporting limit

Notes:  
Bold+Underlined results exceed NR 809 drinking water maximum contaminant level (MCL).

Laboratory Notes/Qualifiers:  
 C = Method 537 (modified); The "C" qualifier means 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-5 (500-212613-7), MW-6P (500-212613-8) and MW-8 (500-212613-10).

I = Interference present  
 J = Reported value was between the limit of detection and the limit of quantitation.

Created by: LMH Date: 1/20/2022  
 Last revision by: REO Date: 9/14/2022  
 Checked by: AJR Date: 9/14/2022  
 Proj Mgr QA/QC: REL Date: 9/14/2022



## ANALYTICAL REPORT

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

Laboratory Job ID: 500-220859-1

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:  
8/29/2022 8:26:04 AM

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

[Sandra.Fredrick@et.eurofinsus.com](mailto: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: 500-220859-1

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## Job ID: 500-220859-1

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### Laboratory: Eurofins Chicago

#### Narrative

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#### Job Narrative 500-220859-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 8/13/2022 9:50 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 1.3° C.

#### GC/MS VOA

Method 8260B: The laboratory control sample (LCS) for 670488 recovered outside control limits for Dichlorodifluoromethane. This is a prepped 5035 LCS. All daily instrument LCSs were acceptable, and the data have been reported. TP-1 2'-4' (500-220859-1), TP-2 2'-4' (500-220859-2), TP-3 2'-4' (500-220859-3), TP-4 2'-4' (500-220859-4), TP-5 2'-4' (500-220859-5) and Trip Blank (500-220859-6)

Method 8260B: The following samples had very high results for Methylene chloride from the provided 5035 methanol vials. It is believed vials were contaminated by an undetermined source before receipt by the client, as several unrelated projects and clients have had the same occurrence. Not all 5035 vials appear contaminated. Methylene chloride is being reported from lab prepped bulk vials using method 5030. These laboratory prepped vials were below the reporting limit for Methylene chloride. TP-2 2'-4' (500-220859-2), TP-3 2'-4' (500-220859-3), TP-4 2'-4' (500-220859-4) and TP-5 2'-4' (500-220859-5)

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

#### Metals

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

# Detection Summary

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

Job ID: 500-220859-1

## Client Sample ID: TP-1 2'-4'

Lab Sample ID: 500-220859-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	290		72	27	ug/Kg	50	✳	8260B	Total/NA

## Client Sample ID: TP-2 2'-4'

Lab Sample ID: 500-220859-2

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	310		73	27	ug/Kg	50	✳	8260B	Total/NA

## Client Sample ID: TP-3 2'-4'

Lab Sample ID: 500-220859-3

No Detections.

## Client Sample ID: TP-4 2'-4'

Lab Sample ID: 500-220859-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	580		70	26	ug/Kg	50	✳	8260B	Total/NA

## Client Sample ID: TP-5 2'-4'

Lab Sample ID: 500-220859-5

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Tetrachloroethene	180		66	24	ug/Kg	50	✳	8260B	Total/NA

## Client Sample ID: Trip Blank

Lab Sample ID: 500-220859-6

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: 500-220859-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	EET CHI
Moisture	Percent Moisture	EPA	EET CHI
5030B	Purge and Trap	SW846	EET CHI
5035	Closed System Purge and Trap	SW846	EET 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:

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

# Sample Summary

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

Job ID: 500-220859-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-220859-1	TP-1 2'-4'	Solid	08/12/22 07:30	08/13/22 09:50
500-220859-2	TP-2 2'-4'	Solid	08/12/22 07:40	08/13/22 09:50
500-220859-3	TP-3 2'-4'	Solid	08/12/22 07:50	08/13/22 09:50
500-220859-4	TP-4 2'-4'	Solid	08/12/22 08:00	08/13/22 09:50
500-220859-5	TP-5 2'-4'	Solid	08/12/22 08:10	08/13/22 09:50
500-220859-6	Trip Blank	Solid	08/12/22 00:00	08/13/22 09:50

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# Client Sample Results

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

Job ID: 500-220859-1

**Client Sample ID: TP-1 2'-4'**

**Lab Sample ID: 500-220859-1**

**Date Collected: 08/12/22 07:30**

**Matrix: Solid**

**Date Received: 08/13/22 09:50**

**Percent Solids: 81.4**

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<11		18	11	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Bromobenzene	<26		72	26	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Bromochloromethane	<31		72	31	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Bromodichloromethane	<27		72	27	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Bromoform	<35		72	35	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Bromomethane	<58		220	58	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Carbon tetrachloride	<28		72	28	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Chlorobenzene	<28		72	28	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Chloroethane	<36		72	36	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Chloroform	<27		140	27	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Chloromethane	<23		72	23	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
2-Chlorotoluene	<23		72	23	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
4-Chlorotoluene	<25		72	25	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
cis-1,2-Dichloroethene	<29		72	29	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
cis-1,3-Dichloropropene	<30		72	30	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Dibromochloromethane	<35		72	35	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
1,2-Dibromo-3-Chloropropane	<140		360	140	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
1,2-Dibromoethane	<28		72	28	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Dibromomethane	<20		72	20	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
1,2-Dichlorobenzene	<24		72	24	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
1,3-Dichlorobenzene	<29		72	29	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
1,4-Dichlorobenzene	<26		72	26	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Dichlorodifluoromethane	<49 *		220	49	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
1,1-Dichloroethane	<30		72	30	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
1,2-Dichloroethane	<28		72	28	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
1,1-Dichloroethene	<28		72	28	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
1,2-Dichloropropane	<31		72	31	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
1,3-Dichloropropane	<26		72	26	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
2,2-Dichloropropane	<32		72	32	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
1,1-Dichloropropene	<22		72	22	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Ethylbenzene	<13		18	13	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Hexachlorobutadiene	<32		72	32	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Isopropylbenzene	<28		72	28	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Isopropyl ether	<20		72	20	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Methylene Chloride	<120		360	120	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Methyl tert-butyl ether	<28		72	28	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Naphthalene	<24		72	24	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
n-Butylbenzene	<28		72	28	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
N-Propylbenzene	<30		72	30	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
p-Isopropyltoluene	<26		72	26	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
sec-Butylbenzene	<29		72	29	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Styrene	<28		72	28	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
tert-Butylbenzene	<29		72	29	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
1,1,1,2-Tetrachloroethane	<33		72	33	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
1,1,2,2-Tetrachloroethane	<29		72	29	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
<b>Tetrachloroethene</b>	<b>290</b>		72	27	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Toluene	<11		18	11	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
trans-1,2-Dichloroethene	<25		72	25	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
trans-1,3-Dichloropropene	<26		72	26	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50

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# Client Sample Results

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

Job ID: 500-220859-1

**Client Sample ID: TP-1 2'-4'**

**Lab Sample ID: 500-220859-1**

**Date Collected: 08/12/22 07:30**

**Matrix: Solid**

**Date Received: 08/13/22 09:50**

**Percent Solids: 81.4**

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3-Trichlorobenzene	<33		72	33	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
1,2,4-Trichlorobenzene	<25		72	25	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
1,1,1-Trichloroethane	<27		72	27	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
1,1,2-Trichloroethane	<25		72	25	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Trichloroethene	<12		36	12	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Trichlorofluoromethane	<31		72	31	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
1,2,3-Trichloropropane	<30		140	30	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
1,2,4-Trimethylbenzene	<26		72	26	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
1,3,5-Trimethylbenzene	<27		72	27	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Vinyl chloride	<19		72	19	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50
Xylenes, Total	<16		36	16	ug/Kg	✱	08/12/22 07:30	08/25/22 16:17	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		72 - 124	08/12/22 07:30	08/25/22 16:17	50
Dibromofluoromethane (Surr)	94		75 - 120	08/12/22 07:30	08/25/22 16:17	50
1,2-Dichloroethane-d4 (Surr)	93		75 - 126	08/12/22 07:30	08/25/22 16:17	50
Toluene-d8 (Surr)	100		75 - 120	08/12/22 07:30	08/25/22 16:17	50



# Client Sample Results

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

Job ID: 500-220859-1

**Client Sample ID: TP-2 2'-4'**

**Lab Sample ID: 500-220859-2**

**Date Collected: 08/12/22 07:40**

**Matrix: Solid**

**Date Received: 08/13/22 09:50**

**Percent Solids: 81.0**

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<11		18	11	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
Bromobenzene	<26		73	26	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
Bromochloromethane	<31		73	31	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
Bromodichloromethane	<27		73	27	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
Bromoform	<35		73	35	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
Bromomethane	<58		220	58	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
Carbon tetrachloride	<28		73	28	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
Chlorobenzene	<28		73	28	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
Chloroethane	<37		73	37	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
Chloroform	<27		150	27	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
Chloromethane	<23		73	23	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
2-Chlorotoluene	<23		73	23	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
4-Chlorotoluene	<26		73	26	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
cis-1,2-Dichloroethene	<30		73	30	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
cis-1,3-Dichloropropene	<30		73	30	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
Dibromochloromethane	<36		73	36	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
1,2-Dibromo-3-Chloropropane	<150		370	150	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
1,2-Dibromoethane	<28		73	28	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
Dibromomethane	<20		73	20	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
1,2-Dichlorobenzene	<24		73	24	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
1,3-Dichlorobenzene	<29		73	29	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
1,4-Dichlorobenzene	<27		73	27	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
Dichlorodifluoromethane	<49 *		220	49	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
1,1-Dichloroethane	<30		73	30	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
1,2-Dichloroethane	<29		73	29	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
1,1-Dichloroethene	<29		73	29	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
1,2-Dichloropropane	<31		73	31	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
1,3-Dichloropropane	<27		73	27	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
2,2-Dichloropropane	<33		73	33	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
1,1-Dichloropropene	<22		73	22	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
Ethylbenzene	<13		18	13	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
Methylene Chloride	<120		370	120	ug/Kg	☼	08/18/22 15:57	08/25/22 18:13	50
Hexachlorobutadiene	<33		73	33	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
Isopropylbenzene	<28		73	28	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
Isopropyl ether	<20		73	20	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
Methyl tert-butyl ether	<29		73	29	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
Naphthalene	<24		73	24	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
n-Butylbenzene	<28		73	28	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
N-Propylbenzene	<30		73	30	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
p-Isopropyltoluene	<27		73	27	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
sec-Butylbenzene	<29		73	29	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
Styrene	<28		73	28	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
tert-Butylbenzene	<29		73	29	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
1,1,1,2-Tetrachloroethane	<34		73	34	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
1,1,2,2-Tetrachloroethane	<29		73	29	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
<b>Tetrachloroethene</b>	<b>310</b>		73	27	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
Toluene	<11		18	11	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
trans-1,2-Dichloroethene	<26		73	26	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50
trans-1,3-Dichloropropene	<27		73	27	ug/Kg	☼	08/12/22 07:40	08/25/22 16:40	50

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# Client Sample Results

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

Job ID: 500-220859-1

**Client Sample ID: TP-2 2'-4'**

**Lab Sample ID: 500-220859-2**

**Date Collected: 08/12/22 07:40**

**Matrix: Solid**

**Date Received: 08/13/22 09:50**

**Percent Solids: 81.0**

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3-Trichlorobenzene	<34		73	34	ug/Kg	✱	08/12/22 07:40	08/25/22 16:40	50
1,2,4-Trichlorobenzene	<25		73	25	ug/Kg	✱	08/12/22 07:40	08/25/22 16:40	50
1,1,1-Trichloroethane	<28		73	28	ug/Kg	✱	08/12/22 07:40	08/25/22 16:40	50
1,1,2-Trichloroethane	<26		73	26	ug/Kg	✱	08/12/22 07:40	08/25/22 16:40	50
Trichloroethene	<12		37	12	ug/Kg	✱	08/12/22 07:40	08/25/22 16:40	50
Trichlorofluoromethane	<31		73	31	ug/Kg	✱	08/12/22 07:40	08/25/22 16:40	50
1,2,3-Trichloropropane	<30		150	30	ug/Kg	✱	08/12/22 07:40	08/25/22 16:40	50
1,2,4-Trimethylbenzene	<26		73	26	ug/Kg	✱	08/12/22 07:40	08/25/22 16:40	50
1,3,5-Trimethylbenzene	<28		73	28	ug/Kg	✱	08/12/22 07:40	08/25/22 16:40	50
Vinyl chloride	<19		73	19	ug/Kg	✱	08/12/22 07:40	08/25/22 16:40	50
Xylenes, Total	<16		37	16	ug/Kg	✱	08/12/22 07:40	08/25/22 16:40	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	92		75 - 126	08/18/22 15:57	08/25/22 18:13	50
Toluene-d8 (Surr)	99		75 - 120	08/18/22 15:57	08/25/22 18:13	50
4-Bromofluorobenzene (Surr)	92		72 - 124	08/18/22 15:57	08/25/22 18:13	50
4-Bromofluorobenzene (Surr)	87		72 - 124	08/12/22 07:40	08/25/22 16:40	50
Dibromofluoromethane (Surr)	93		75 - 120	08/18/22 15:57	08/25/22 18:13	50
Dibromofluoromethane (Surr)	93		75 - 120	08/12/22 07:40	08/25/22 16:40	50
1,2-Dichloroethane-d4 (Surr)	92		75 - 126	08/12/22 07:40	08/25/22 16:40	50
Toluene-d8 (Surr)	101		75 - 120	08/12/22 07:40	08/25/22 16:40	50

# Client Sample Results

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

Job ID: 500-220859-1

**Client Sample ID: TP-3 2'-4'**

**Lab Sample ID: 500-220859-3**

**Date Collected: 08/12/22 07:50**

**Matrix: Solid**

**Date Received: 08/13/22 09:50**

**Percent Solids: 94.6**

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<8.1		14	8.1	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Bromobenzene	<20		55	20	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Bromochloromethane	<24		55	24	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Bromodichloromethane	<21		55	21	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Bromoform	<27		55	27	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Bromomethane	<44		170	44	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Carbon tetrachloride	<21		55	21	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Chlorobenzene	<21		55	21	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Chloroethane	<28		55	28	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Chloroform	<20		110	20	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Chloromethane	<18		55	18	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
2-Chlorotoluene	<17		55	17	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
4-Chlorotoluene	<19		55	19	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
cis-1,2-Dichloroethene	<23		55	23	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
cis-1,3-Dichloropropene	<23		55	23	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Dibromochloromethane	<27		55	27	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
1,2-Dibromo-3-Chloropropane	<110		280	110	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
1,2-Dibromoethane	<21		55	21	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Dibromomethane	<15		55	15	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
1,2-Dichlorobenzene	<18		55	18	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
1,3-Dichlorobenzene	<22		55	22	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
1,4-Dichlorobenzene	<20		55	20	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Dichlorodifluoromethane	<37 *		170	37	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
1,1-Dichloroethane	<23		55	23	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
1,2-Dichloroethane	<22		55	22	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
1,1-Dichloroethene	<22		55	22	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
1,2-Dichloropropane	<24		55	24	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
1,3-Dichloropropane	<20		55	20	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
2,2-Dichloropropane	<25		55	25	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
1,1-Dichloropropene	<16		55	16	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Ethylbenzene	<10		14	10	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Methylene Chloride	<91		280	91	ug/Kg	✱	08/18/22 15:59	08/25/22 18:36	50
Hexachlorobutadiene	<25		55	25	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Isopropylbenzene	<21		55	21	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Isopropyl ether	<15		55	15	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Methyl tert-butyl ether	<22		55	22	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Naphthalene	<18		55	18	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
n-Butylbenzene	<21		55	21	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
N-Propylbenzene	<23		55	23	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
p-Isopropyltoluene	<20		55	20	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
sec-Butylbenzene	<22		55	22	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Styrene	<21		55	21	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
tert-Butylbenzene	<22		55	22	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
1,1,1,2-Tetrachloroethane	<26		55	26	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
1,1,2,2-Tetrachloroethane	<22		55	22	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Tetrachloroethene	<20		55	20	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Toluene	<8.1		14	8.1	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
trans-1,2-Dichloroethene	<19		55	19	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
trans-1,3-Dichloropropene	<20		55	20	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50

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# Client Sample Results

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

Job ID: 500-220859-1

**Client Sample ID: TP-3 2'-4'**

**Lab Sample ID: 500-220859-3**

**Date Collected: 08/12/22 07:50**

**Matrix: Solid**

**Date Received: 08/13/22 09:50**

**Percent Solids: 94.6**

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3-Trichlorobenzene	<25		55	25	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
1,2,4-Trichlorobenzene	<19		55	19	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
1,1,1-Trichloroethane	<21		55	21	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
1,1,2-Trichloroethane	<19		55	19	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Trichloroethene	<9.1		28	9.1	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Trichlorofluoromethane	<24		55	24	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
1,2,3-Trichloropropane	<23		110	23	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
1,2,4-Trimethylbenzene	<20		55	20	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
1,3,5-Trimethylbenzene	<21		55	21	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Vinyl chloride	<15		55	15	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50
Xylenes, Total	<12		28	12	ug/Kg	✱	08/12/22 07:50	08/25/22 17:04	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	91		75 - 126	08/18/22 15:59	08/25/22 18:36	50
Toluene-d8 (Surr)	102		75 - 120	08/18/22 15:59	08/25/22 18:36	50
4-Bromofluorobenzene (Surr)	90		72 - 124	08/18/22 15:59	08/25/22 18:36	50
4-Bromofluorobenzene (Surr)	88		72 - 124	08/12/22 07:50	08/25/22 17:04	50
Dibromofluoromethane (Surr)	93		75 - 120	08/18/22 15:59	08/25/22 18:36	50
Dibromofluoromethane (Surr)	94		75 - 120	08/12/22 07:50	08/25/22 17:04	50
1,2-Dichloroethane-d4 (Surr)	93		75 - 126	08/12/22 07:50	08/25/22 17:04	50
Toluene-d8 (Surr)	101		75 - 120	08/12/22 07:50	08/25/22 17:04	50

# Client Sample Results

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

Job ID: 500-220859-1

**Client Sample ID: TP-4 2'-4'**

**Lab Sample ID: 500-220859-4**

**Date Collected: 08/12/22 08:00**

**Matrix: Solid**

**Date Received: 08/13/22 09:50**

**Percent Solids: 80.0**

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<10		18	10	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Bromobenzene	<25		70	25	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Bromochloromethane	<30		70	30	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Bromodichloromethane	<26		70	26	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Bromoform	<34		70	34	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Bromomethane	<56		210	56	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Carbon tetrachloride	<27		70	27	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Chlorobenzene	<27		70	27	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Chloroethane	<35		70	35	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Chloroform	<26		140	26	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Chloromethane	<22		70	22	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
2-Chlorotoluene	<22		70	22	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
4-Chlorotoluene	<25		70	25	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
cis-1,2-Dichloroethene	<29		70	29	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
cis-1,3-Dichloropropene	<29		70	29	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Dibromochloromethane	<34		70	34	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
1,2-Dibromo-3-Chloropropane	<140		350	140	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
1,2-Dibromoethane	<27		70	27	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Dibromomethane	<19		70	19	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
1,2-Dichlorobenzene	<23		70	23	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
1,3-Dichlorobenzene	<28		70	28	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
1,4-Dichlorobenzene	<25		70	25	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Dichlorodifluoromethane	<47 *		210	47	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
1,1-Dichloroethane	<29		70	29	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
1,2-Dichloroethane	<27		70	27	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
1,1-Dichloroethene	<27		70	27	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
1,2-Dichloropropane	<30		70	30	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
1,3-Dichloropropane	<25		70	25	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
2,2-Dichloropropane	<31		70	31	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
1,1-Dichloropropene	<21		70	21	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Ethylbenzene	<13		18	13	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Methylene Chloride	<120		370	120	ug/Kg	✱	08/18/22 16:01	08/25/22 18:59	50
Hexachlorobutadiene	<31		70	31	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Isopropylbenzene	<27		70	27	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Isopropyl ether	<19		70	19	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Methyl tert-butyl ether	<28		70	28	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Naphthalene	<23		70	23	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
n-Butylbenzene	<27		70	27	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
N-Propylbenzene	<29		70	29	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
p-Isopropyltoluene	<25		70	25	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
sec-Butylbenzene	<28		70	28	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Styrene	<27		70	27	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
tert-Butylbenzene	<28		70	28	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
1,1,1,2-Tetrachloroethane	<32		70	32	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
1,1,2,2-Tetrachloroethane	<28		70	28	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
<b>Tetrachloroethene</b>	<b>580</b>		70	26	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Toluene	<10		18	10	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
trans-1,2-Dichloroethene	<25		70	25	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
trans-1,3-Dichloropropene	<25		70	25	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50

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# Client Sample Results

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

Job ID: 500-220859-1

**Client Sample ID: TP-4 2'-4'**

**Lab Sample ID: 500-220859-4**

**Date Collected: 08/12/22 08:00**

**Matrix: Solid**

**Date Received: 08/13/22 09:50**

**Percent Solids: 80.0**

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3-Trichlorobenzene	<32		70	32	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
1,2,4-Trichlorobenzene	<24		70	24	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
1,1,1-Trichloroethane	<27		70	27	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
1,1,2-Trichloroethane	<25		70	25	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Trichloroethene	<11		35	11	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Trichlorofluoromethane	<30		70	30	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
1,2,3-Trichloropropane	<29		140	29	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
1,2,4-Trimethylbenzene	<25		70	25	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
1,3,5-Trimethylbenzene	<27		70	27	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Vinyl chloride	<18		70	18	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50
Xylenes, Total	<15		35	15	ug/Kg	✱	08/12/22 08:00	08/25/22 17:27	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		75 - 126	08/18/22 16:01	08/25/22 18:59	50
Toluene-d8 (Surr)	101		75 - 120	08/18/22 16:01	08/25/22 18:59	50
4-Bromofluorobenzene (Surr)	89		72 - 124	08/18/22 16:01	08/25/22 18:59	50
4-Bromofluorobenzene (Surr)	88		72 - 124	08/12/22 08:00	08/25/22 17:27	50
Dibromofluoromethane (Surr)	95		75 - 120	08/18/22 16:01	08/25/22 18:59	50
Dibromofluoromethane (Surr)	92		75 - 120	08/12/22 08:00	08/25/22 17:27	50
1,2-Dichloroethane-d4 (Surr)	91		75 - 126	08/12/22 08:00	08/25/22 17:27	50
Toluene-d8 (Surr)	101		75 - 120	08/12/22 08:00	08/25/22 17:27	50



# Client Sample Results

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

Job ID: 500-220859-1

**Client Sample ID: TP-5 2'-4'**

**Lab Sample ID: 500-220859-5**

**Date Collected: 08/12/22 08:10**

**Matrix: Solid**

**Date Received: 08/13/22 09:50**

**Percent Solids: 86.0**

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<9.6		16	9.6	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Bromobenzene	<23		66	23	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Bromochloromethane	<28		66	28	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Bromodichloromethane	<24		66	24	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Bromoform	<32		66	32	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Bromomethane	<52		200	52	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Carbon tetrachloride	<25		66	25	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Chlorobenzene	<25		66	25	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Chloroethane	<33		66	33	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Chloroform	<24		130	24	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Chloromethane	<21		66	21	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
2-Chlorotoluene	<21		66	21	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
4-Chlorotoluene	<23		66	23	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
cis-1,2-Dichloroethene	<27		66	27	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
cis-1,3-Dichloropropene	<27		66	27	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Dibromochloromethane	<32		66	32	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
1,2-Dibromo-3-Chloropropane	<130		330	130	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
1,2-Dibromoethane	<25		66	25	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Dibromomethane	<18		66	18	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
1,2-Dichlorobenzene	<22		66	22	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
1,3-Dichlorobenzene	<26		66	26	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
1,4-Dichlorobenzene	<24		66	24	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Dichlorodifluoromethane	<44 *		200	44	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
1,1-Dichloroethane	<27		66	27	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
1,2-Dichloroethane	<26		66	26	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
1,1-Dichloroethene	<26		66	26	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
1,2-Dichloropropane	<28		66	28	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
1,3-Dichloropropane	<24		66	24	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
2,2-Dichloropropane	<29		66	29	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
1,1-Dichloropropene	<20		66	20	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Ethylbenzene	<12		16	12	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Methylene Chloride	<110		330	110	ug/Kg	✳	08/18/22 16:02	08/25/22 19:22	50
Hexachlorobutadiene	<29		66	29	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Isopropylbenzene	<25		66	25	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Isopropyl ether	<18		66	18	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Methyl tert-butyl ether	<26		66	26	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Naphthalene	<22		66	22	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
n-Butylbenzene	<26		66	26	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
N-Propylbenzene	<27		66	27	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
p-Isopropyltoluene	<24		66	24	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
sec-Butylbenzene	<26		66	26	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Styrene	<25		66	25	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
tert-Butylbenzene	<26		66	26	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
1,1,1,2-Tetrachloroethane	<30		66	30	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
1,1,2,2-Tetrachloroethane	<26		66	26	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
<b>Tetrachloroethene</b>	<b>180</b>		66	24	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Toluene	<9.7		16	9.7	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
trans-1,2-Dichloroethene	<23		66	23	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
trans-1,3-Dichloropropene	<24		66	24	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50

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# Client Sample Results

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

Job ID: 500-220859-1

**Client Sample ID: TP-5 2'-4'**

**Lab Sample ID: 500-220859-5**

**Date Collected: 08/12/22 08:10**

**Matrix: Solid**

**Date Received: 08/13/22 09:50**

**Percent Solids: 86.0**

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3-Trichlorobenzene	<30		66	30	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
1,2,4-Trichlorobenzene	<22		66	22	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
1,1,1-Trichloroethane	<25		66	25	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
1,1,2-Trichloroethane	<23		66	23	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Trichloroethene	<11		33	11	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Trichlorofluoromethane	<28		66	28	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
1,2,3-Trichloropropane	<27		130	27	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
1,2,4-Trimethylbenzene	<24		66	24	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
1,3,5-Trimethylbenzene	<25		66	25	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Vinyl chloride	<17		66	17	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50
Xylenes, Total	<14		33	14	ug/Kg	✳	08/12/22 08:10	08/25/22 17:50	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		75 - 126	08/18/22 16:02	08/25/22 19:22	50
Toluene-d8 (Surr)	101		75 - 120	08/18/22 16:02	08/25/22 19:22	50
4-Bromofluorobenzene (Surr)	88		72 - 124	08/18/22 16:02	08/25/22 19:22	50
4-Bromofluorobenzene (Surr)	89		72 - 124	08/12/22 08:10	08/25/22 17:50	50
Dibromofluoromethane (Surr)	96		75 - 120	08/18/22 16:02	08/25/22 19:22	50
Dibromofluoromethane (Surr)	95		75 - 120	08/12/22 08:10	08/25/22 17:50	50
1,2-Dichloroethane-d4 (Surr)	91		75 - 126	08/12/22 08:10	08/25/22 17:50	50
Toluene-d8 (Surr)	100		75 - 120	08/12/22 08:10	08/25/22 17:50	50

# Client Sample Results

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

Job ID: 500-220859-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 500-220859-6**

**Date Collected: 08/12/22 00:00**

**Matrix: Solid**

**Date Received: 08/13/22 09:50**

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<7.3		13	7.3	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Bromobenzene	<18		50	18	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Bromochloromethane	<21		50	21	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Bromodichloromethane	<19		50	19	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Bromoform	<24		50	24	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Bromomethane	<40		150	40	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Carbon tetrachloride	<19		50	19	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Chlorobenzene	<19		50	19	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Chloroethane	<25		50	25	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Chloroform	<19		100	19	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Chloromethane	<16		50	16	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
2-Chlorotoluene	<16		50	16	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
4-Chlorotoluene	<18		50	18	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
cis-1,2-Dichloroethene	<20		50	20	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
cis-1,3-Dichloropropene	<21		50	21	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Dibromochloromethane	<24		50	24	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
1,2-Dibromo-3-Chloropropane	<100		250	100	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
1,2-Dibromoethane	<19		50	19	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Dibromomethane	<14		50	14	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
1,2-Dichlorobenzene	<17		50	17	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
1,3-Dichlorobenzene	<20		50	20	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
1,4-Dichlorobenzene	<18		50	18	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Dichlorodifluoromethane	<34 *		150	34	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
1,1-Dichloroethane	<21		50	21	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
1,2-Dichloroethane	<20		50	20	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
1,1-Dichloroethene	<20		50	20	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
1,2-Dichloropropane	<21		50	21	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
1,3-Dichloropropane	<18		50	18	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
2,2-Dichloropropane	<22		50	22	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
1,1-Dichloropropene	<15		50	15	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Ethylbenzene	<9.2		13	9.2	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Hexachlorobutadiene	<22		50	22	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Isopropylbenzene	<19		50	19	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Isopropyl ether	<14		50	14	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Methylene Chloride	<82		250	82	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Methyl tert-butyl ether	<20		50	20	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Naphthalene	<17		50	17	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
n-Butylbenzene	<19		50	19	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
N-Propylbenzene	<21		50	21	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
p-Isopropyltoluene	<18		50	18	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
sec-Butylbenzene	<20		50	20	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Styrene	<19		50	19	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
tert-Butylbenzene	<20		50	20	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
1,1,1,2-Tetrachloroethane	<23		50	23	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
1,1,2,2-Tetrachloroethane	<20		50	20	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Tetrachloroethene	<19		50	19	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Toluene	<7.4		13	7.4	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
trans-1,2-Dichloroethene	<18		50	18	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
trans-1,3-Dichloropropene	<18		50	18	ug/Kg		08/12/22 00:00	08/25/22 12:49	50

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# Client Sample Results

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

Job ID: 500-220859-1

**Client Sample ID: Trip Blank**

**Lab Sample ID: 500-220859-6**

**Date Collected: 08/12/22 00:00**

**Matrix: Solid**

**Date Received: 08/13/22 09:50**

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,2,3-Trichlorobenzene	<23		50	23	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
1,2,4-Trichlorobenzene	<17		50	17	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
1,1,1-Trichloroethane	<19		50	19	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
1,1,2-Trichloroethane	<18		50	18	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Trichloroethene	<8.2		25	8.2	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Trichlorofluoromethane	<21		50	21	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
1,2,3-Trichloropropane	<21		100	21	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
1,2,4-Trimethylbenzene	<18		50	18	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
1,3,5-Trimethylbenzene	<19		50	19	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Vinyl chloride	<13		50	13	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
Xylenes, Total	<11		25	11	ug/Kg		08/12/22 00:00	08/25/22 12:49	50
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
4-Bromofluorobenzene (Surr)	88		72 - 124				08/12/22 00:00	08/25/22 12:49	50
Dibromofluoromethane (Surr)	92		75 - 120				08/12/22 00:00	08/25/22 12:49	50
1,2-Dichloroethane-d4 (Surr)	87		75 - 126				08/12/22 00:00	08/25/22 12:49	50
Toluene-d8 (Surr)	102		75 - 120				08/12/22 00:00	08/25/22 12:49	50

# Definitions/Glossary

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

Job ID: 500-220859-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
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.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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: 500-220859-1

## GC/MS VOA

### Prep Batch: 670488

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-220859-1	TP-1 2'-4'	Total/NA	Solid	5035	
500-220859-2	TP-2 2'-4'	Total/NA	Solid	5035	
500-220859-3	TP-3 2'-4'	Total/NA	Solid	5035	
500-220859-4	TP-4 2'-4'	Total/NA	Solid	5035	
500-220859-5	TP-5 2'-4'	Total/NA	Solid	5035	
500-220859-6	Trip Blank	Total/NA	Solid	5035	
LB3 500-670488/20-A	Method Blank	Total/NA	Solid	5035	
LCS 500-670488/21-A	Lab Control Sample	Total/NA	Solid	5035	

### Prep Batch: 670758

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-220859-2	TP-2 2'-4'	Total/NA	Solid	5030B	
500-220859-3	TP-3 2'-4'	Total/NA	Solid	5030B	
500-220859-4	TP-4 2'-4'	Total/NA	Solid	5030B	
500-220859-5	TP-5 2'-4'	Total/NA	Solid	5030B	

### Analysis Batch: 670990

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LB3 500-670488/20-A	Method Blank	Total/NA	Solid	8260B	670488
MB 500-670990/6	Method Blank	Total/NA	Solid	8260B	
LCS 500-670488/21-A	Lab Control Sample	Total/NA	Solid	8260B	670488
LCS 500-670990/4	Lab Control Sample	Total/NA	Solid	8260B	

### Analysis Batch: 671668

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-220859-1	TP-1 2'-4'	Total/NA	Solid	8260B	670488
500-220859-2	TP-2 2'-4'	Total/NA	Solid	8260B	670488
500-220859-2	TP-2 2'-4'	Total/NA	Solid	8260B	670758
500-220859-3	TP-3 2'-4'	Total/NA	Solid	8260B	670488
500-220859-3	TP-3 2'-4'	Total/NA	Solid	8260B	670758
500-220859-4	TP-4 2'-4'	Total/NA	Solid	8260B	670488
500-220859-4	TP-4 2'-4'	Total/NA	Solid	8260B	670758
500-220859-5	TP-5 2'-4'	Total/NA	Solid	8260B	670488
500-220859-5	TP-5 2'-4'	Total/NA	Solid	8260B	670758
500-220859-6	Trip Blank	Total/NA	Solid	8260B	670488
MB 500-671668/6	Method Blank	Total/NA	Solid	8260B	
LCS 500-671668/4	Lab Control Sample	Total/NA	Solid	8260B	

## General Chemistry

### Analysis Batch: 670109

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-220859-1	TP-1 2'-4'	Total/NA	Solid	Moisture	
500-220859-2	TP-2 2'-4'	Total/NA	Solid	Moisture	
500-220859-3	TP-3 2'-4'	Total/NA	Solid	Moisture	
500-220859-4	TP-4 2'-4'	Total/NA	Solid	Moisture	
500-220859-5	TP-5 2'-4'	Total/NA	Solid	Moisture	

# Surrogate Summary

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

Job ID: 500-220859-1

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

Matrix: Solid

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)
500-220859-1	TP-1 2'-4'	90	94	93	100
500-220859-2	TP-2 2'-4'	87	93	92	101
500-220859-2	TP-2 2'-4'	92	93	92	99
500-220859-3	TP-3 2'-4'	88	94	93	101
500-220859-3	TP-3 2'-4'	90	93	91	102
500-220859-4	TP-4 2'-4'	88	92	91	101
500-220859-4	TP-4 2'-4'	89	95	94	101
500-220859-5	TP-5 2'-4'	89	95	91	100
500-220859-5	TP-5 2'-4'	88	96	94	101
500-220859-6	Trip Blank	88	92	87	102
LB3 500-670488/20-A	Method Blank	111	104	119	104
LCS 500-670488/21-A	Lab Control Sample	121	103	117	103
LCS 500-670990/4	Lab Control Sample	113	107	115	106
LCS 500-671668/4	Lab Control Sample	93	89	86	101
MB 500-670990/6	Method Blank	119	102	121	102
MB 500-671668/6	Method Blank	88	92	90	100

### 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: 500-220859-1

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

**Lab Sample ID: LB3 500-670488/20-A**  
**Matrix: Solid**  
**Analysis Batch: 670990**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 670488**

Analyte	LB3	LB3	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	<7.3		13	7.3	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Bromobenzene	<18		50	18	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Bromochloromethane	<21		50	21	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Bromodichloromethane	<19		50	19	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Bromoform	<24		50	24	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Bromomethane	<40		150	40	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Carbon tetrachloride	<19		50	19	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Chlorobenzene	<19		50	19	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Chloroethane	<25		50	25	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Chloroform	<19		100	19	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Chloromethane	<16		50	16	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
2-Chlorotoluene	<16		50	16	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
4-Chlorotoluene	<18		50	18	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
cis-1,2-Dichloroethene	<20		50	20	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
cis-1,3-Dichloropropene	<21		50	21	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Dibromochloromethane	<24		50	24	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
1,2-Dibromo-3-Chloropropane	<100		250	100	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
1,2-Dibromoethane	<19		50	19	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Dibromomethane	<14		50	14	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
1,2-Dichlorobenzene	<17		50	17	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
1,3-Dichlorobenzene	<20		50	20	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
1,4-Dichlorobenzene	<18		50	18	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Dichlorodifluoromethane	<34		150	34	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
1,1-Dichloroethane	<21		50	21	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
1,2-Dichloroethane	<20		50	20	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
1,1-Dichloroethene	<20		50	20	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
1,2-Dichloropropane	<21		50	21	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
1,3-Dichloropropane	<18		50	18	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
2,2-Dichloropropane	<22		50	22	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
1,1-Dichloropropene	<15		50	15	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Ethylbenzene	<9.2		13	9.2	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Hexachlorobutadiene	<22		50	22	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Isopropylbenzene	<19		50	19	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Isopropyl ether	<14		50	14	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Methylene Chloride	<82		250	82	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Methyl tert-butyl ether	<20		50	20	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Naphthalene	<17		50	17	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
n-Butylbenzene	<19		50	19	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
N-Propylbenzene	<21		50	21	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
p-Isopropyltoluene	<18		50	18	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
sec-Butylbenzene	<20		50	20	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Styrene	<19		50	19	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
tert-Butylbenzene	<20		50	20	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
1,1,1,2-Tetrachloroethane	<23		50	23	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
1,1,2,2-Tetrachloroethane	<20		50	20	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Tetrachloroethene	<19		50	19	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Toluene	<7.4		13	7.4	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
trans-1,2-Dichloroethene	<18		50	18	ug/Kg		08/17/22 12:15	08/22/22 10:01	50

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# QC Sample Results

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

Job ID: 500-220859-1

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

**Lab Sample ID: LB3 500-670488/20-A**  
**Matrix: Solid**  
**Analysis Batch: 670990**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 670488**

Analyte	LB3 Result	LB3 Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,3-Dichloropropene	<18		50	18	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
1,2,3-Trichlorobenzene	<23		50	23	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
1,2,4-Trichlorobenzene	<17		50	17	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
1,1,1-Trichloroethane	<19		50	19	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
1,1,2-Trichloroethane	<18		50	18	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Trichloroethene	<8.2		25	8.2	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Trichlorofluoromethane	<21		50	21	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
1,2,3-Trichloropropane	<21		100	21	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
1,2,4-Trimethylbenzene	<18		50	18	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
1,3,5-Trimethylbenzene	<19		50	19	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Vinyl chloride	<13		50	13	ug/Kg		08/17/22 12:15	08/22/22 10:01	50
Xylenes, Total	<11		25	11	ug/Kg		08/17/22 12:15	08/22/22 10:01	50

Surrogate	LB3 %Recovery	LB3 Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	111		72 - 124	08/17/22 12:15	08/22/22 10:01	50
Dibromofluoromethane (Surr)	104		75 - 120	08/17/22 12:15	08/22/22 10:01	50
1,2-Dichloroethane-d4 (Surr)	119		75 - 126	08/17/22 12:15	08/22/22 10:01	50
Toluene-d8 (Surr)	104		75 - 120	08/17/22 12:15	08/22/22 10:01	50

**Lab Sample ID: LCS 500-670488/21-A**  
**Matrix: Solid**  
**Analysis Batch: 670990**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 670488**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	2500	2440		ug/Kg		98	70 - 120
Bromobenzene	2500	2590		ug/Kg		104	70 - 122
Bromochloromethane	2500	2290		ug/Kg		92	65 - 122
Bromodichloromethane	2500	2450		ug/Kg		98	69 - 120
Bromoform	2500	1910		ug/Kg		76	56 - 132
Bromomethane	2500	1800		ug/Kg		72	40 - 152
Carbon tetrachloride	2500	2620		ug/Kg		105	59 - 133
Chlorobenzene	2500	2370		ug/Kg		95	70 - 120
Chloroethane	2500	2310		ug/Kg		92	48 - 136
Chloroform	2500	2490		ug/Kg		100	70 - 120
Chloromethane	2500	1610		ug/Kg		64	56 - 152
2-Chlorotoluene	2500	2810		ug/Kg		112	70 - 125
4-Chlorotoluene	2500	2810		ug/Kg		112	68 - 124
cis-1,2-Dichloroethene	2500	2440		ug/Kg		98	70 - 125
cis-1,3-Dichloropropene	2500	2400		ug/Kg		96	64 - 127
Dibromochloromethane	2500	2280		ug/Kg		91	68 - 125
1,2-Dibromo-3-Chloropropane	2500	2160		ug/Kg		87	56 - 123
1,2-Dibromoethane	2500	2430		ug/Kg		97	70 - 125
Dibromomethane	2500	2420		ug/Kg		97	70 - 120
1,2-Dichlorobenzene	2500	2480		ug/Kg		99	70 - 125
1,3-Dichlorobenzene	2500	2540		ug/Kg		101	70 - 125
1,4-Dichlorobenzene	2500	2510		ug/Kg		100	70 - 120
Dichlorodifluoromethane	2500	972	*	ug/Kg		39	40 - 159
1,1-Dichloroethane	2500	2510		ug/Kg		100	70 - 125

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# QC Sample Results

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

Job ID: 500-220859-1

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

**Lab Sample ID: LCS 500-670488/21-A**  
**Matrix: Solid**  
**Analysis Batch: 670990**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 670488**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2-Dichloroethane	2500	2890		ug/Kg		115	68 - 127
1,1-Dichloroethene	2500	2200		ug/Kg		88	67 - 122
1,2-Dichloropropane	2500	2400		ug/Kg		96	67 - 130
1,3-Dichloropropane	2500	2370		ug/Kg		95	62 - 136
2,2-Dichloropropane	2500	2860		ug/Kg		114	58 - 139
1,1-Dichloropropene	2500	2550		ug/Kg		102	70 - 121
Ethylbenzene	2500	2420		ug/Kg		97	70 - 123
Hexachlorobutadiene	2500	2640		ug/Kg		106	51 - 150
Isopropylbenzene	2500	2750		ug/Kg		110	70 - 126
Methylene Chloride	2500	2310		ug/Kg		92	69 - 125
Methyl tert-butyl ether	2500	2420		ug/Kg		97	55 - 123
Naphthalene	2500	1930		ug/Kg		77	53 - 144
n-Butylbenzene	2500	2740		ug/Kg		110	68 - 125
N-Propylbenzene	2500	2740		ug/Kg		110	69 - 127
p-Isopropyltoluene	2500	2720		ug/Kg		109	70 - 125
sec-Butylbenzene	2500	2760		ug/Kg		110	70 - 123
Styrene	2500	2410		ug/Kg		96	70 - 120
tert-Butylbenzene	2500	2780		ug/Kg		111	70 - 121
1,1,1,2-Tetrachloroethane	2500	2370		ug/Kg		95	70 - 125
1,1,1,2,2-Tetrachloroethane	2500	2370		ug/Kg		95	62 - 140
Tetrachloroethene	2500	2350		ug/Kg		94	70 - 128
Toluene	2500	2390		ug/Kg		96	70 - 125
trans-1,2-Dichloroethene	2500	2390		ug/Kg		96	70 - 125
trans-1,3-Dichloropropene	2500	2400		ug/Kg		96	62 - 128
1,2,3-Trichlorobenzene	2500	2000		ug/Kg		80	51 - 145
1,2,4-Trichlorobenzene	2500	2320		ug/Kg		93	57 - 137
1,1,1-Trichloroethane	2500	2680		ug/Kg		107	70 - 125
1,1,2-Trichloroethane	2500	2320		ug/Kg		93	71 - 130
Trichloroethene	2500	2400		ug/Kg		96	70 - 125
Trichlorofluoromethane	2500	2190		ug/Kg		88	55 - 128
1,2,3-Trichloropropane	2500	2640		ug/Kg		106	50 - 133
1,2,4-Trimethylbenzene	2500	2790		ug/Kg		112	70 - 123
1,3,5-Trimethylbenzene	2500	2810		ug/Kg		112	70 - 123
Vinyl chloride	2500	1800		ug/Kg		72	64 - 126
Xylenes, Total	5000	5070		ug/Kg		101	70 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	121		72 - 124
Dibromofluoromethane (Surr)	103		75 - 120
1,2-Dichloroethane-d4 (Surr)	117		75 - 126
Toluene-d8 (Surr)	103		75 - 120

**Lab Sample ID: MB 500-670990/6**  
**Matrix: Solid**  
**Analysis Batch: 670990**

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.25	0.15	ug/Kg			08/22/22 09:38	1

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# QC Sample Results

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

Job ID: 500-220859-1

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

**Lab Sample ID: MB 500-670990/6**  
**Matrix: Solid**  
**Analysis Batch: 670990**

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

Analyte	MB	MB	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Bromobenzene	<0.36		1.0	0.36	ug/Kg			08/22/22 09:38	1
Bromochloromethane	<0.43		1.0	0.43	ug/Kg			08/22/22 09:38	1
Bromodichloromethane	<0.37		1.0	0.37	ug/Kg			08/22/22 09:38	1
Bromoform	<0.48		1.0	0.48	ug/Kg			08/22/22 09:38	1
Bromomethane	<0.80		3.0	0.80	ug/Kg			08/22/22 09:38	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/Kg			08/22/22 09:38	1
Chlorobenzene	<0.39		1.0	0.39	ug/Kg			08/22/22 09:38	1
Chloroethane	<0.50		1.0	0.50	ug/Kg			08/22/22 09:38	1
Chloroform	<0.37		2.0	0.37	ug/Kg			08/22/22 09:38	1
Chloromethane	<0.32		1.0	0.32	ug/Kg			08/22/22 09:38	1
2-Chlorotoluene	<0.31		1.0	0.31	ug/Kg			08/22/22 09:38	1
4-Chlorotoluene	<0.35		1.0	0.35	ug/Kg			08/22/22 09:38	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/Kg			08/22/22 09:38	1
cis-1,3-Dichloropropene	<0.42		1.0	0.42	ug/Kg			08/22/22 09:38	1
Dibromochloromethane	<0.49		1.0	0.49	ug/Kg			08/22/22 09:38	1
1,2-Dibromo-3-Chloropropane	<2.0		5.0	2.0	ug/Kg			08/22/22 09:38	1
1,2-Dibromoethane	<0.39		1.0	0.39	ug/Kg			08/22/22 09:38	1
Dibromomethane	<0.27		1.0	0.27	ug/Kg			08/22/22 09:38	1
1,2-Dichlorobenzene	<0.33		1.0	0.33	ug/Kg			08/22/22 09:38	1
1,3-Dichlorobenzene	<0.40		1.0	0.40	ug/Kg			08/22/22 09:38	1
1,4-Dichlorobenzene	<0.36		1.0	0.36	ug/Kg			08/22/22 09:38	1
Dichlorodifluoromethane	<0.67		3.0	0.67	ug/Kg			08/22/22 09:38	1
1,1-Dichloroethane	<0.41		1.0	0.41	ug/Kg			08/22/22 09:38	1
1,2-Dichloroethane	<0.39		1.0	0.39	ug/Kg			08/22/22 09:38	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/Kg			08/22/22 09:38	1
1,2-Dichloropropane	<0.43		1.0	0.43	ug/Kg			08/22/22 09:38	1
1,3-Dichloropropane	<0.36		1.0	0.36	ug/Kg			08/22/22 09:38	1
2,2-Dichloropropane	<0.44		1.0	0.44	ug/Kg			08/22/22 09:38	1
1,1-Dichloropropene	<0.30		1.0	0.30	ug/Kg			08/22/22 09:38	1
Ethylbenzene	<0.18		0.25	0.18	ug/Kg			08/22/22 09:38	1
Hexachlorobutadiene	<0.45		1.0	0.45	ug/Kg			08/22/22 09:38	1
Isopropylbenzene	<0.38		1.0	0.38	ug/Kg			08/22/22 09:38	1
Isopropyl ether	<0.28		1.0	0.28	ug/Kg			08/22/22 09:38	1
Methylene Chloride	<1.6		5.0	1.6	ug/Kg			08/22/22 09:38	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/Kg			08/22/22 09:38	1
Naphthalene	0.337	J	1.0	0.33	ug/Kg			08/22/22 09:38	1
n-Butylbenzene	<0.39		1.0	0.39	ug/Kg			08/22/22 09:38	1
N-Propylbenzene	<0.41		1.0	0.41	ug/Kg			08/22/22 09:38	1
p-Isopropyltoluene	<0.36		1.0	0.36	ug/Kg			08/22/22 09:38	1
sec-Butylbenzene	<0.40		1.0	0.40	ug/Kg			08/22/22 09:38	1
Styrene	<0.39		1.0	0.39	ug/Kg			08/22/22 09:38	1
tert-Butylbenzene	<0.40		1.0	0.40	ug/Kg			08/22/22 09:38	1
1,1,1,2-Tetrachloroethane	<0.46		1.0	0.46	ug/Kg			08/22/22 09:38	1
1,1,2,2-Tetrachloroethane	<0.40		1.0	0.40	ug/Kg			08/22/22 09:38	1
Tetrachloroethene	<0.37		1.0	0.37	ug/Kg			08/22/22 09:38	1
Toluene	<0.15		0.25	0.15	ug/Kg			08/22/22 09:38	1
trans-1,2-Dichloroethene	<0.35		1.0	0.35	ug/Kg			08/22/22 09:38	1
trans-1,3-Dichloropropene	<0.36		1.0	0.36	ug/Kg			08/22/22 09:38	1
1,2,3-Trichlorobenzene	<0.46		1.0	0.46	ug/Kg			08/22/22 09:38	1

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# QC Sample Results

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

Job ID: 500-220859-1

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

**Lab Sample ID: MB 500-670990/6**  
**Matrix: Solid**  
**Analysis Batch: 670990**

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

Analyte	MB	MB	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,2,4-Trichlorobenzene	<0.34		1.0	0.34	ug/Kg			08/22/22 09:38	1
1,1,1-Trichloroethane	<0.38		1.0	0.38	ug/Kg			08/22/22 09:38	1
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/Kg			08/22/22 09:38	1
Trichloroethene	<0.16		0.50	0.16	ug/Kg			08/22/22 09:38	1
Trichlorofluoromethane	<0.43		1.0	0.43	ug/Kg			08/22/22 09:38	1
1,2,3-Trichloropropane	<0.41		2.0	0.41	ug/Kg			08/22/22 09:38	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/Kg			08/22/22 09:38	1
1,3,5-Trimethylbenzene	<0.38		1.0	0.38	ug/Kg			08/22/22 09:38	1
Vinyl chloride	<0.26		1.0	0.26	ug/Kg			08/22/22 09:38	1
Xylenes, Total	<0.22		0.50	0.22	ug/Kg			08/22/22 09:38	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene (Surr)	119		72 - 124		08/22/22 09:38	1
Dibromofluoromethane (Surr)	102		75 - 120		08/22/22 09:38	1
1,2-Dichloroethane-d4 (Surr)	121		75 - 126		08/22/22 09:38	1
Toluene-d8 (Surr)	102		75 - 120		08/22/22 09:38	1

**Lab Sample ID: LCS 500-670990/4**  
**Matrix: Solid**  
**Analysis Batch: 670990**

**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	48.9		ug/Kg		98	70 - 120
Bromobenzene	50.0	48.4		ug/Kg		97	70 - 122
Bromochloromethane	50.0	47.9		ug/Kg		96	65 - 122
Bromodichloromethane	50.0	47.6		ug/Kg		95	69 - 120
Bromoform	50.0	41.5		ug/Kg		83	56 - 132
Bromomethane	50.0	62.4		ug/Kg		125	40 - 152
Carbon tetrachloride	50.0	59.4		ug/Kg		119	59 - 133
Chlorobenzene	50.0	47.2		ug/Kg		94	70 - 120
Chloroethane	50.0	61.0		ug/Kg		122	48 - 136
Chloroform	50.0	52.5		ug/Kg		105	70 - 120
Chloromethane	50.0	51.4		ug/Kg		103	56 - 152
2-Chlorotoluene	50.0	53.6		ug/Kg		107	70 - 125
4-Chlorotoluene	50.0	54.0		ug/Kg		108	68 - 124
cis-1,2-Dichloroethene	50.0	52.4		ug/Kg		105	70 - 125
cis-1,3-Dichloropropene	50.0	43.8		ug/Kg		88	64 - 127
Dibromochloromethane	50.0	45.8		ug/Kg		92	68 - 125
1,2-Dibromo-3-Chloropropane	50.0	46.4		ug/Kg		93	56 - 123
1,2-Dibromoethane	50.0	45.7		ug/Kg		91	70 - 125
Dibromomethane	50.0	45.4		ug/Kg		91	70 - 120
1,2-Dichlorobenzene	50.0	49.3		ug/Kg		99	70 - 125
1,3-Dichlorobenzene	50.0	50.9		ug/Kg		102	70 - 125
1,4-Dichlorobenzene	50.0	50.4		ug/Kg		101	70 - 120
Dichlorodifluoromethane	50.0	50.1		ug/Kg		100	40 - 159
1,1-Dichloroethane	50.0	53.5		ug/Kg		107	70 - 125
1,2-Dichloroethane	50.0	54.8		ug/Kg		110	68 - 127
1,1-Dichloroethene	50.0	49.8		ug/Kg		100	67 - 122

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# QC Sample Results

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

Job ID: 500-220859-1

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

**Lab Sample ID: LCS 500-670990/4**  
**Matrix: Solid**  
**Analysis Batch: 670990**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,2-Dichloropropane	50.0	46.2		ug/Kg		92	67 - 130
1,3-Dichloropropane	50.0	44.1		ug/Kg		88	62 - 136
2,2-Dichloropropane	50.0	65.2		ug/Kg		130	58 - 139
1,1-Dichloropropene	50.0	52.7		ug/Kg		105	70 - 121
Ethylbenzene	50.0	50.6		ug/Kg		101	70 - 123
Hexachlorobutadiene	50.0	50.3		ug/Kg		101	51 - 150
Isopropylbenzene	50.0	52.7		ug/Kg		105	70 - 126
Methylene Chloride	50.0	50.0		ug/Kg		100	69 - 125
Methyl tert-butyl ether	50.0	52.2		ug/Kg		104	55 - 123
Naphthalene	50.0	38.8		ug/Kg		78	53 - 144
n-Butylbenzene	50.0	55.9		ug/Kg		112	68 - 125
N-Propylbenzene	50.0	53.4		ug/Kg		107	69 - 127
p-Isopropyltoluene	50.0	52.9		ug/Kg		106	70 - 125
sec-Butylbenzene	50.0	52.9		ug/Kg		106	70 - 123
Styrene	50.0	50.2		ug/Kg		100	70 - 120
tert-Butylbenzene	50.0	52.3		ug/Kg		105	70 - 121
1,1,1,2-Tetrachloroethane	50.0	52.7		ug/Kg		105	70 - 125
1,1,2,2-Tetrachloroethane	50.0	46.5		ug/Kg		93	62 - 140
Tetrachloroethene	50.0	48.0		ug/Kg		96	70 - 128
Toluene	50.0	48.5		ug/Kg		97	70 - 125
trans-1,2-Dichloroethene	50.0	52.2		ug/Kg		104	70 - 125
trans-1,3-Dichloropropene	50.0	43.0		ug/Kg		86	62 - 128
1,2,3-Trichlorobenzene	50.0	42.1		ug/Kg		84	51 - 145
1,2,4-Trichlorobenzene	50.0	45.7		ug/Kg		91	57 - 137
1,1,1-Trichloroethane	50.0	60.1		ug/Kg		120	70 - 125
1,1,2-Trichloroethane	50.0	44.9		ug/Kg		90	71 - 130
Trichloroethene	50.0	46.7		ug/Kg		93	70 - 125
Trichlorofluoromethane	50.0	58.0		ug/Kg		116	55 - 128
1,2,3-Trichloropropane	50.0	50.6		ug/Kg		101	50 - 133
1,2,4-Trimethylbenzene	50.0	54.1		ug/Kg		108	70 - 123
1,3,5-Trimethylbenzene	50.0	53.7		ug/Kg		107	70 - 123
Vinyl chloride	50.0	54.1		ug/Kg		108	64 - 126
Xylenes, Total	100	109		ug/Kg		109	70 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	113		72 - 124
Dibromofluoromethane (Surr)	107		75 - 120
1,2-Dichloroethane-d4 (Surr)	115		75 - 126
Toluene-d8 (Surr)	106		75 - 120

**Lab Sample ID: MB 500-671668/6**  
**Matrix: Solid**  
**Analysis Batch: 671668**

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.25	0.15	ug/Kg			08/25/22 12:03	1
Bromobenzene	<0.36		1.0	0.36	ug/Kg			08/25/22 12:03	1
Bromochloromethane	<0.43		1.0	0.43	ug/Kg			08/25/22 12:03	1

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# QC Sample Results

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

Job ID: 500-220859-1

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

**Lab Sample ID: MB 500-671668/6**  
**Matrix: Solid**  
**Analysis Batch: 671668**

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

Analyte	MB	MB	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Bromodichloromethane	<0.37		1.0	0.37	ug/Kg			08/25/22 12:03	1
Bromoform	<0.48		1.0	0.48	ug/Kg			08/25/22 12:03	1
Bromomethane	<0.80		3.0	0.80	ug/Kg			08/25/22 12:03	1
Carbon tetrachloride	<0.38		1.0	0.38	ug/Kg			08/25/22 12:03	1
Chlorobenzene	<0.39		1.0	0.39	ug/Kg			08/25/22 12:03	1
Chloroethane	<0.50		1.0	0.50	ug/Kg			08/25/22 12:03	1
Chloroform	<0.37		2.0	0.37	ug/Kg			08/25/22 12:03	1
Chloromethane	<0.32		1.0	0.32	ug/Kg			08/25/22 12:03	1
2-Chlorotoluene	<0.31		1.0	0.31	ug/Kg			08/25/22 12:03	1
4-Chlorotoluene	<0.35		1.0	0.35	ug/Kg			08/25/22 12:03	1
cis-1,2-Dichloroethene	<0.41		1.0	0.41	ug/Kg			08/25/22 12:03	1
cis-1,3-Dichloropropene	<0.42		1.0	0.42	ug/Kg			08/25/22 12:03	1
Dibromochloromethane	<0.49		1.0	0.49	ug/Kg			08/25/22 12:03	1
1,2-Dibromo-3-Chloropropane	<2.0		5.0	2.0	ug/Kg			08/25/22 12:03	1
1,2-Dibromoethane	<0.39		1.0	0.39	ug/Kg			08/25/22 12:03	1
Dibromomethane	<0.27		1.0	0.27	ug/Kg			08/25/22 12:03	1
1,2-Dichlorobenzene	<0.33		1.0	0.33	ug/Kg			08/25/22 12:03	1
1,3-Dichlorobenzene	<0.40		1.0	0.40	ug/Kg			08/25/22 12:03	1
1,4-Dichlorobenzene	<0.36		1.0	0.36	ug/Kg			08/25/22 12:03	1
Dichlorodifluoromethane	<0.67		3.0	0.67	ug/Kg			08/25/22 12:03	1
1,1-Dichloroethane	<0.41		1.0	0.41	ug/Kg			08/25/22 12:03	1
1,2-Dichloroethane	<0.39		1.0	0.39	ug/Kg			08/25/22 12:03	1
1,1-Dichloroethene	<0.39		1.0	0.39	ug/Kg			08/25/22 12:03	1
1,2-Dichloropropane	<0.43		1.0	0.43	ug/Kg			08/25/22 12:03	1
1,3-Dichloropropane	<0.36		1.0	0.36	ug/Kg			08/25/22 12:03	1
2,2-Dichloropropane	<0.44		1.0	0.44	ug/Kg			08/25/22 12:03	1
1,1-Dichloropropene	<0.30		1.0	0.30	ug/Kg			08/25/22 12:03	1
Ethylbenzene	<0.18		0.25	0.18	ug/Kg			08/25/22 12:03	1
Hexachlorobutadiene	<0.45		1.0	0.45	ug/Kg			08/25/22 12:03	1
Isopropylbenzene	<0.38		1.0	0.38	ug/Kg			08/25/22 12:03	1
Isopropyl ether	<0.28		1.0	0.28	ug/Kg			08/25/22 12:03	1
Methylene Chloride	<1.6		5.0	1.6	ug/Kg			08/25/22 12:03	1
Methyl tert-butyl ether	<0.39		1.0	0.39	ug/Kg			08/25/22 12:03	1
Naphthalene	0.770	J	1.0	0.33	ug/Kg			08/25/22 12:03	1
n-Butylbenzene	<0.39		1.0	0.39	ug/Kg			08/25/22 12:03	1
N-Propylbenzene	<0.41		1.0	0.41	ug/Kg			08/25/22 12:03	1
p-Isopropyltoluene	<0.36		1.0	0.36	ug/Kg			08/25/22 12:03	1
sec-Butylbenzene	<0.40		1.0	0.40	ug/Kg			08/25/22 12:03	1
Styrene	<0.39		1.0	0.39	ug/Kg			08/25/22 12:03	1
tert-Butylbenzene	<0.40		1.0	0.40	ug/Kg			08/25/22 12:03	1
1,1,1,2-Tetrachloroethane	<0.46		1.0	0.46	ug/Kg			08/25/22 12:03	1
1,1,1,2,2-Tetrachloroethane	<0.40		1.0	0.40	ug/Kg			08/25/22 12:03	1
Tetrachloroethene	<0.37		1.0	0.37	ug/Kg			08/25/22 12:03	1
Toluene	<0.15		0.25	0.15	ug/Kg			08/25/22 12:03	1
trans-1,2-Dichloroethene	<0.35		1.0	0.35	ug/Kg			08/25/22 12:03	1
trans-1,3-Dichloropropene	<0.36		1.0	0.36	ug/Kg			08/25/22 12:03	1
1,2,3-Trichlorobenzene	0.716	J	1.0	0.46	ug/Kg			08/25/22 12:03	1
1,2,4-Trichlorobenzene	<0.34		1.0	0.34	ug/Kg			08/25/22 12:03	1
1,1,1-Trichloroethane	<0.38		1.0	0.38	ug/Kg			08/25/22 12:03	1

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# QC Sample Results

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

Job ID: 500-220859-1

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

**Lab Sample ID: MB 500-671668/6**  
**Matrix: Solid**  
**Analysis Batch: 671668**

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	<0.35		1.0	0.35	ug/Kg			08/25/22 12:03	1
Trichloroethene	<0.16		0.50	0.16	ug/Kg			08/25/22 12:03	1
Trichlorofluoromethane	<0.43		1.0	0.43	ug/Kg			08/25/22 12:03	1
1,2,3-Trichloropropane	<0.41		2.0	0.41	ug/Kg			08/25/22 12:03	1
1,2,4-Trimethylbenzene	<0.36		1.0	0.36	ug/Kg			08/25/22 12:03	1
1,3,5-Trimethylbenzene	<0.38		1.0	0.38	ug/Kg			08/25/22 12:03	1
Vinyl chloride	<0.26		1.0	0.26	ug/Kg			08/25/22 12:03	1
Xylenes, Total	<0.22		0.50	0.22	ug/Kg			08/25/22 12:03	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		72 - 124		08/25/22 12:03	1
Dibromofluoromethane (Surr)	92		75 - 120		08/25/22 12:03	1
1,2-Dichloroethane-d4 (Surr)	90		75 - 126		08/25/22 12:03	1
Toluene-d8 (Surr)	100		75 - 120		08/25/22 12:03	1

**Lab Sample ID: LCS 500-671668/4**  
**Matrix: Solid**  
**Analysis Batch: 671668**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	50.0	46.0		ug/Kg		92	70 - 120
Bromobenzene	50.0	44.6		ug/Kg		89	70 - 122
Bromochloromethane	50.0	42.0		ug/Kg		84	65 - 122
Bromodichloromethane	50.0	43.0		ug/Kg		86	69 - 120
Bromoform	50.0	41.2		ug/Kg		82	56 - 132
Bromomethane	50.0	29.8		ug/Kg		60	40 - 152
Carbon tetrachloride	50.0	47.8		ug/Kg		96	59 - 133
Chlorobenzene	50.0	45.3		ug/Kg		91	70 - 120
Chloroethane	50.0	42.1		ug/Kg		84	48 - 136
Chloroform	50.0	41.9		ug/Kg		84	70 - 120
Chloromethane	50.0	36.3		ug/Kg		73	56 - 152
2-Chlorotoluene	50.0	46.3		ug/Kg		93	70 - 125
4-Chlorotoluene	50.0	45.2		ug/Kg		90	68 - 124
cis-1,2-Dichloroethene	50.0	45.2		ug/Kg		90	70 - 125
cis-1,3-Dichloropropene	50.0	42.2		ug/Kg		84	64 - 127
Dibromochloromethane	50.0	42.0		ug/Kg		84	68 - 125
1,2-Dibromo-3-Chloropropane	50.0	34.9		ug/Kg		70	56 - 123
1,2-Dibromoethane	50.0	39.3		ug/Kg		79	70 - 125
Dibromomethane	50.0	40.0		ug/Kg		80	70 - 120
1,2-Dichlorobenzene	50.0	43.3		ug/Kg		87	70 - 125
1,3-Dichlorobenzene	50.0	45.6		ug/Kg		91	70 - 125
1,4-Dichlorobenzene	50.0	44.5		ug/Kg		89	70 - 120
Dichlorodifluoromethane	50.0	37.6		ug/Kg		75	40 - 159
1,1-Dichloroethane	50.0	42.7		ug/Kg		85	70 - 125
1,2-Dichloroethane	50.0	39.4		ug/Kg		79	68 - 127
1,1-Dichloroethene	50.0	48.3		ug/Kg		97	67 - 122
1,2-Dichloropropane	50.0	42.9		ug/Kg		86	67 - 130
1,3-Dichloropropane	50.0	40.6		ug/Kg		81	62 - 136

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# QC Sample Results

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

Job ID: 500-220859-1

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

**Lab Sample ID: LCS 500-671668/4**  
**Matrix: Solid**  
**Analysis Batch: 671668**

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,2-Dichloropropane	50.0	42.8		ug/Kg		86	58 - 139
1,1-Dichloropropene	50.0	46.7		ug/Kg		93	70 - 121
Ethylbenzene	50.0	43.6		ug/Kg		87	70 - 123
Hexachlorobutadiene	50.0	52.5		ug/Kg		105	51 - 150
Isopropylbenzene	50.0	47.0		ug/Kg		94	70 - 126
Methylene Chloride	50.0	43.4		ug/Kg		87	69 - 125
Methyl tert-butyl ether	50.0	37.8		ug/Kg		76	55 - 123
Naphthalene	50.0	34.9		ug/Kg		70	53 - 144
n-Butylbenzene	50.0	48.4		ug/Kg		97	68 - 125
N-Propylbenzene	50.0	49.1		ug/Kg		98	69 - 127
p-Isopropyltoluene	50.0	46.5		ug/Kg		93	70 - 125
sec-Butylbenzene	50.0	49.5		ug/Kg		99	70 - 123
Styrene	50.0	44.8		ug/Kg		90	70 - 120
tert-Butylbenzene	50.0	46.4		ug/Kg		93	70 - 121
1,1,1,2-Tetrachloroethane	50.0	41.1		ug/Kg		82	70 - 125
1,1,2,2-Tetrachloroethane	50.0	39.0		ug/Kg		78	62 - 140
Tetrachloroethene	50.0	52.9		ug/Kg		106	70 - 128
Toluene	50.0	44.9		ug/Kg		90	70 - 125
trans-1,2-Dichloroethene	50.0	45.6		ug/Kg		91	70 - 125
trans-1,3-Dichloropropene	50.0	38.9		ug/Kg		78	62 - 128
1,2,3-Trichlorobenzene	50.0	41.5		ug/Kg		83	51 - 145
1,2,4-Trichlorobenzene	50.0	44.2		ug/Kg		88	57 - 137
1,1,1-Trichloroethane	50.0	45.6		ug/Kg		91	70 - 125
1,1,2-Trichloroethane	50.0	42.3		ug/Kg		85	71 - 130
Trichloroethene	50.0	46.5		ug/Kg		93	70 - 125
Trichlorofluoromethane	50.0	45.3		ug/Kg		91	55 - 128
1,2,3-Trichloropropane	50.0	36.6		ug/Kg		73	50 - 133
1,2,4-Trimethylbenzene	50.0	46.3		ug/Kg		93	70 - 123
1,3,5-Trimethylbenzene	50.0	46.4		ug/Kg		93	70 - 123
Vinyl chloride	50.0	40.3		ug/Kg		81	64 - 126
Xylenes, Total	100	90.7		ug/Kg		91	70 - 125

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene (Surr)	93		72 - 124
Dibromofluoromethane (Surr)	89		75 - 120
1,2-Dichloroethane-d4 (Surr)	86		75 - 126
Toluene-d8 (Surr)	101		75 - 120

# Lab Chronicle

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

Job ID: 500-220859-1

**Client Sample ID: TP-1 2'-4'**  
**Date Collected: 08/12/22 07:30**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220859-1**  
**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	670109	LWN	EET CHI	08/15/22 15:37

**Client Sample ID: TP-1 2'-4'**  
**Date Collected: 08/12/22 07:30**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220859-1**  
**Matrix: Solid**  
**Percent Solids: 81.4**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			670488	WRE	EET CHI	08/12/22 07:30
Total/NA	Analysis	8260B		50	671668	PSP	EET CHI	08/25/22 16:17

**Client Sample ID: TP-2 2'-4'**  
**Date Collected: 08/12/22 07:40**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220859-2**  
**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	670109	LWN	EET CHI	08/15/22 15:37

**Client Sample ID: TP-2 2'-4'**  
**Date Collected: 08/12/22 07:40**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220859-2**  
**Matrix: Solid**  
**Percent Solids: 81.0**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			670488	WRE	EET CHI	08/12/22 07:40
Total/NA	Analysis	8260B		50	671668	PSP	EET CHI	08/25/22 16:40
Total/NA	Prep	5030B			670758	WRE	EET CHI	08/18/22 15:57
Total/NA	Analysis	8260B		50	671668	PSP	EET CHI	08/25/22 18:13

**Client Sample ID: TP-3 2'-4'**  
**Date Collected: 08/12/22 07:50**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220859-3**  
**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	670109	LWN	EET CHI	08/15/22 15:37

**Client Sample ID: TP-3 2'-4'**  
**Date Collected: 08/12/22 07:50**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220859-3**  
**Matrix: Solid**  
**Percent Solids: 94.6**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			670488	WRE	EET CHI	08/12/22 07:50
Total/NA	Analysis	8260B		50	671668	PSP	EET CHI	08/25/22 17:04
Total/NA	Prep	5030B			670758	WRE	EET CHI	08/18/22 15:59
Total/NA	Analysis	8260B		50	671668	PSP	EET CHI	08/25/22 18:36

# Lab Chronicle

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

Job ID: 500-220859-1

**Client Sample ID: TP-4 2'-4'**  
**Date Collected: 08/12/22 08:00**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220859-4**  
**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	670109	LWN	EET CHI	08/15/22 15:37

**Client Sample ID: TP-4 2'-4'**  
**Date Collected: 08/12/22 08:00**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220859-4**  
**Matrix: Solid**  
**Percent Solids: 80.0**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			670488	WRE	EET CHI	08/12/22 08:00
Total/NA	Analysis	8260B		50	671668	PSP	EET CHI	08/25/22 17:27
Total/NA	Prep	5030B			670758	WRE	EET CHI	08/18/22 16:01
Total/NA	Analysis	8260B		50	671668	PSP	EET CHI	08/25/22 18:59

**Client Sample ID: TP-5 2'-4'**  
**Date Collected: 08/12/22 08:10**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220859-5**  
**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	670109	LWN	EET CHI	08/15/22 15:37

**Client Sample ID: TP-5 2'-4'**  
**Date Collected: 08/12/22 08:10**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220859-5**  
**Matrix: Solid**  
**Percent Solids: 86.0**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			670488	WRE	EET CHI	08/12/22 08:10
Total/NA	Analysis	8260B		50	671668	PSP	EET CHI	08/25/22 17:50
Total/NA	Prep	5030B			670758	WRE	EET CHI	08/18/22 16:02
Total/NA	Analysis	8260B		50	671668	PSP	EET CHI	08/25/22 19:22

**Client Sample ID: Trip Blank**  
**Date Collected: 08/12/22 00:00**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220859-6**  
**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			670488	WRE	EET CHI	08/12/22 00:00
Total/NA	Analysis	8260B		50	671668	PSP	EET CHI	08/25/22 12:49

**Laboratory References:**

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

# Accreditation/Certification Summary

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

Job ID: 500-220859-1

## 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

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15





# Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 500-220859-1

**Login Number: 220859**

**List Source: Eurofins Chicago**

**List Number: 1**

**Creator: Hernandez, Stephanie**

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	1.3
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").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## ANALYTICAL REPORT

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

Laboratory Job ID: 500-220860-1

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:

9/16/2022 10:06:01 AM

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

[Sandra.Fredrick@et.eurofinsus.com](mailto:Sandra.Fredrick@et.eurofinsus.com)

### LINKS

Review your project  
results through



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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: 500-220860-1

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## Job ID: 500-220860-1

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### Laboratory: Eurofins Chicago

#### Narrative

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#### Job Narrative 500-220860-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 8/13/2022 9:50 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 1.3° C.

#### LCMS

Method 537 (modified): The matrix spike (MS) recoveries for preparation batch 320-615525 and analytical batch 320-616655 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 537 (modified): The matrix spike duplicate (MSD) recoveries for preparation batch 320-615525 and analytical batch 320-615766 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

#### General Chemistry

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

#### Organic Prep

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



# Detection Summary

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

Job ID: 500-220860-1

## Client Sample ID: TP-1 (2-4')

Lab Sample ID: 500-220860-1

No Detections.

## Client Sample ID: TP-2 (2-4')

Lab Sample ID: 500-220860-2

No Detections.

## Client Sample ID: TP-3 (2-4')

Lab Sample ID: 500-220860-3

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	0.16	J	0.19	0.041	ug/Kg	1	✳	537 (modified)	Total/NA

## Client Sample ID: TP-4 (2-4')

Lab Sample ID: 500-220860-4

No Detections.

## Client Sample ID: TP-5 (2-4')

Lab Sample ID: 500-220860-5

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	0.081	J	0.20	0.043	ug/Kg	1	✳	537 (modified)	Total/NA

## Client Sample ID: Equipment Blank-Trowel

Lab Sample ID: 500-220860-6

No Detections.

This Detection Summary does not include radiochemical test results.

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# Method Summary

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

Job ID: 500-220860-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	EET SAC
Moisture	Percent Moisture	EPA	EET SAC
3535	Solid-Phase Extraction (SPE)	SW846	EET SAC
SHAKE	Shake Extraction with Ultrasonic Bath Extraction	SW846	EET SAC

#### 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:

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

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# Sample Summary

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

Job ID: 500-220860-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-220860-1	TP-1 (2-4')	Solid	08/12/22 07:30	08/13/22 09:50
500-220860-2	TP-2 (2-4')	Solid	08/12/22 07:40	08/13/22 09:50
500-220860-3	TP-3 (2-4')	Solid	08/12/22 07:50	08/13/22 09:50
500-220860-4	TP-4 (2-4')	Solid	08/12/22 08:00	08/13/22 09:50
500-220860-5	TP-5 (2-4')	Solid	08/12/22 08:10	08/13/22 09:50
500-220860-6	Equipment Blank-Trowel	Water	08/12/22 06:50	08/13/22 09:50

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# Client Sample Results

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

Job ID: 500-220860-1

**Client Sample ID: TP-1 (2-4')**

**Lab Sample ID: 500-220860-1**

**Date Collected: 08/12/22 07:30**

**Matrix: Solid**

**Date Received: 08/13/22 09:50**

**Percent Solids: 78.1**

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<0.056		0.24	0.056	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
Perfluoropentanoic acid (PFPeA)	<0.050		0.24	0.050	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
Perfluorohexanoic acid (PFHxA)	<0.038		0.24	0.038	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
Perfluoroheptanoic acid (PFHpA)	<0.046		0.24	0.046	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
Perfluorooctanoic acid (PFOA)	<0.064		0.24	0.064	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
Perfluorononanoic acid (PFNA)	<0.027		0.24	0.027	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
Perfluorodecanoic acid (PFDA)	<0.058		0.24	0.058	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
Perfluoroundecanoic acid (PFUnA)	<0.051		0.24	0.051	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
Perfluorododecanoic acid (PFDoA)	<0.036		0.24	0.036	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
Perfluorotridecanoic acid (PFTrDA)	<0.025		0.24	0.025	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
Perfluorotetradecanoic acid (PFTeA)	<0.045		0.24	0.045	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
Perfluorobutanesulfonic acid (PFBS)	<0.046		0.24	0.046	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
Perfluoropentanesulfonic acid (PFPeS)	<0.045		0.24	0.045	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
Perfluorohexanesulfonic acid (PFHxS)	<0.035		0.24	0.035	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.059	F1	0.24	0.059	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
Perfluorooctanesulfonic acid (PFOS)	<0.052		0.24	0.052	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
Perfluorononanesulfonic acid (PFNS)	<0.035		0.24	0.035	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
Perfluorodecanesulfonic acid (PFDS)	<0.063		0.24	0.063	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
Perfluorododecanesulfonic acid (PFDoS)	<0.057		0.24	0.057	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
Perfluorooctanesulfonamide (FOSA)	<0.040		0.24	0.040	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
NEtFOSA	<0.057		0.24	0.057	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
NMeFOSA	<0.059		0.24	0.059	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
NMeFOSAA	<0.028		0.24	0.028	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
NEtFOSAA	<0.058		0.24	0.058	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
NMeFOSE	<0.057		0.24	0.057	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
NEtFOSE	<0.034		0.24	0.034	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
4:2 FTS	<0.062		0.24	0.062	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
6:2 FTS	<0.033		0.24	0.033	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
8:2 FTS	<0.042		0.24	0.042	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.047	F1	0.24	0.047	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
HFPO-DA (GenX)	<0.050		0.24	0.050	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
9Cl-PF3ONS	<0.042		0.24	0.042	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1
11Cl-PF3OUdS	<0.038		0.24	0.038	ug/Kg	✱	09/09/22 13:13	09/11/22 14:06	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	71		25 - 150	09/09/22 13:13	09/11/22 14:06	1
13C5 PFPeA	77		25 - 150	09/09/22 13:13	09/11/22 14:06	1
13C2 PFHxA	83		25 - 150	09/09/22 13:13	09/11/22 14:06	1
13C4 PFHpA	73		25 - 150	09/09/22 13:13	09/11/22 14:06	1
13C4 PFOA	77		25 - 150	09/09/22 13:13	09/11/22 14:06	1
13C5 PFNA	65		25 - 150	09/09/22 13:13	09/11/22 14:06	1
13C2 PFDA	57		25 - 150	09/09/22 13:13	09/11/22 14:06	1
13C2 PFUnA	51		25 - 150	09/09/22 13:13	09/11/22 14:06	1
13C2 PFDoA	51		25 - 150	09/09/22 13:13	09/11/22 14:06	1
13C2 PFTeDA	57		25 - 150	09/09/22 13:13	09/11/22 14:06	1
13C3 PFBS	70		25 - 150	09/09/22 13:13	09/11/22 14:06	1
18O2 PFHxS	71		25 - 150	09/09/22 13:13	09/11/22 14:06	1

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# Client Sample Results

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

Job ID: 500-220860-1

**Client Sample ID: TP-1 (2-4')**

**Lab Sample ID: 500-220860-1**

**Date Collected: 08/12/22 07:30**

**Matrix: Solid**

**Date Received: 08/13/22 09:50**

**Percent Solids: 78.1**

**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	50		25 - 150	09/09/22 13:13	09/11/22 14:06	1
13C8 FOSA	51		10 - 150	09/09/22 13:13	09/11/22 14:06	1
d3-NMeFOSAA	45		25 - 150	09/09/22 13:13	09/11/22 14:06	1
d5-NEtFOSAA	50		25 - 150	09/09/22 13:13	09/11/22 14:06	1
d-N-MeFOSA-M	42		10 - 150	09/09/22 13:13	09/11/22 14:06	1
d-N-EtFOSA-M	42		10 - 150	09/09/22 13:13	09/11/22 14:06	1
d7-N-MeFOSE-M	50		10 - 150	09/09/22 13:13	09/11/22 14:06	1
d9-N-EtFOSE-M	45		10 - 150	09/09/22 13:13	09/11/22 14:06	1
M2-4:2 FTS	61		25 - 150	09/09/22 13:13	09/11/22 14:06	1
M2-6:2 FTS	51		25 - 150	09/09/22 13:13	09/11/22 14:06	1
M2-8:2 FTS	46		25 - 150	09/09/22 13:13	09/11/22 14:06	1
13C3 HFPO-DA	75		25 - 150	09/09/22 13:13	09/11/22 14:06	1
13C2 10:2 FTS	44		25 - 150	09/09/22 13:13	09/11/22 14:06	1



# Client Sample Results

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

Job ID: 500-220860-1

**Client Sample ID: TP-2 (2-4')**

**Lab Sample ID: 500-220860-2**

**Date Collected: 08/12/22 07:40**

**Matrix: Solid**

**Date Received: 08/13/22 09:50**

**Percent Solids: 80.7**

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<0.056		0.24	0.056	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
Perfluoropentanoic acid (PFPeA)	<0.050		0.24	0.050	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
Perfluorohexanoic acid (PFHxA)	<0.038		0.24	0.038	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
Perfluoroheptanoic acid (PFHpA)	<0.046		0.24	0.046	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
Perfluorooctanoic acid (PFOA)	<0.065		0.24	0.065	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
Perfluorononanoic acid (PFNA)	<0.027		0.24	0.027	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
Perfluorodecanoic acid (PFDA)	<0.059		0.24	0.059	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
Perfluoroundecanoic acid (PFUnA)	<0.051		0.24	0.051	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
Perfluorododecanoic acid (PFDoA)	<0.037		0.24	0.037	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
Perfluorotridecanoic acid (PFTrDA)	<0.026		0.24	0.026	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
Perfluorotetradecanoic acid (PFTeA)	<0.045		0.24	0.045	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
Perfluorobutanesulfonic acid (PFBS)	<0.046		0.24	0.046	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
Perfluoropentanesulfonic acid (PFPeS)	<0.045		0.24	0.045	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
Perfluorohexanesulfonic acid (PFHxS)	<0.035		0.24	0.035	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.060		0.24	0.060	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
Perfluorooctanesulfonic acid (PFOS)	<0.053		0.24	0.053	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
Perfluorononanesulfonic acid (PFNS)	<0.035		0.24	0.035	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
Perfluorodecanesulfonic acid (PFDS)	<0.064		0.24	0.064	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
Perfluorododecanesulfonic acid (PFDoS)	<0.057		0.24	0.057	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
Perfluorooctanesulfonamide (FOSA)	<0.040		0.24	0.040	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
NEtFOSA	<0.057		0.24	0.057	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
NMeFOSA	<0.060		0.24	0.060	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
NMeFOSAA	<0.028		0.24	0.028	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
NEtFOSAA	<0.059		0.24	0.059	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
NMeFOSE	<0.057		0.24	0.057	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
NEtFOSE	<0.034		0.24	0.034	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
4:2 FTS	<0.062		0.24	0.062	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
6:2 FTS	<0.033		0.24	0.033	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
8:2 FTS	<0.043		0.24	0.043	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.048		0.24	0.048	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
HFPO-DA (GenX)	<0.050		0.24	0.050	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
9Cl-PF3ONS	<0.043		0.24	0.043	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1
11Cl-PF3OUdS	<0.038		0.24	0.038	ug/Kg	✳	09/09/22 13:13	09/11/22 14:36	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	63		25 - 150	09/09/22 13:13	09/11/22 14:36	1
13C5 PFPeA	62		25 - 150	09/09/22 13:13	09/11/22 14:36	1
13C2 PFHxA	68		25 - 150	09/09/22 13:13	09/11/22 14:36	1
13C4 PFHpA	36		25 - 150	09/09/22 13:13	09/11/22 14:36	1
13C4 PFOA	56		25 - 150	09/09/22 13:13	09/11/22 14:36	1
13C5 PFNA	49		25 - 150	09/09/22 13:13	09/11/22 14:36	1
13C2 PFDA	46		25 - 150	09/09/22 13:13	09/11/22 14:36	1
13C2 PFUnA	41		25 - 150	09/09/22 13:13	09/11/22 14:36	1
13C2 PFDoA	46		25 - 150	09/09/22 13:13	09/11/22 14:36	1
13C2 PFTeDA	45		25 - 150	09/09/22 13:13	09/11/22 14:36	1
13C3 PFBS	61		25 - 150	09/09/22 13:13	09/11/22 14:36	1
18O2 PFHxS	33		25 - 150	09/09/22 13:13	09/11/22 14:36	1

Eurofins Chicago

# Client Sample Results

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

Job ID: 500-220860-1

**Client Sample ID: TP-2 (2-4')**

**Lab Sample ID: 500-220860-2**

**Date Collected: 08/12/22 07:40**

**Matrix: Solid**

**Date Received: 08/13/22 09:50**

**Percent Solids: 80.7**

**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	37		25 - 150	09/09/22 13:13	09/11/22 14:36	1
13C8 FOSA	40		10 - 150	09/09/22 13:13	09/11/22 14:36	1
d3-NMeFOSAA	36		25 - 150	09/09/22 13:13	09/11/22 14:36	1
d5-NEtFOSAA	40		25 - 150	09/09/22 13:13	09/11/22 14:36	1
d-N-MeFOSA-M	35		10 - 150	09/09/22 13:13	09/11/22 14:36	1
d-N-EtFOSA-M	33		10 - 150	09/09/22 13:13	09/11/22 14:36	1
d7-N-MeFOSE-M	38		10 - 150	09/09/22 13:13	09/11/22 14:36	1
d9-N-EtFOSE-M	36		10 - 150	09/09/22 13:13	09/11/22 14:36	1
M2-4:2 FTS	50		25 - 150	09/09/22 13:13	09/11/22 14:36	1
M2-6:2 FTS	40		25 - 150	09/09/22 13:13	09/11/22 14:36	1
M2-8:2 FTS	28		25 - 150	09/09/22 13:13	09/11/22 14:36	1
13C3 HFPO-DA	65		25 - 150	09/09/22 13:13	09/11/22 14:36	1
13C2 10:2 FTS	32		25 - 150	09/09/22 13:13	09/11/22 14:36	1

# Client Sample Results

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

Job ID: 500-220860-1

**Client Sample ID: TP-3 (2-4')**

**Lab Sample ID: 500-220860-3**

**Date Collected: 08/12/22 07:50**

**Matrix: Solid**

**Date Received: 08/13/22 09:50**

**Percent Solids: 94.1**

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<0.044		0.19	0.044	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
Perfluoropentanoic acid (PFPeA)	<0.039		0.19	0.039	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
Perfluorohexanoic acid (PFHxA)	<0.029		0.19	0.029	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
Perfluoroheptanoic acid (PFHpA)	<0.036		0.19	0.036	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
Perfluorooctanoic acid (PFOA)	<0.050		0.19	0.050	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
Perfluorononanoic acid (PFNA)	<0.021		0.19	0.021	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
Perfluorodecanoic acid (PFDA)	<0.046		0.19	0.046	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
Perfluoroundecanoic acid (PFUnA)	<0.040		0.19	0.040	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
Perfluorododecanoic acid (PFDoA)	<0.028		0.19	0.028	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
Perfluorotridecanoic acid (PFTrDA)	<0.020		0.19	0.020	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
Perfluorotetradecanoic acid (PFTeA)	<0.035		0.19	0.035	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
Perfluorobutanesulfonic acid (PFBS)	<0.036		0.19	0.036	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
Perfluoropentanesulfonic acid (PFPeS)	<0.035		0.19	0.035	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
Perfluorohexanesulfonic acid (PFHxS)	<0.028		0.19	0.028	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.047		0.19	0.047	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
<b>Perfluorooctanesulfonic acid (PFOS)</b>	<b>0.16 J</b>		0.19	0.041	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
Perfluorononanesulfonic acid (PFNS)	<0.028		0.19	0.028	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
Perfluorodecanesulfonic acid (PFDS)	<0.049		0.19	0.049	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
Perfluorododecanesulfonic acid (PFDoS)	<0.045		0.19	0.045	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
Perfluorooctanesulfonamide (FOSA)	<0.031		0.19	0.031	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
NEtFOSA	<0.045		0.19	0.045	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
NMeFOSA	<0.047		0.19	0.047	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
NMeFOSAA	<0.022		0.19	0.022	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
NEtFOSAA	<0.046		0.19	0.046	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
NMeFOSE	<0.045		0.19	0.045	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
NEtFOSE	<0.027		0.19	0.027	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
4:2 FTS	<0.048		0.19	0.048	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
6:2 FTS	<0.026		0.19	0.026	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
8:2 FTS	<0.033		0.19	0.033	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.037		0.19	0.037	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
HFPO-DA (GenX)	<0.039		0.19	0.039	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
9Cl-PF3ONS	<0.033		0.19	0.033	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1
11Cl-PF3OUdS	<0.029		0.19	0.029	ug/Kg	✱	09/09/22 13:13	09/11/22 14:46	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	72		25 - 150	09/09/22 13:13	09/11/22 14:46	1
13C5 PFPeA	77		25 - 150	09/09/22 13:13	09/11/22 14:46	1
13C2 PFHxA	85		25 - 150	09/09/22 13:13	09/11/22 14:46	1
13C4 PFHpA	78		25 - 150	09/09/22 13:13	09/11/22 14:46	1
13C4 PFOA	82		25 - 150	09/09/22 13:13	09/11/22 14:46	1
13C5 PFNA	80		25 - 150	09/09/22 13:13	09/11/22 14:46	1
13C2 PFDA	78		25 - 150	09/09/22 13:13	09/11/22 14:46	1
13C2 PFUnA	68		25 - 150	09/09/22 13:13	09/11/22 14:46	1
13C2 PFDoA	67		25 - 150	09/09/22 13:13	09/11/22 14:46	1
13C2 PFTeDA	62		25 - 150	09/09/22 13:13	09/11/22 14:46	1
13C3 PFBS	68		25 - 150	09/09/22 13:13	09/11/22 14:46	1

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# Client Sample Results

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

Job ID: 500-220860-1

**Client Sample ID: TP-3 (2-4')**

**Lab Sample ID: 500-220860-3**

**Date Collected: 08/12/22 07:50**

**Matrix: Solid**

**Date Received: 08/13/22 09:50**

**Percent Solids: 94.1**

**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>
18O2 PFHxS	72		25 - 150	09/09/22 13:13	09/11/22 14:46	1
13C4 PFOS	63		25 - 150	09/09/22 13:13	09/11/22 14:46	1
13C8 FOSA	63		10 - 150	09/09/22 13:13	09/11/22 14:46	1
d3-NMeFOSAA	60		25 - 150	09/09/22 13:13	09/11/22 14:46	1
d5-NEtFOSAA	64		25 - 150	09/09/22 13:13	09/11/22 14:46	1
d-N-MeFOSA-M	54		10 - 150	09/09/22 13:13	09/11/22 14:46	1
d-N-EtFOSA-M	52		10 - 150	09/09/22 13:13	09/11/22 14:46	1
d7-N-MeFOSE-M	49		10 - 150	09/09/22 13:13	09/11/22 14:46	1
d9-N-EtFOSE-M	47		10 - 150	09/09/22 13:13	09/11/22 14:46	1
M2-4:2 FTS	59		25 - 150	09/09/22 13:13	09/11/22 14:46	1
M2-6:2 FTS	57		25 - 150	09/09/22 13:13	09/11/22 14:46	1
M2-8:2 FTS	52		25 - 150	09/09/22 13:13	09/11/22 14:46	1
13C3 HFPO-DA	75		25 - 150	09/09/22 13:13	09/11/22 14:46	1
13C2 10:2 FTS	62		25 - 150	09/09/22 13:13	09/11/22 14:46	1

# Client Sample Results

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

Job ID: 500-220860-1

**Client Sample ID: TP-4 (2-4')**

**Lab Sample ID: 500-220860-4**

**Date Collected: 08/12/22 08:00**

**Matrix: Solid**

**Date Received: 08/13/22 09:50**

**Percent Solids: 80.2**

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<0.054		0.23	0.054	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
Perfluoropentanoic acid (PFPeA)	<0.048		0.23	0.048	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
Perfluorohexanoic acid (PFHxA)	<0.036		0.23	0.036	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
Perfluoroheptanoic acid (PFHpA)	<0.044		0.23	0.044	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
Perfluorooctanoic acid (PFOA)	<0.062		0.23	0.062	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
Perfluorononanoic acid (PFNA)	<0.026		0.23	0.026	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
Perfluorodecanoic acid (PFDA)	<0.056		0.23	0.056	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
Perfluoroundecanoic acid (PFUnA)	<0.049		0.23	0.049	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
Perfluorododecanoic acid (PFDoA)	<0.035		0.23	0.035	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
Perfluorotridecanoic acid (PFTrDA)	<0.025		0.23	0.025	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
Perfluorotetradecanoic acid (PFTeA)	<0.043		0.23	0.043	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
Perfluorobutanesulfonic acid (PFBS)	<0.044		0.23	0.044	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
Perfluoropentanesulfonic acid (PFPeS)	<0.043		0.23	0.043	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
Perfluorohexanesulfonic acid (PFHxS)	<0.034		0.23	0.034	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.057		0.23	0.057	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
Perfluorooctanesulfonic acid (PFOS)	<0.050		0.23	0.050	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
Perfluorononanesulfonic acid (PFNS)	<0.034		0.23	0.034	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
Perfluorodecanesulfonic acid (PFDS)	<0.061		0.23	0.061	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
Perfluorododecanesulfonic acid (PFDoS)	<0.055		0.23	0.055	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
Perfluorooctanesulfonamide (FOSA)	<0.039		0.23	0.039	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
NEtFOSA	<0.055		0.23	0.055	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
NMeFOSA	<0.057		0.23	0.057	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
NMeFOSAA	<0.027		0.23	0.027	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
NEtFOSAA	<0.056		0.23	0.056	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
NMeFOSE	<0.055		0.23	0.055	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
NEtFOSE	<0.033		0.23	0.033	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
4:2 FTS	<0.060		0.23	0.060	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
6:2 FTS	<0.032		0.23	0.032	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
8:2 FTS	<0.041		0.23	0.041	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.046		0.23	0.046	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
HFPO-DA (GenX)	<0.048		0.23	0.048	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
9Cl-PF3ONS	<0.041		0.23	0.041	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1
11Cl-PF3OUdS	<0.036		0.23	0.036	ug/Kg	✳	09/09/22 13:13	09/11/22 14:56	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	72		25 - 150	09/09/22 13:13	09/11/22 14:56	1
13C5 PFPeA	71		25 - 150	09/09/22 13:13	09/11/22 14:56	1
13C2 PFHxA	79		25 - 150	09/09/22 13:13	09/11/22 14:56	1
13C4 PFHpA	68		25 - 150	09/09/22 13:13	09/11/22 14:56	1
13C4 PFOA	65		25 - 150	09/09/22 13:13	09/11/22 14:56	1
13C5 PFNA	59		25 - 150	09/09/22 13:13	09/11/22 14:56	1
13C2 PFDA	53		25 - 150	09/09/22 13:13	09/11/22 14:56	1
13C2 PFUnA	52		25 - 150	09/09/22 13:13	09/11/22 14:56	1
13C2 PFDoA	54		25 - 150	09/09/22 13:13	09/11/22 14:56	1
13C2 PFTeDA	52		25 - 150	09/09/22 13:13	09/11/22 14:56	1
13C3 PFBS	69		25 - 150	09/09/22 13:13	09/11/22 14:56	1
18O2 PFHxS	61		25 - 150	09/09/22 13:13	09/11/22 14:56	1

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# Client Sample Results

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

Job ID: 500-220860-1

**Client Sample ID: TP-4 (2-4')**

**Lab Sample ID: 500-220860-4**

**Date Collected: 08/12/22 08:00**

**Matrix: Solid**

**Date Received: 08/13/22 09:50**

**Percent Solids: 80.2**

**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	45		25 - 150	09/09/22 13:13	09/11/22 14:56	1
13C8 FOSA	43		10 - 150	09/09/22 13:13	09/11/22 14:56	1
d3-NMeFOSAA	33		25 - 150	09/09/22 13:13	09/11/22 14:56	1
d5-NEtFOSAA	45		25 - 150	09/09/22 13:13	09/11/22 14:56	1
d-N-MeFOSA-M	33		10 - 150	09/09/22 13:13	09/11/22 14:56	1
d-N-EtFOSA-M	39		10 - 150	09/09/22 13:13	09/11/22 14:56	1
d7-N-MeFOSE-M	44		10 - 150	09/09/22 13:13	09/11/22 14:56	1
d9-N-EtFOSE-M	45		10 - 150	09/09/22 13:13	09/11/22 14:56	1
M2-4:2 FTS	58		25 - 150	09/09/22 13:13	09/11/22 14:56	1
M2-6:2 FTS	45		25 - 150	09/09/22 13:13	09/11/22 14:56	1
M2-8:2 FTS	38		25 - 150	09/09/22 13:13	09/11/22 14:56	1
13C3 HFPO-DA	70		25 - 150	09/09/22 13:13	09/11/22 14:56	1
13C2 10:2 FTS	43		25 - 150	09/09/22 13:13	09/11/22 14:56	1

# Client Sample Results

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

Job ID: 500-220860-1

**Client Sample ID: TP-5 (2-4')**

**Lab Sample ID: 500-220860-5**

**Date Collected: 08/12/22 08:10**

**Matrix: Solid**

**Date Received: 08/13/22 09:50**

**Percent Solids: 94.4**

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<0.046		0.20	0.046	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
Perfluoropentanoic acid (PFPeA)	<0.041		0.20	0.041	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
Perfluorohexanoic acid (PFHxA)	<0.031		0.20	0.031	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
Perfluoroheptanoic acid (PFHpA)	<0.038		0.20	0.038	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
Perfluorooctanoic acid (PFOA)	<0.053		0.20	0.053	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
Perfluorononanoic acid (PFNA)	<0.022		0.20	0.022	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
Perfluorodecanoic acid (PFDA)	<0.048		0.20	0.048	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
Perfluoroundecanoic acid (PFUnA)	<0.042		0.20	0.042	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
Perfluorododecanoic acid (PFDoA)	<0.030		0.20	0.030	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
Perfluorotridecanoic acid (PFTrDA)	<0.021		0.20	0.021	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
Perfluorotetradecanoic acid (PFTeA)	<0.037		0.20	0.037	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
Perfluorobutanesulfonic acid (PFBS)	<0.038		0.20	0.038	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
Perfluoropentanesulfonic acid (PFPeS)	<0.037		0.20	0.037	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
Perfluorohexanesulfonic acid (PFHxS)	<0.029		0.20	0.029	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.049		0.20	0.049	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
<b>Perfluorooctanesulfonic acid (PFOS)</b>	<b>0.081</b>	<b>J</b>	0.20	0.043	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
Perfluorononanesulfonic acid (PFNS)	<0.029		0.20	0.029	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
Perfluorodecanesulfonic acid (PFDS)	<0.052		0.20	0.052	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
Perfluorododecanesulfonic acid (PFDoS)	<0.047		0.20	0.047	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
Perfluorooctanesulfonamide (FOSA)	<0.033		0.20	0.033	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
NEtFOSA	<0.047		0.20	0.047	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
NMeFOSA	<0.049		0.20	0.049	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
NMeFOSAA	<0.023		0.20	0.023	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
NEtFOSAA	<0.048		0.20	0.048	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
NMeFOSE	<0.047		0.20	0.047	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
NEtFOSE	<0.028		0.20	0.028	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
4:2 FTS	<0.051		0.20	0.051	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
6:2 FTS	<0.027		0.20	0.027	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
8:2 FTS	<0.035		0.20	0.035	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.039		0.20	0.039	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
HFPO-DA (GenX)	<0.041		0.20	0.041	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
9Cl-PF3ONS	<0.035		0.20	0.035	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1
11Cl-PF3OUdS	<0.031		0.20	0.031	ug/Kg	✱	09/09/22 13:13	09/11/22 15:06	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	76		25 - 150	09/09/22 13:13	09/11/22 15:06	1
13C5 PFPeA	75		25 - 150	09/09/22 13:13	09/11/22 15:06	1
13C2 PFHxA	86		25 - 150	09/09/22 13:13	09/11/22 15:06	1
13C4 PFHpA	75		25 - 150	09/09/22 13:13	09/11/22 15:06	1
13C4 PFOA	82		25 - 150	09/09/22 13:13	09/11/22 15:06	1
13C5 PFNA	83		25 - 150	09/09/22 13:13	09/11/22 15:06	1
13C2 PFDA	82		25 - 150	09/09/22 13:13	09/11/22 15:06	1
13C2 PFUnA	74		25 - 150	09/09/22 13:13	09/11/22 15:06	1
13C2 PFDoA	70		25 - 150	09/09/22 13:13	09/11/22 15:06	1
13C2 PFTeDA	67		25 - 150	09/09/22 13:13	09/11/22 15:06	1
13C3 PFBS	68		25 - 150	09/09/22 13:13	09/11/22 15:06	1

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# Client Sample Results

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

Job ID: 500-220860-1

**Client Sample ID: TP-5 (2-4')**

**Lab Sample ID: 500-220860-5**

**Date Collected: 08/12/22 08:10**

**Matrix: Solid**

**Date Received: 08/13/22 09:50**

**Percent Solids: 94.4**

**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>
18O2 PFHxS	72		25 - 150	09/09/22 13:13	09/11/22 15:06	1
13C4 PFOS	63		25 - 150	09/09/22 13:13	09/11/22 15:06	1
13C8 FOSA	66		10 - 150	09/09/22 13:13	09/11/22 15:06	1
d3-NMeFOSAA	67		25 - 150	09/09/22 13:13	09/11/22 15:06	1
d5-NEtFOSAA	67		25 - 150	09/09/22 13:13	09/11/22 15:06	1
d-N-MeFOSA-M	61		10 - 150	09/09/22 13:13	09/11/22 15:06	1
d-N-EtFOSA-M	60		10 - 150	09/09/22 13:13	09/11/22 15:06	1
d7-N-MeFOSE-M	57		10 - 150	09/09/22 13:13	09/11/22 15:06	1
d9-N-EtFOSE-M	54		10 - 150	09/09/22 13:13	09/11/22 15:06	1
M2-4:2 FTS	58		25 - 150	09/09/22 13:13	09/11/22 15:06	1
M2-6:2 FTS	57		25 - 150	09/09/22 13:13	09/11/22 15:06	1
M2-8:2 FTS	56		25 - 150	09/09/22 13:13	09/11/22 15:06	1
13C3 HFPO-DA	77		25 - 150	09/09/22 13:13	09/11/22 15:06	1
13C2 10:2 FTS	55		25 - 150	09/09/22 13:13	09/11/22 15:06	1

# Client Sample Results

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

Job ID: 500-220860-1

**Client Sample ID: Equipment Blank-Trowel**

**Lab Sample ID: 500-220860-6**

**Date Collected: 08/12/22 06:50**

**Matrix: Water**

**Date Received: 08/13/22 09:50**

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.0		4.1	2.0	ng/L		09/06/22 05:35	09/07/22 21:27	1
Perfluoropentanoic acid (PFPeA)	<0.40		1.6	0.40	ng/L		09/06/22 05:35	09/07/22 21:27	1
Perfluorohexanoic acid (PFHxA)	<0.47		1.6	0.47	ng/L		09/06/22 05:35	09/07/22 21:27	1
Perfluoroheptanoic acid (PFHpA)	<0.20		1.6	0.20	ng/L		09/06/22 05:35	09/07/22 21:27	1
Perfluorooctanoic acid (PFOA)	<0.69		1.6	0.69	ng/L		09/06/22 05:35	09/07/22 21:27	1
Perfluorononanoic acid (PFNA)	<0.22		1.6	0.22	ng/L		09/06/22 05:35	09/07/22 21:27	1
Perfluorodecanoic acid (PFDA)	<0.25		1.6	0.25	ng/L		09/06/22 05:35	09/07/22 21:27	1
Perfluoroundecanoic acid (PFUnA)	<0.90		1.6	0.90	ng/L		09/06/22 05:35	09/07/22 21:27	1
Perfluorododecanoic acid (PFDoA)	<0.45		1.6	0.45	ng/L		09/06/22 05:35	09/07/22 21:27	1
Perfluorotridecanoic acid (PFTrDA)	<1.1		1.6	1.1	ng/L		09/06/22 05:35	09/07/22 21:27	1
Perfluorotetradecanoic acid (PFTeA)	<0.60		1.6	0.60	ng/L		09/06/22 05:35	09/07/22 21:27	1
Perfluorobutanesulfonic acid (PFBS)	<0.16		1.6	0.16	ng/L		09/06/22 05:35	09/07/22 21:27	1
Perfluoropentanesulfonic acid (PFPeS)	<0.24		1.6	0.24	ng/L		09/06/22 05:35	09/07/22 21:27	1
Perfluorohexanesulfonic acid (PFHxS)	<0.47		1.6	0.47	ng/L		09/06/22 05:35	09/07/22 21:27	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.16		1.6	0.16	ng/L		09/06/22 05:35	09/07/22 21:27	1
Perfluorooctanesulfonic acid (PFOS)	<0.44		1.6	0.44	ng/L		09/06/22 05:35	09/07/22 21:27	1
Perfluorononanesulfonic acid (PFNS)	<0.30		1.6	0.30	ng/L		09/06/22 05:35	09/07/22 21:27	1
Perfluorodecanesulfonic acid (PFDS)	<0.26		1.6	0.26	ng/L		09/06/22 05:35	09/07/22 21:27	1
Perfluorododecanesulfonic acid (PFDoS)	<0.79		1.6	0.79	ng/L		09/06/22 05:35	09/07/22 21:27	1
Perfluorooctanesulfonamide (FOSA)	<0.80		1.6	0.80	ng/L		09/06/22 05:35	09/07/22 21:27	1
NEtFOSA	<0.71		1.6	0.71	ng/L		09/06/22 05:35	09/07/22 21:27	1
NMeFOSA	<0.35		1.6	0.35	ng/L		09/06/22 05:35	09/07/22 21:27	1
NMeFOSAA	<0.98		4.1	0.98	ng/L		09/06/22 05:35	09/07/22 21:27	1
NEtFOSAA	<1.1		4.1	1.1	ng/L		09/06/22 05:35	09/07/22 21:27	1
NMeFOSE	<1.1		3.3	1.1	ng/L		09/06/22 05:35	09/07/22 21:27	1
NEtFOSE	<0.69		1.6	0.69	ng/L		09/06/22 05:35	09/07/22 21:27	1
4:2 FTS	<0.20		1.6	0.20	ng/L		09/06/22 05:35	09/07/22 21:27	1
6:2 FTS	<2.0		4.1	2.0	ng/L		09/06/22 05:35	09/07/22 21:27	1
8:2 FTS	<0.38		1.6	0.38	ng/L		09/06/22 05:35	09/07/22 21:27	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.33		1.6	0.33	ng/L		09/06/22 05:35	09/07/22 21:27	1
HFPO-DA (GenX)	<1.2		3.3	1.2	ng/L		09/06/22 05:35	09/07/22 21:27	1
9Cl-PF3ONS	<0.20		1.6	0.20	ng/L		09/06/22 05:35	09/07/22 21:27	1
11Cl-PF3OUdS	<0.26		1.6	0.26	ng/L		09/06/22 05:35	09/07/22 21:27	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	83		25 - 150	09/06/22 05:35	09/07/22 21:27	1
13C5 PFPeA	89		25 - 150	09/06/22 05:35	09/07/22 21:27	1
13C2 PFHxA	106		25 - 150	09/06/22 05:35	09/07/22 21:27	1
13C4 PFHpA	90		25 - 150	09/06/22 05:35	09/07/22 21:27	1
13C4 PFOA	97		25 - 150	09/06/22 05:35	09/07/22 21:27	1
13C5 PFNA	109		25 - 150	09/06/22 05:35	09/07/22 21:27	1
13C2 PFDA	106		25 - 150	09/06/22 05:35	09/07/22 21:27	1
13C2 PFUnA	103		25 - 150	09/06/22 05:35	09/07/22 21:27	1
13C2 PFDoA	105		25 - 150	09/06/22 05:35	09/07/22 21:27	1
13C2 PFTeDA	100		25 - 150	09/06/22 05:35	09/07/22 21:27	1
13C3 PFBS	91		25 - 150	09/06/22 05:35	09/07/22 21:27	1
18O2 PFHxS	92		25 - 150	09/06/22 05:35	09/07/22 21:27	1

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# Client Sample Results

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

Job ID: 500-220860-1

**Client Sample ID: Equipment Blank-Trowel**

**Lab Sample ID: 500-220860-6**

**Date Collected: 08/12/22 06:50**

**Matrix: Water**

**Date Received: 08/13/22 09:50**

**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	89		25 - 150	09/06/22 05:35	09/07/22 21:27	1
13C8 FOSA	81		10 - 150	09/06/22 05:35	09/07/22 21:27	1
d3-NMeFOSAA	91		25 - 150	09/06/22 05:35	09/07/22 21:27	1
d5-NEtFOSAA	100		25 - 150	09/06/22 05:35	09/07/22 21:27	1
d-N-MeFOSA-M	73		10 - 150	09/06/22 05:35	09/07/22 21:27	1
d-N-EtFOSA-M	73		10 - 150	09/06/22 05:35	09/07/22 21:27	1
d7-N-MeFOSE-M	80		10 - 150	09/06/22 05:35	09/07/22 21:27	1
d9-N-EtFOSE-M	82		10 - 150	09/06/22 05:35	09/07/22 21:27	1
M2-4:2 FTS	103		25 - 150	09/06/22 05:35	09/07/22 21:27	1
M2-6:2 FTS	106		25 - 150	09/06/22 05:35	09/07/22 21:27	1
M2-8:2 FTS	106		25 - 150	09/06/22 05:35	09/07/22 21:27	1
13C3 HFPO-DA	103		25 - 150	09/06/22 05:35	09/07/22 21:27	1
13C2 10:2 FTS	124		25 - 150	09/06/22 05:35	09/07/22 21:27	1



# Definitions/Glossary

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

Job ID: 500-220860-1

## Qualifiers

### LCMS

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.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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: 500-220860-1

## LCMS

### Prep Batch: 614506

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-220860-6	Equipment Blank-Trowel	Total/NA	Water	3535	
MB 320-614506/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-614506/2-A	Lab Control Sample	Total/NA	Water	3535	

### Analysis Batch: 615027

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-220860-6	Equipment Blank-Trowel	Total/NA	Water	537 (modified)	614506
MB 320-614506/1-A	Method Blank	Total/NA	Water	537 (modified)	614506
LCS 320-614506/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	614506

### Prep Batch: 615525

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-220860-1	TP-1 (2-4')	Total/NA	Solid	SHAKE	
500-220860-2	TP-2 (2-4')	Total/NA	Solid	SHAKE	
500-220860-3	TP-3 (2-4')	Total/NA	Solid	SHAKE	
500-220860-4	TP-4 (2-4')	Total/NA	Solid	SHAKE	
500-220860-5	TP-5 (2-4')	Total/NA	Solid	SHAKE	
MB 320-615525/1-A	Method Blank	Total/NA	Solid	SHAKE	
LCS 320-615525/2-A	Lab Control Sample	Total/NA	Solid	SHAKE	
500-220860-1 MS	TP-1 (2-4')	Total/NA	Solid	SHAKE	
500-220860-1 MSD	TP-1 (2-4')	Total/NA	Solid	SHAKE	

### Analysis Batch: 615766

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-220860-1	TP-1 (2-4')	Total/NA	Solid	537 (modified)	615525
500-220860-2	TP-2 (2-4')	Total/NA	Solid	537 (modified)	615525
500-220860-3	TP-3 (2-4')	Total/NA	Solid	537 (modified)	615525
500-220860-4	TP-4 (2-4')	Total/NA	Solid	537 (modified)	615525
500-220860-5	TP-5 (2-4')	Total/NA	Solid	537 (modified)	615525
MB 320-615525/1-A	Method Blank	Total/NA	Solid	537 (modified)	615525
LCS 320-615525/2-A	Lab Control Sample	Total/NA	Solid	537 (modified)	615525
500-220860-1 MSD	TP-1 (2-4')	Total/NA	Solid	537 (modified)	615525

### Analysis Batch: 616655

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-220860-1 MS	TP-1 (2-4')	Total/NA	Solid	537 (modified)	615525

## General Chemistry

### Analysis Batch: 610575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-220860-1	TP-1 (2-4')	Total/NA	Solid	Moisture	
500-220860-2	TP-2 (2-4')	Total/NA	Solid	Moisture	
500-220860-3	TP-3 (2-4')	Total/NA	Solid	Moisture	
500-220860-4	TP-4 (2-4')	Total/NA	Solid	Moisture	
500-220860-5	TP-5 (2-4')	Total/NA	Solid	Moisture	

# QC Sample Results

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

Job ID: 500-220860-1

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

**Lab Sample ID: MB 320-614506/1-A**  
**Matrix: Water**  
**Analysis Batch: 615027**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 614506**

Analyte	MB	MB	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorobutanoic acid (PFBA)	<2.4		5.0	2.4	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluoropentanoic acid (PFPeA)	<0.49		2.0	0.49	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorohexanoic acid (PFHxA)	<0.58		2.0	0.58	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluoroheptanoic acid (PFHpA)	<0.25		2.0	0.25	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorooctanoic acid (PFOA)	<0.85		2.0	0.85	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorotridecanoic acid (PFTrDA)	<1.3		2.0	1.3	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		2.0	0.20	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluoropentanesulfonic acid (PFPeS)	<0.30		2.0	0.30	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorohexanesulfonic acid (PFHxS)	<0.57		2.0	0.57	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.19		2.0	0.19	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorooctanesulfonic acid (PFOS)	<0.54		2.0	0.54	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorododecanesulfonic acid (PFDoS)	<0.97		2.0	0.97	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorooctanesulfonamide (FOSA)	<0.98		2.0	0.98	ng/L		09/06/22 05:35	09/07/22 19:05	1
NEtFOSA	<0.87		2.0	0.87	ng/L		09/06/22 05:35	09/07/22 19:05	1
NMeFOSA	<0.43		2.0	0.43	ng/L		09/06/22 05:35	09/07/22 19:05	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		09/06/22 05:35	09/07/22 19:05	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		09/06/22 05:35	09/07/22 19:05	1
NMeFOSE	<1.4		4.0	1.4	ng/L		09/06/22 05:35	09/07/22 19:05	1
NEtFOSE	<0.85		2.0	0.85	ng/L		09/06/22 05:35	09/07/22 19:05	1
4:2 FTS	<0.24		2.0	0.24	ng/L		09/06/22 05:35	09/07/22 19:05	1
6:2 FTS	<2.5		5.0	2.5	ng/L		09/06/22 05:35	09/07/22 19:05	1
8:2 FTS	<0.46		2.0	0.46	ng/L		09/06/22 05:35	09/07/22 19:05	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.40		2.0	0.40	ng/L		09/06/22 05:35	09/07/22 19:05	1
HFPO-DA (GenX)	<1.5		4.0	1.5	ng/L		09/06/22 05:35	09/07/22 19:05	1
9Cl-PF3ONS	<0.24		2.0	0.24	ng/L		09/06/22 05:35	09/07/22 19:05	1
11Cl-PF3OUdS	<0.32		2.0	0.32	ng/L		09/06/22 05:35	09/07/22 19:05	1

Isotope Dilution	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C4 PFBA	82		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C5 PFPeA	81		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C2 PFHxA	95		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C4 PFHpA	86		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C4 PFOA	97		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C5 PFNA	97		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C2 PFDA	99		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C2 PFUnA	94		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C2 PFDoA	98		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C2 PFTeDA	94		25 - 150	09/06/22 05:35	09/07/22 19:05	1

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# QC Sample Results

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

Job ID: 500-220860-1

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

**Lab Sample ID: MB 320-614506/1-A**  
**Matrix: Water**  
**Analysis Batch: 615027**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 614506**

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 PFBS	88		25 - 150	09/06/22 05:35	09/07/22 19:05	1
18O2 PFHxS	88		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C4 PFOS	84		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C8 FOSA	75		10 - 150	09/06/22 05:35	09/07/22 19:05	1
d3-NMeFOSAA	81		25 - 150	09/06/22 05:35	09/07/22 19:05	1
d5-NEtFOSAA	83		25 - 150	09/06/22 05:35	09/07/22 19:05	1
d-N-MeFOSA-M	63		10 - 150	09/06/22 05:35	09/07/22 19:05	1
d-N-EtFOSA-M	65		10 - 150	09/06/22 05:35	09/07/22 19:05	1
d7-N-MeFOSE-M	78		10 - 150	09/06/22 05:35	09/07/22 19:05	1
d9-N-EtFOSE-M	79		10 - 150	09/06/22 05:35	09/07/22 19:05	1
M2-4:2 FTS	94		25 - 150	09/06/22 05:35	09/07/22 19:05	1
M2-6:2 FTS	92		25 - 150	09/06/22 05:35	09/07/22 19:05	1
M2-8:2 FTS	101		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C3 HFPO-DA	95		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C2 10:2 FTS	108		25 - 150	09/06/22 05:35	09/07/22 19:05	1

**Lab Sample ID: LCS 320-614506/2-A**  
**Matrix: Water**  
**Analysis Batch: 615027**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 614506**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	40.0	46.0		ng/L		115	60 - 135
Perfluoropentanoic acid (PFPeA)	40.0	44.3		ng/L		111	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	37.7		ng/L		94	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	46.1		ng/L		115	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	42.6		ng/L		107	60 - 135
Perfluorononanoic acid (PFNA)	40.0	42.8		ng/L		107	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	45.4		ng/L		113	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	44.0		ng/L		110	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	41.9		ng/L		105	60 - 135
Perfluorotridecanoic acid (PFTrDA)	40.0	41.7		ng/L		104	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	42.4		ng/L		106	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.5	40.1		ng/L		113	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.5	40.4		ng/L		108	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	36.5	37.3		ng/L		102	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	38.2	44.6		ng/L		117	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.2	41.9		ng/L		113	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.5	44.2		ng/L		115	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	43.1		ng/L		112	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.8	40.7		ng/L		105	60 - 135

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# QC Sample Results

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

Job ID: 500-220860-1

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

**Lab Sample ID: LCS 320-614506/2-A**  
**Matrix: Water**  
**Analysis Batch: 615027**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 614506**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	40.0	45.3		ng/L		113	60 - 135
NEtFOSA	40.0	43.1		ng/L		108	60 - 135
NMeFOSA	40.0	46.0		ng/L		115	60 - 135
NMeFOSAA	40.0	44.0		ng/L		110	60 - 135
NEtFOSAA	40.0	41.1		ng/L		103	60 - 135
NMeFOSE	40.0	42.3		ng/L		106	60 - 135
NEtFOSE	40.0	41.9		ng/L		105	60 - 135
4:2 FTS	37.5	42.5		ng/L		113	60 - 135
6:2 FTS	38.1	42.7		ng/L		112	60 - 135
8:2 FTS	38.4	43.9		ng/L		114	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	47.3		ng/L		125	60 - 135
HFPO-DA (GenX)	40.0	45.5		ng/L		114	60 - 135
9Cl-PF3ONS	37.4	44.9		ng/L		120	60 - 135
11Cl-PF3OUdS	37.8	44.9		ng/L		119	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	93		25 - 150
13C5 PFPeA	94		25 - 150
13C2 PFHxA	115		25 - 150
13C4 PFHpA	97		25 - 150
13C4 PFOA	109		25 - 150
13C5 PFNA	107		25 - 150
13C2 PFDA	111		25 - 150
13C2 PFUnA	108		25 - 150
13C2 PFDoA	112		25 - 150
13C2 PFTeDA	105		25 - 150
13C3 PFBS	98		25 - 150
18O2 PFHxS	98		25 - 150
13C4 PFOS	92		25 - 150
13C8 FOSA	85		10 - 150
d3-NMeFOSAA	93		25 - 150
d5-NEtFOSAA	96		25 - 150
d-N-MeFOSA-M	74		10 - 150
d-N-EtFOSA-M	76		10 - 150
d7-N-MeFOSE-M	89		10 - 150
d9-N-EtFOSE-M	90		10 - 150
M2-4:2 FTS	106		25 - 150
M2-6:2 FTS	112		25 - 150
M2-8:2 FTS	109		25 - 150
13C3 HFPO-DA	112		25 - 150
13C2 10:2 FTS	121		25 - 150



# QC Sample Results

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

Job ID: 500-220860-1

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

**Lab Sample ID: MB 320-615525/1-A**  
**Matrix: Solid**  
**Analysis Batch: 615766**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 615525**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<0.046		0.20	0.046	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
Perfluoropentanoic acid (PFPeA)	<0.041		0.20	0.041	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
Perfluorohexanoic acid (PFHxA)	<0.031		0.20	0.031	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
Perfluoroheptanoic acid (PFHpA)	<0.038		0.20	0.038	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
Perfluorooctanoic acid (PFOA)	<0.053		0.20	0.053	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
Perfluorononanoic acid (PFNA)	<0.022		0.20	0.022	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
Perfluorodecanoic acid (PFDA)	<0.048		0.20	0.048	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
Perfluoroundecanoic acid (PFUnA)	<0.042		0.20	0.042	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
Perfluorododecanoic acid (PFDoA)	<0.030		0.20	0.030	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
Perfluorotridecanoic acid (PFTrDA)	<0.021		0.20	0.021	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
Perfluorotetradecanoic acid (PFTeA)	<0.037		0.20	0.037	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
Perfluorobutanesulfonic acid (PFBS)	<0.038		0.20	0.038	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
Perfluoropentanesulfonic acid (PFPeS)	<0.037		0.20	0.037	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
Perfluorohexanesulfonic acid (PFHxS)	<0.029		0.20	0.029	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.049		0.20	0.049	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
Perfluorooctanesulfonic acid (PFOS)	<0.043		0.20	0.043	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
Perfluorononanesulfonic acid (PFNS)	<0.029		0.20	0.029	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
Perfluorodecanesulfonic acid (PFDS)	<0.052		0.20	0.052	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
Perfluorododecanesulfonic acid (PFDoS)	<0.047		0.20	0.047	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
Perfluorooctanesulfonamide (FOSA)	<0.033		0.20	0.033	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
NEtFOSA	<0.047		0.20	0.047	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
NMeFOSA	<0.049		0.20	0.049	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
NMeFOSAA	<0.023		0.20	0.023	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
NEtFOSAA	<0.048		0.20	0.048	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
NMeFOSE	<0.047		0.20	0.047	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
NEtFOSE	<0.028		0.20	0.028	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
4:2 FTS	<0.051		0.20	0.051	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
6:2 FTS	<0.027		0.20	0.027	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
8:2 FTS	<0.035		0.20	0.035	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.039		0.20	0.039	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
HFPO-DA (GenX)	<0.041		0.20	0.041	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
9Cl-PF3ONS	<0.035		0.20	0.035	ug/Kg		09/09/22 13:13	09/11/22 13:46	1
11Cl-PF3OUdS	<0.031		0.20	0.031	ug/Kg		09/09/22 13:13	09/11/22 13:46	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	82		25 - 150	09/09/22 13:13	09/11/22 13:46	1
13C5 PFPeA	86		25 - 150	09/09/22 13:13	09/11/22 13:46	1
13C2 PFHxA	97		25 - 150	09/09/22 13:13	09/11/22 13:46	1
13C4 PFHpA	85		25 - 150	09/09/22 13:13	09/11/22 13:46	1
13C4 PFOA	92		25 - 150	09/09/22 13:13	09/11/22 13:46	1
13C5 PFNA	94		25 - 150	09/09/22 13:13	09/11/22 13:46	1
13C2 PFDA	98		25 - 150	09/09/22 13:13	09/11/22 13:46	1
13C2 PFUnA	85		25 - 150	09/09/22 13:13	09/11/22 13:46	1
13C2 PFDoA	96		25 - 150	09/09/22 13:13	09/11/22 13:46	1
13C2 PFTeDA	84		25 - 150	09/09/22 13:13	09/11/22 13:46	1

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# QC Sample Results

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

Job ID: 500-220860-1

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

**Lab Sample ID: MB 320-615525/1-A**  
**Matrix: Solid**  
**Analysis Batch: 615766**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 615525**

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 PFBS	79		25 - 150	09/09/22 13:13	09/11/22 13:46	1
18O2 PFHxS	79		25 - 150	09/09/22 13:13	09/11/22 13:46	1
13C4 PFOS	74		25 - 150	09/09/22 13:13	09/11/22 13:46	1
13C8 FOSA	77		10 - 150	09/09/22 13:13	09/11/22 13:46	1
d3-NMeFOSAA	85		25 - 150	09/09/22 13:13	09/11/22 13:46	1
d5-NEtFOSAA	79		25 - 150	09/09/22 13:13	09/11/22 13:46	1
d-N-MeFOSA-M	49		10 - 150	09/09/22 13:13	09/11/22 13:46	1
d-N-EtFOSA-M	50		10 - 150	09/09/22 13:13	09/11/22 13:46	1
d7-N-MeFOSE-M	56		10 - 150	09/09/22 13:13	09/11/22 13:46	1
d9-N-EtFOSE-M	54		10 - 150	09/09/22 13:13	09/11/22 13:46	1
M2-4:2 FTS	75		25 - 150	09/09/22 13:13	09/11/22 13:46	1
M2-6:2 FTS	66		25 - 150	09/09/22 13:13	09/11/22 13:46	1
M2-8:2 FTS	70		25 - 150	09/09/22 13:13	09/11/22 13:46	1
13C3 HFPO-DA	81		25 - 150	09/09/22 13:13	09/11/22 13:46	1
13C2 10:2 FTS	72		25 - 150	09/09/22 13:13	09/11/22 13:46	1

**Lab Sample ID: LCS 320-615525/2-A**  
**Matrix: Solid**  
**Analysis Batch: 615766**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 615525**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	2.00	2.38		ug/Kg		119	60 - 135
Perfluoropentanoic acid (PFPeA)	2.00	2.21		ug/Kg		110	60 - 135
Perfluorohexanoic acid (PFHxA)	2.00	2.18		ug/Kg		109	60 - 135
Perfluoroheptanoic acid (PFHpA)	2.00	2.45		ug/Kg		122	60 - 135
Perfluorooctanoic acid (PFOA)	2.00	2.13		ug/Kg		106	60 - 135
Perfluorononanoic acid (PFNA)	2.00	2.12		ug/Kg		106	60 - 135
Perfluorodecanoic acid (PFDA)	2.00	1.93		ug/Kg		97	60 - 135
Perfluoroundecanoic acid (PFUnA)	2.00	2.20		ug/Kg		110	60 - 135
Perfluorododecanoic acid (PFDoA)	2.00	2.00		ug/Kg		100	60 - 135
Perfluorotridecanoic acid (PFTrDA)	2.00	2.04		ug/Kg		102	60 - 135
Perfluorotetradecanoic acid (PFTeA)	2.00	2.07		ug/Kg		104	60 - 135
Perfluorobutanesulfonic acid (PFBS)	1.78	2.01		ug/Kg		113	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	1.88	2.15		ug/Kg		115	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	1.82	1.88		ug/Kg		103	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	1.91	2.18		ug/Kg		114	60 - 135
Perfluorooctanesulfonic acid (PFOS)	1.86	2.06		ug/Kg		111	60 - 135
Perfluorononanesulfonic acid (PFNS)	1.92	2.22		ug/Kg		115	60 - 135
Perfluorodecanesulfonic acid (PFDS)	1.93	2.20		ug/Kg		114	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	1.94	1.88		ug/Kg		97	60 - 135

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# QC Sample Results

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

Job ID: 500-220860-1

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

**Lab Sample ID: LCS 320-615525/2-A**  
**Matrix: Solid**  
**Analysis Batch: 615766**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 615525**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	2.00	2.15		ug/Kg		108	60 - 135
NEtFOSA	2.00	2.07		ug/Kg		103	60 - 135
NMeFOSA	2.00	2.20		ug/Kg		110	60 - 135
NMeFOSAA	2.00	2.08		ug/Kg		104	60 - 135
NEtFOSAA	2.00	2.15		ug/Kg		108	60 - 135
NMeFOSE	2.00	2.04		ug/Kg		102	60 - 135
NEtFOSE	2.00	2.06		ug/Kg		103	60 - 135
4:2 FTS	1.88	2.20		ug/Kg		117	60 - 135
6:2 FTS	1.90	2.13		ug/Kg		112	60 - 135
8:2 FTS	1.92	2.21		ug/Kg		115	60 - 135
4,8-Dioxa-3H-perfluoronanoic acid (ADONA)	1.89	2.43		ug/Kg		129	60 - 135
HFPO-DA (GenX)	2.00	2.18		ug/Kg		109	60 - 135
9Cl-PF3ONS	1.87	2.24		ug/Kg		120	60 - 135
11Cl-PF3OUdS	1.89	2.25		ug/Kg		119	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	65		25 - 150
13C5 PFPeA	81		25 - 150
13C2 PFHxA	89		25 - 150
13C4 PFHpA	78		25 - 150
13C4 PFOA	87		25 - 150
13C5 PFNA	88		25 - 150
13C2 PFDA	94		25 - 150
13C2 PFUnA	89		25 - 150
13C2 PFDoA	90		25 - 150
13C2 PFTeDA	77		25 - 150
13C3 PFBS	74		25 - 150
18O2 PFHxS	75		25 - 150
13C4 PFOS	73		25 - 150
13C8 FOSA	73		10 - 150
d3-NMeFOSAA	84		25 - 150
d5-NEtFOSAA	84		25 - 150
d-N-MeFOSA-M	55		10 - 150
d-N-EtFOSA-M	53		10 - 150
d7-N-MeFOSE-M	56		10 - 150
d9-N-EtFOSE-M	52		10 - 150
M2-4:2 FTS	66		25 - 150
M2-6:2 FTS	64		25 - 150
M2-8:2 FTS	69		25 - 150
13C3 HFPO-DA	76		25 - 150
13C2 10:2 FTS	70		25 - 150

# QC Sample Results

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

Job ID: 500-220860-1

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

**Lab Sample ID: 500-220860-1 MS**

**Matrix: Solid**

**Analysis Batch: 616655**

**Client Sample ID: TP-1 (2-4')**

**Prep Type: Total/NA**

**Prep Batch: 615525**

Analyte	Sample	Sample Qualifier	Spike Added	MS	MS	Unit	D	%Rec	%Rec Limits
	Result			Result	Qualifier				
Perfluorobutanoic acid (PFBA)	<0.056		2.55	3.17		ug/Kg	✳	124	70 - 130
Perfluoropentanoic acid (PFPeA)	<0.050		2.55	3.02		ug/Kg	✳	118	70 - 130
Perfluorohexanoic acid (PFHxA)	<0.038		2.55	2.63		ug/Kg	✳	103	70 - 130
Perfluoroheptanoic acid (PFHpA)	<0.046		2.55	3.00		ug/Kg	✳	117	70 - 130
Perfluorooctanoic acid (PFOA)	<0.064		2.55	2.73		ug/Kg	✳	107	70 - 130
Perfluorononanoic acid (PFNA)	<0.027		2.55	2.75		ug/Kg	✳	108	70 - 130
Perfluorodecanoic acid (PFDA)	<0.058		2.55	2.57		ug/Kg	✳	100	70 - 130
Perfluoroundecanoic acid (PFUnA)	<0.051		2.55	2.82		ug/Kg	✳	111	70 - 130
Perfluorododecanoic acid (PFDoA)	<0.036		2.55	3.03		ug/Kg	✳	119	70 - 130
Perfluorotridecanoic acid (PFTTrDA)	<0.025		2.55	3.31		ug/Kg	✳	130	70 - 130
Perfluorotetradecanoic acid (PFTeA)	<0.045		2.55	2.76		ug/Kg	✳	108	70 - 130
Perfluorobutanesulfonic acid (PFBS)	<0.046		2.27	2.60		ug/Kg	✳	115	70 - 130
Perfluoropentanesulfonic acid (PFPeS)	<0.045		2.40	2.65		ug/Kg	✳	110	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	<0.035		2.33	2.29		ug/Kg	✳	98	70 - 130
Perfluoroheptanesulfonic acid (PFHpS)	<0.059	F1	2.44	3.39	F1	ug/Kg	✳	139	70 - 130
Perfluorooctanesulfonic acid (PFOS)	<0.052		2.38	2.74		ug/Kg	✳	115	70 - 130
Perfluorononanesulfonic acid (PFNS)	<0.035		2.46	2.19		ug/Kg	✳	89	70 - 130
Perfluorodecanesulfonic acid (PFDS)	<0.063		2.46	1.80		ug/Kg	✳	73	70 - 130
Perfluorododecanesulfonic acid (PFDoS)	<0.057		2.48	2.45		ug/Kg	✳	99	70 - 130
Perfluorooctanesulfonamide (FOSA)	<0.040		2.55	2.57		ug/Kg	✳	101	70 - 130
NEtFOSA	<0.057		2.55	2.79		ug/Kg	✳	109	70 - 130
NMeFOSA	<0.059		2.55	2.81		ug/Kg	✳	110	70 - 130
NMeFOSAA	<0.028		2.55	3.11		ug/Kg	✳	122	70 - 130
NEtFOSAA	<0.058		2.55	2.93		ug/Kg	✳	115	70 - 130
NMeFOSE	<0.057		2.55	2.68		ug/Kg	✳	105	70 - 130
NEtFOSE	<0.034		2.55	2.56		ug/Kg	✳	100	70 - 130
4:2 FTS	<0.062		2.40	2.48		ug/Kg	✳	104	70 - 130
6:2 FTS	<0.033		2.43	2.78		ug/Kg	✳	114	70 - 130
8:2 FTS	<0.042		2.45	2.66		ug/Kg	✳	108	70 - 130
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.047	F1	2.41	3.97	F1	ug/Kg	✳	165	70 - 130
HFPO-DA (GenX)	<0.050		2.55	2.83		ug/Kg	✳	111	70 - 130
9CI-PF3ONS	<0.042		2.39	2.35		ug/Kg	✳	99	70 - 130
11CI-PF3OUdS	<0.038		2.41	1.87		ug/Kg	✳	77	70 - 130
				<b>MS MS</b>					
<b>Isotope Dilution</b>				<b>%Recovery</b>	<b>Qualifier</b>				<b>Limits</b>
13C4 PFBA				56					25 - 150
13C5 PFPeA				59					25 - 150
13C2 PFHxA				63					25 - 150

# QC Sample Results

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

Job ID: 500-220860-1

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

**Lab Sample ID: 500-220860-1 MS**  
**Matrix: Solid**  
**Analysis Batch: 616655**

**Client Sample ID: TP-1 (2-4')**  
**Prep Type: Total/NA**  
**Prep Batch: 615525**

<i>Isotope Dilution</i>	<i>MS</i>	<i>MS</i>	<i>Limits</i>
	%Recovery	Qualifier	
13C4 PFHpA	56		25 - 150
13C4 PFOA	57		25 - 150
13C5 PFNA	49		25 - 150
13C2 PFDA	38		25 - 150
13C2 PFUnA	32		25 - 150
13C2 PFDoA	29		25 - 150
13C2 PFTeDA	41		25 - 150
13C3 PFBS	58		25 - 150
18O2 PFHxS	62		25 - 150
13C4 PFOS	40		25 - 150
13C8 FOSA	38		10 - 150
d3-NMeFOSAA	28		25 - 150
d5-NEtFOSAA	29		25 - 150
d-N-MeFOSA-M	30		10 - 150
d-N-EtFOSA-M	30		10 - 150
d7-N-MeFOSE-M	31		10 - 150
d9-N-EtFOSE-M	31		10 - 150
M2-4:2 FTS	71		25 - 150
M2-6:2 FTS	60		25 - 150
M2-8:2 FTS	45		25 - 150
13C3 HFPO-DA	58		25 - 150
13C2 10:2 FTS	35		25 - 150

**Lab Sample ID: 500-220860-1 MSD**  
**Matrix: Solid**  
**Analysis Batch: 615766**

**Client Sample ID: TP-1 (2-4')**  
**Prep Type: Total/NA**  
**Prep Batch: 615525**

<b>Analyte</b>	<b>Sample Result</b>	<b>Sample Qualifier</b>	<b>Spike Added</b>	<b>MSD</b>		<b>Unit</b>	<b>D</b>	<b>%Rec</b>	<b>%Rec</b>		<b>RPD</b>	
				<b>Result</b>	<b>Qualifier</b>				<b>Limits</b>	<b>RPD</b>	<b>Limit</b>	
Perfluorobutanoic acid (PFBA)	<0.056		2.31	2.75		ug/Kg	☼	119	70 - 130	14	30	
Perfluoropentanoic acid (PFPeA)	<0.050		2.31	2.76		ug/Kg	☼	119	70 - 130	9	30	
Perfluorohexanoic acid (PFHxA)	<0.038		2.31	2.59		ug/Kg	☼	112	70 - 130	2	30	
Perfluoroheptanoic acid (PFHpA)	<0.046		2.31	2.72		ug/Kg	☼	118	70 - 130	10	30	
Perfluorooctanoic acid (PFOA)	<0.064		2.31	2.59		ug/Kg	☼	112	70 - 130	5	30	
Perfluorononanoic acid (PFNA)	<0.027		2.31	2.44		ug/Kg	☼	105	70 - 130	12	30	
Perfluorodecanoic acid (PFDA)	<0.058		2.31	2.26		ug/Kg	☼	98	70 - 130	13	30	
Perfluoroundecanoic acid (PFUnA)	<0.051		2.31	2.65		ug/Kg	☼	114	70 - 130	6	30	
Perfluorododecanoic acid (PFDoA)	<0.036		2.31	2.47		ug/Kg	☼	107	70 - 130	20	30	
Perfluorotridecanoic acid (PFTTrDA)	<0.025		2.31	2.58		ug/Kg	☼	111	70 - 130	25	30	
Perfluorotetradecanoic acid (PFTeA)	<0.045		2.31	2.50		ug/Kg	☼	108	70 - 130	10	30	
Perfluorobutanesulfonic acid (PFBS)	<0.046		2.05	2.37		ug/Kg	☼	115	70 - 130	9	30	
Perfluoropentanesulfonic acid (PFPeS)	<0.045		2.17	2.47		ug/Kg	☼	114	70 - 130	7	30	
Perfluorohexanesulfonic acid (PFHxS)	<0.035		2.11	2.12		ug/Kg	☼	100	70 - 130	8	30	
Perfluoroheptanesulfonic acid (PFHpS)	<0.059	F1	2.21	2.89	F1	ug/Kg	☼	131	70 - 130	16	30	

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# QC Sample Results

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

Job ID: 500-220860-1

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

**Lab Sample ID: 500-220860-1 MSD**

**Matrix: Solid**

**Analysis Batch: 615766**

**Client Sample ID: TP-1 (2-4')**

**Prep Type: Total/NA**

**Prep Batch: 615525**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	<0.052		2.15	2.27		ug/Kg	⊛	105	70 - 130	19	30
Perfluorononanesulfonic acid (PFNS)	<0.035		2.23	2.30		ug/Kg	⊛	103	70 - 130	5	30
Perfluorodecanesulfonic acid (PFDS)	<0.063		2.23	2.09		ug/Kg	⊛	94	70 - 130	15	30
Perfluorododecanesulfonic acid (PFDoS)	<0.057		2.24	2.41		ug/Kg	⊛	107	70 - 130	2	30
Perfluorooctanesulfonamide (FOSA)	<0.040		2.31	2.53		ug/Kg	⊛	109	70 - 130	1	30
NEtFOSA	<0.057		2.31	2.39		ug/Kg	⊛	103	70 - 130	15	30
NMeFOSA	<0.059		2.31	2.31		ug/Kg	⊛	100	70 - 130	20	30
NMeFOSAA	<0.028		2.31	2.47		ug/Kg	⊛	107	70 - 130	23	30
NEtFOSAA	<0.058		2.31	2.67		ug/Kg	⊛	115	70 - 130	9	30
NMeFOSE	<0.057		2.31	2.38		ug/Kg	⊛	103	70 - 130	12	30
NEtFOSE	<0.034		2.31	2.44		ug/Kg	⊛	105	70 - 130	5	30
4:2 FTS	<0.062		2.17	2.56		ug/Kg	⊛	118	70 - 130	3	30
6:2 FTS	<0.033		2.20	2.77		ug/Kg	⊛	126	70 - 130	0	30
8:2 FTS	<0.042		2.22	2.65		ug/Kg	⊛	119	70 - 130	0	30
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.047	F1	2.18	4.23	F1	ug/Kg	⊛	194	70 - 130	6	30
HFPO-DA (GenX)	<0.050		2.31	2.62		ug/Kg	⊛	113	70 - 130	8	30
9Cl-PF3ONS	<0.042		2.16	2.51		ug/Kg	⊛	116	70 - 130	7	30
11Cl-PF3OUdS	<0.038		2.18	2.21		ug/Kg	⊛	101	70 - 130	17	30

Isotope Dilution	MSD MSD		Limits
	%Recovery	Qualifier	
13C4 PFBA	66		25 - 150
13C5 PFPeA	64		25 - 150
13C2 PFHxA	74		25 - 150
13C4 PFHpA	67		25 - 150
13C4 PFOA	65		25 - 150
13C5 PFNA	56		25 - 150
13C2 PFDA	52		25 - 150
13C2 PFUnA	39		25 - 150
13C2 PFDoA	45		25 - 150
13C2 PFTeDA	47		25 - 150
13C3 PFBS	64		25 - 150
18O2 PFHxS	62		25 - 150
13C4 PFOS	43		25 - 150
13C8 FOSA	45		10 - 150
d3-NMeFOSAA	36		25 - 150
d5-NEtFOSAA	36		25 - 150
d-N-MeFOSA-M	40		10 - 150
d-N-EtFOSA-M	39		10 - 150
d7-N-MeFOSE-M	41		10 - 150
d9-N-EtFOSE-M	39		10 - 150
M2-4:2 FTS	54		25 - 150
M2-6:2 FTS	45		25 - 150
M2-8:2 FTS	36		25 - 150
13C3 HFPO-DA	69		25 - 150

# QC Sample Results

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

Job ID: 500-220860-1

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

Lab Sample ID: 500-220860-1 MSD  
Matrix: Solid  
Analysis Batch: 615766

Client Sample ID: TP-1 (2-4')  
Prep Type: Total/NA  
Prep Batch: 615525

<i>Isotope Dilution</i>	<i>MSD</i>	<i>MSD</i>	<i>Limits</i>
	<i>%Recovery</i>	<i>Qualifier</i>	
13C2 10:2 FTS	38		25 - 150

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- 14
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- 16

# Lab Chronicle

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

Job ID: 500-220860-1

**Client Sample ID: TP-1 (2-4')**  
**Date Collected: 08/12/22 07:30**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220860-1**  
**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	610575	TCS	EET SAC	08/18/22 16:34

**Client Sample ID: TP-1 (2-4')**  
**Date Collected: 08/12/22 07:30**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220860-1**  
**Matrix: Solid**  
**Percent Solids: 78.1**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			615525	RAC	EET SAC	09/09/22 13:13
Total/NA	Analysis	537 (modified)		1	615766	RS1	EET SAC	09/11/22 14:06

**Client Sample ID: TP-2 (2-4')**  
**Date Collected: 08/12/22 07:40**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220860-2**  
**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	610575	TCS	EET SAC	08/18/22 16:34

**Client Sample ID: TP-2 (2-4')**  
**Date Collected: 08/12/22 07:40**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220860-2**  
**Matrix: Solid**  
**Percent Solids: 80.7**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			615525	RAC	EET SAC	09/09/22 13:13
Total/NA	Analysis	537 (modified)		1	615766	RS1	EET SAC	09/11/22 14:36

**Client Sample ID: TP-3 (2-4')**  
**Date Collected: 08/12/22 07:50**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220860-3**  
**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	610575	TCS	EET SAC	08/18/22 16:34

**Client Sample ID: TP-3 (2-4')**  
**Date Collected: 08/12/22 07:50**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220860-3**  
**Matrix: Solid**  
**Percent Solids: 94.1**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			615525	RAC	EET SAC	09/09/22 13:13
Total/NA	Analysis	537 (modified)		1	615766	RS1	EET SAC	09/11/22 14:46

**Client Sample ID: TP-4 (2-4')**  
**Date Collected: 08/12/22 08:00**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220860-4**  
**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	610575	TCS	EET SAC	08/18/22 16:34

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# Lab Chronicle

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

Job ID: 500-220860-1

**Client Sample ID: TP-4 (2-4')**  
**Date Collected: 08/12/22 08:00**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220860-4**  
**Matrix: Solid**  
**Percent Solids: 80.2**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			615525	RAC	EET SAC	09/09/22 13:13
Total/NA	Analysis	537 (modified)		1	615766	RS1	EET SAC	09/11/22 14:56

**Client Sample ID: TP-5 (2-4')**  
**Date Collected: 08/12/22 08:10**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220860-5**  
**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	Moisture		1	610575	TCS	EET SAC	08/18/22 16:34

**Client Sample ID: TP-5 (2-4')**  
**Date Collected: 08/12/22 08:10**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220860-5**  
**Matrix: Solid**  
**Percent Solids: 94.4**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SHAKE			615525	RAC	EET SAC	09/09/22 13:13
Total/NA	Analysis	537 (modified)		1	615766	RS1	EET SAC	09/11/22 15:06

**Client Sample ID: Equipment Blank-Trowel**  
**Date Collected: 08/12/22 06:50**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220860-6**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			614506	EFG	EET SAC	09/06/22 05:35
Total/NA	Analysis	537 (modified)		1	615027	RS1	EET SAC	09/07/22 21:27

**Laboratory References:**  
 EET 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: 500-220860-1

## Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

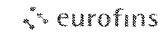
Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-22 *
California	State	2897	01-31-23
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-30-23
Hawaii	State	<cert No.>	01-29-23
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-22
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	01-31-23
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-23
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-23
Ohio	State	41252	01-29-23
Oregon	NELAP	4040	01-29-23
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
USDA	US Federal Programs	P330-18-00239	01-23-23
Utah	NELAP	CA000442021-12	02-28-23
Virginia	NELAP	460278	03-14-23
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-31-22
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *


\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

**Eurofins Chicago**

241 Bond Street  
University Park IL 60484  
Phone 708-534 5200 Fax 708-534-5211

**Chain of Custody Record**



<b>Client Information</b>		Sampler <i>Ryan Matzuk</i>		at PM Fredrick Sandie		Carrier Tracking Note(s)		COC No. 500-104521-44700 2		
Client Contact Mr Robert Langdon		Phone <i>608 400 9597</i>		E-Mail Sanara.Fredrick@et.eurofinsus.com		State of origin		Page Page 2 of 2		
Company SCS Engineers		Address 2830 Dairy Dr		City Madison		State Zip WI 53718		Phone		
Email rlangdon@scsengineers.com		Project Name Black Hawk Junction 25221094 00		Site		Due Date Requested		TAT Requested (days)		
Compliance Project <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		PC # 25221094 00		VO #		Project # 50006561		SSOW#		
Analysis Requested		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		8260B VOC		PFC,IDA,WI PFAS Standard List (33 analytes)		
500-220860 COC		Total Number of Containers		Other		 reservation Codes HCL M Hexene NaOH N None Zn Acetate O AsNaO2 Nitric Acid J Na2O4S NaHSO4 R Na2SO3 MeOH S H2SO4 G Amchlor T TSP Dodecahyd rate H Ascorbi Acid U Acetone I ce V MCAA J DI Water W pH 4-F K EDTA Y Trizma L EDTA Z Air spe fy		ob # <i>500-220860</i>		
Sample Identification	Sample Date	Sample Time	Sample Type (C=comp G=grab)	Matrix (W=water S=solid, O=waste/soil BT=Tissue, A=air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8260B VOC	PFC,IDA,WI PFAS Standard List (33 analytes)	Special Instructions/Note	
1 TP-1	8/12/22	730	G	Solid	X	N		X		
2 TP-2	↓	740	↓	Solid				X		
3 TP-3	↓	750	↓	Solid				X		
4 TP-4	↓	800	↓	Solid				X		
5 TP-5	↓	810	↓	Solid				X		
6 Equipment Blank - Trowel	↓	650	↓	Solid Water				X		
				Water						
				Water						
				Water						
<b>Possible Hazard Identification</b>					<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b>					
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					<input type="checkbox"/> Return To Client <input type="checkbox"/> Dispose By Lab <input type="checkbox"/> Archive For _____ Months					
Deliverable Requested I II III IV Other (specify)					Special Instructions/QC Requirements					
Empty Kit Reinquished by		Date		Time		Method of shipment				
Reinquished by <i>[Signature]</i>		Date/Time <i>8/12/22 1300</i>		Company		Received by <i>Stephanie Hernandez</i>		Date/Time <i>8/13/22 0950</i>		Company <i>EETA</i>
Reinquished by		Date/Time		Company		Received by		Date/Time		Company
Reinquished by		Date/Time		Company		Received by		Date/Time		Company
Custody Seals Intact <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Custody Seal No		Mole Temperature (C and Oth) Range		<i>3.3-1.3</i>				



## Fredrick, Sandie

---

**From:** Langdon, Robert <RLangdon@scsengineers.com>  
**Sent:** Monday, August 15, 2022 4:27 PM  
**To:** Fredrick, Sandie  
**Cc:** Matzuk, Ryan  
**Subject:** RE: Eurofins Chicago Sample Login Confirmation files from 500-220860 Black Hawk Junction - 25221094.00  
**Attachments:** Std\_Tal\_Login\_Ack for 500-220860-1.pdf; Std\_Tal\_Login\_Limits for 500-220860-1.pdf; COC 500-220860 (202208131157).pdf

EXTERNAL EMAIL\*

Sandie, please add the sample depth (2-4') to each sample ID so they read TP-1 2-4', TP-2 2-4', TP-3 2-4', etc.

Thanks!

Robert Langdon  
Senior Project Manager  
SCS Engineers  
2830 Dairy Drive  
Madison, WI 53718-6751 USA  
608-216-7329 (W)  
608-212-3995 (C)  
[rlangdon@scsengineers.com](mailto:rlangdon@scsengineers.com)  
[www.scsengineers.com](http://www.scsengineers.com)

---

**From:** Sandie Fredrick <Sandra.Fredrick@et.eurofinsus.com>  
**Sent:** Saturday, August 13, 2022 12:31 PM  
**To:** Langdon, Robert <RLangdon@scsengineers.com>  
**Subject:** Eurofins Chicago Sample Login Confirmation files from 500-220860 Black Hawk Junction - 25221094.00

This email originated from outside of SCS Engineers. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hello Rob,

Attached, please find the Sample Confirmation files for job 500-220860; Black Hawk Junction - 25221094.00

Please feel free to contact me if you have any questions.

Thank you.

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ORIGIN ID-RRLA (262) 202-6965  
 ROBERT LANGDON  
 SCS ENGINEERS - MADISON  
 2830 DAIRY DRIVE

SHIP DATE: 08AUG22  
 ACTWGT: 25.00 LB MAN  
 LAD: 0269688/CAFE3511

MADISON, WI 53718  
 UNITED STATES US

TO **SAMPLE RECEIPT**  
**EUROFINS**  
**2417 BOND ST.**

**UNIVERSITY PARK IL 60484**

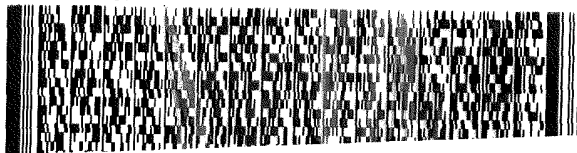
(262) 202-6965

REF

THU:

DEPT

RMA



**FedEx**  
Express



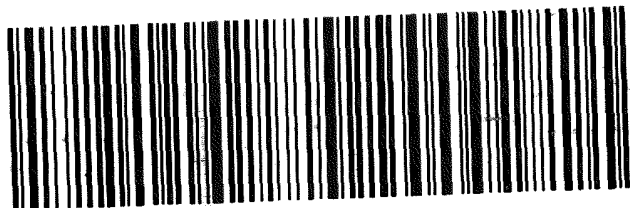
**FedEx**

TRK# 5887 6288 2803  
 0221

**SATURDAY 12:00P**  
**PRIORITY OVERNIGHT**

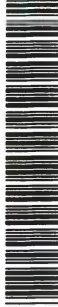
**XO JOTA**

60484  
 IL-US ORD



500-220860 Waybl

# Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b>		Sampler: Fredrick, Sandie	Lab PM: Fredrick, Sandie	Carmer Tracking No(s): 500-164220.1	COC No: 500-164220.1	
Shipping/Receiving		Phone:	E-Mail: Sandra.Fredrick@et.eurofins.com	State of Origin: Wisconsin	Page: Page 1 of 1	
Eurofins Environment Testing Northern Ca		Accreditations Required (See note): State Program - Wisconsin		Job #: 500-220860-1	Preservation Codes: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 X - EDTA Y - Trizma Z - other (specify)	
Address: 880 Riverside Parkway, West Sacramento, CA, 95605		Due Date Requested: 9/12/2022	Analysis Requested			
State, Zip: CA, 95605		TAT Requested (days):	Total Number of containers			
Phone: 916-373-5600(Tel) 916-372-1059(Fax)		PO #:	Field Filtered Sample (Yes or No)			
Email:		WO #:	Perform MS/MSD (Yes or No)			
Project Name: Black Hawk Junction - 25221094.00		SSOW#:	Moisture/Percent Moisture (33 analytes)			
Site:			PFC_IDA W/3335_PFC_280 PFCs, Standard List (33 analytes)			
Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=oil, B=tissue, A=air)	Preservation Code:	Special Instructions/Note:
TP-1 (500-220860-1)	8/12/22	07:30 Central	Solid	Solid	X	Screen please
TP-2 (500-220860-2)	8/12/22	07:40 Central	Solid	Solid	X	Screen please
TP-3 (500-220860-3)	8/12/22	07:50 Central	Solid	Solid	X	Screen please
TP-4 (500-220860-4)	8/12/22	08:00 Central	Solid	Solid	X	Screen please
TP-5 (500-220860-5)	8/12/22	08:10 Central	Solid	Solid	X	Screen please
Equipment Blank-Trowel (500-220860-6)	8/12/22	06:50 Central	Water	Water	X	Screen please

Note: Since laboratory accreditations are subject to change, Eurofins Chicago places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Chicago laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Chicago attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Chicago.

**Possible Hazard Identification**  
Unconfirmed  
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2  
Special Instructions/QC Requirements:

Empty Kit Relinquished by: Date/Time: Date/Time: Date/Time: Method of Shipment: Archive For: Months

Relinquished by: *Shin* Date/Time: 8/15/22 08:20 Company: *ETA*  
Relinquished by: Date/Time: Company:  
Relinquished by: Date/Time: Company:

Custody Seals Intact: *Yes* Δ No Custody Seal No.: *692702*  
Received by: *ETA* Date/Time: *9/2* Company: *ETA*  
Received by: *ETA* Date/Time: *9/2* Company: *ETA*  
Received by: Date/Time: Company:

Cooler Temperature(s) °C and Other Remarks: *2W*



## Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 500-220860-1

**Login Number: 220860**

**List Number: 1**

**Creator: Hernandez, Stephanie**

**List Source: Eurofins Chicago**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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	1.3
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 <math><6\text{mm}</math> (1/4").	N/A	
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: 500-220860-1

**Login Number: 220860**

**List Number: 2**

**Creator: Her, David A**

**List Source: Eurofins Sacramento**

**List Creation: 08/17/22 05:52 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	1993702
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	2.1 c
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# Isotope Dilution Summary

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

Job ID: 500-220860-1

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

Matrix: Solid

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)
500-220860-1	TP-1 (2-4')	71	77	83	73	77	65	57	51
500-220860-1 MS	TP-1 (2-4')	56	59	63	56	57	49	38	32
500-220860-1 MSD	TP-1 (2-4')	66	64	74	67	65	56	52	39
500-220860-2	TP-2 (2-4')	63	62	68	36	56	49	46	41
500-220860-3	TP-3 (2-4')	72	77	85	78	82	80	78	68
500-220860-4	TP-4 (2-4')	72	71	79	68	65	59	53	52
500-220860-5	TP-5 (2-4')	76	75	86	75	82	83	82	74
LCS 320-615525/2-A	Lab Control Sample	65	81	89	78	87	88	94	89
MB 320-615525/1-A	Method Blank	82	86	97	85	92	94	98	85

### Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	PFDaA (25-150)	PFTDA (25-150)	C3PFBS (25-150)	PFHxS (25-150)	PFOS (25-150)	PFOSA (10-150)	d3NMFOS (25-150)	d5NEFOS (25-150)
500-220860-1	TP-1 (2-4')	51	57	70	71	50	51	45	50
500-220860-1 MS	TP-1 (2-4')	29	41	58	62	40	38	28	29
500-220860-1 MSD	TP-1 (2-4')	45	47	64	62	43	45	36	36
500-220860-2	TP-2 (2-4')	46	45	61	33	37	40	36	40
500-220860-3	TP-3 (2-4')	67	62	68	72	63	63	60	64
500-220860-4	TP-4 (2-4')	54	52	69	61	45	43	33	45
500-220860-5	TP-5 (2-4')	70	67	68	72	63	66	67	67
LCS 320-615525/2-A	Lab Control Sample	90	77	74	75	73	73	84	84
MB 320-615525/1-A	Method Blank	96	84	79	79	74	77	85	79

### 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)
500-220860-1	TP-1 (2-4')	42	42	50	45	61	51	46	75
500-220860-1 MS	TP-1 (2-4')	30	30	31	31	71	60	45	58
500-220860-1 MSD	TP-1 (2-4')	40	39	41	39	54	45	36	69
500-220860-2	TP-2 (2-4')	35	33	38	36	50	40	28	65
500-220860-3	TP-3 (2-4')	54	52	49	47	59	57	52	75
500-220860-4	TP-4 (2-4')	33	39	44	45	58	45	38	70
500-220860-5	TP-5 (2-4')	61	60	57	54	58	57	56	77
LCS 320-615525/2-A	Lab Control Sample	55	53	56	52	66	64	69	76
MB 320-615525/1-A	Method Blank	49	50	56	54	75	66	70	81

### Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M102FTS (25-150)
500-220860-1	TP-1 (2-4')	44
500-220860-1 MS	TP-1 (2-4')	35
500-220860-1 MSD	TP-1 (2-4')	38
500-220860-2	TP-2 (2-4')	32
500-220860-3	TP-3 (2-4')	62
500-220860-4	TP-4 (2-4')	43
500-220860-5	TP-5 (2-4')	55
LCS 320-615525/2-A	Lab Control Sample	70
MB 320-615525/1-A	Method Blank	72

#### Surrogate Legend

PFBA = 13C4 PFBA

PFPeA = 13C5 PFPeA

# Isotope Dilution Summary

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

Job ID: 500-220860-1

PFHxA = 13C2 PFHxA  
 C4PFHA = 13C4 PFHpA  
 PFOA = 13C4 PFOA  
 PFNA = 13C5 PFNA  
 PFDA = 13C2 PFDA  
 PFUnA = 13C2 PFUnA  
 PFDoA = 13C2 PFDoA  
 PFTDA = 13C2 PFTeDA  
 C3PFBS = 13C3 PFBS  
 PFHxS = 18O2 PFHxS  
 PFOS = 13C4 PFOS  
 PFOSA = 13C8 FOSA  
 d3NMFOA = d3-NMeFOA  
 d5NEFOA = d5-NEtFOA  
 dMeFOA = d-N-MeFOA-M  
 dEtFOA = d-N-EtFOA-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

## 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)
500-220860-6	Equipment Blank-Trowel	83	89	106	90	97	109	106	103
LCS 320-614506/2-A	Lab Control Sample	93	94	115	97	109	107	111	108
MB 320-614506/1-A	Method Blank	82	81	95	86	97	97	99	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)	d3NMFOA (25-150)	d5NEFOA (25-150)
500-220860-6	Equipment Blank-Trowel	105	100	91	92	89	81	91	100
LCS 320-614506/2-A	Lab Control Sample	112	105	98	98	92	85	93	96
MB 320-614506/1-A	Method Blank	98	94	88	88	84	75	81	83

### Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	dMeFOA (10-150)	dEtFOA (10-150)	NMFM (10-150)	NEFM (10-150)	M242FTS (25-150)	M262FTS (25-150)	M282FTS (25-150)	HFPODA (25-150)
500-220860-6	Equipment Blank-Trowel	73	73	80	82	103	106	106	103
LCS 320-614506/2-A	Lab Control Sample	74	76	89	90	106	112	109	112
MB 320-614506/1-A	Method Blank	63	65	78	79	94	92	101	95

### Percent Isotope Dilution Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	M102FTS (25-150)
500-220860-6	Equipment Blank-Trowel	124
LCS 320-614506/2-A	Lab Control Sample	121
MB 320-614506/1-A	Method Blank	108

#### Surrogate Legend

PFBA = 13C4 PFBA  
 PFPeA = 13C5 PFPeA  
 PFHxA = 13C2 PFHxA

# Isotope Dilution Summary

Client: SCS Engineers

Job ID: 500-220860-1

Project/Site: Black Hawk Junction - 25221094.00

C4PFHA = 13C4 PFHpA  
PFOA = 13C4 PFOA  
PFNA = 13C5 PFNA  
PFDA = 13C2 PFDA  
PFUnA = 13C2 PFUnA  
PFDoA = 13C2 PFDoA  
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

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## ANALYTICAL REPORT

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

Laboratory Job ID: 500-220856-1

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:  
9/12/2022 4:47:53 PM*

Sandie Fredrick, Project Manager II  
(920)261-1660  
[Sandra.Fredrick@et.eurofinsus.com](mailto:Sandra.Fredrick@et.eurofinsus.com)

### LINKS

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results through



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[www.eurofinsus.com/Env](http://www.eurofinsus.com/Env)

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: 500-220856-1

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## Job ID: 500-220856-1

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### Laboratory: Eurofins Chicago

#### Narrative

---

#### Job Narrative 500-220856-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 8/13/2022 9:50 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 0.7° C.

#### 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-1R (500-220856-1), MW-2 (500-220856-2), MW-4 (500-220856-4), MW-5 (500-220856-5) and MW-1R DUP (500-220856-7)

Method 537 (modified): Results for samples MW-4 (500-220856-4) and MW-5 (500-220856-5) 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

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





# Detection Summary

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

Job ID: 500-220856-1

## Client Sample ID: MW-1R

## Lab Sample ID: 500-220856-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	5.3		4.6	2.2	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	5.8		1.8	0.45	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	2.8		1.8	0.53	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.9		1.8	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	4.3		1.8	0.77	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	7.1		1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	1.4	J	1.8	0.52	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	0.27	J	1.8	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	9.0	C	1.8	0.49	ng/L	1		537 (modified)	Total/NA

## Client Sample ID: MW-2

## Lab Sample ID: 500-220856-2

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.5	J	4.5	2.2	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	2.8		1.8	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	2.3		1.8	0.53	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.0		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)	2.7		1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.42	J	1.8	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	9.3		1.8	0.52	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	0.36	J	1.8	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	2.5	C	1.8	0.49	ng/L	1		537 (modified)	Total/NA

## Client Sample ID: MW-3

## Lab Sample ID: 500-220856-3

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	4.8		4.5	2.2	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	5.1		1.8	0.44	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	5.6		1.8	0.52	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.9		1.8	0.23	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	13		1.8	0.77	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.36	J	1.8	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	7.9		1.8	0.18	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.57	J	1.8	0.27	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	33		1.8	0.51	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	2.3		1.8	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	19		1.8	0.49	ng/L	1		537 (modified)	Total/NA

## Client Sample ID: MW-4

## Lab Sample ID: 500-220856-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	11		4.4	2.1	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	10		1.8	0.43	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	24		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)	46		1.8	0.75	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.93	J	1.8	0.24	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	85		1.8	0.18	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

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# Detection Summary

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

Job ID: 500-220856-1

## Client Sample ID: MW-4 (Continued)

Lab Sample ID: 500-220856-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluoropentanesulfonic acid (PFPeS)	5.0		1.8	0.27	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	1.8		1.8	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	29	C	1.8	0.48	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - DL	460		8.9	2.5	ng/L	5		537 (modified)	Total/NA

## Client Sample ID: MW-5

Lab Sample ID: 500-220856-5

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	9.2		4.2	2.0	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	5.6		1.7	0.42	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	27		1.7	0.49	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	11		1.7	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	50		1.7	0.72	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	18		1.7	0.17	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	7.1		1.7	0.25	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	1.6	J	1.7	0.16	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	58	C	1.7	0.46	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - DL	470		8.5	2.4	ng/L	5		537 (modified)	Total/NA

## Client Sample ID: MW-8

Lab Sample ID: 500-220856-6

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	4.3		4.3	2.1	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	1.0	J	1.7	0.42	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	1.6	J	1.7	0.50	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.77	J	1.7	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	1.7		1.7	0.74	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	43		1.7	0.17	ng/L	1		537 (modified)	Total/NA
Perfluoropentanesulfonic acid (PFPeS)	0.28	J	1.7	0.26	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	9.6		1.7	0.49	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	4.4		1.7	0.47	ng/L	1		537 (modified)	Total/NA

## Client Sample ID: MW-1R DUP

Lab Sample ID: 500-220856-7

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	3.5	J	4.1	2.0	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	3.8		1.7	0.40	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	2.2		1.7	0.48	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.9		1.7	0.21	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	3.5		1.7	0.70	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	6.9		1.7	0.17	ng/L	1		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	0.96	J	1.7	0.47	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanesulfonic acid (PFHpS)	0.20	J	1.7	0.16	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.6	C	1.7	0.45	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

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# Detection Summary

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

Job ID: 500-220856-1

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**Client Sample ID: Field Blank**

**Lab Sample ID: 500-220856-8**

No Detections.

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**Client Sample ID: Equipment Blank**

**Lab Sample ID: 500-220856-9**

No Detections.

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This Detection Summary does not include radiochemical test results.

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# Method Summary

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

Job ID: 500-220856-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Fluorinated Alkyl Substances	EPA	EET SAC
3535	Solid-Phase Extraction (SPE)	SW846	EET SAC

**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:**

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

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# Sample Summary

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

Job ID: 500-220856-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-220856-1	MW-1R	Water	08/11/22 13:05	08/13/22 09:50
500-220856-2	MW-2	Water	08/11/22 16:10	08/13/22 09:50
500-220856-3	MW-3	Water	08/11/22 17:10	08/13/22 09:50
500-220856-4	MW-4	Water	08/11/22 16:35	08/13/22 09:50
500-220856-5	MW-5	Water	08/11/22 15:10	08/13/22 09:50
500-220856-6	MW-8	Water	08/11/22 14:20	08/13/22 09:50
500-220856-7	MW-1R DUP	Water	08/11/22 13:10	08/13/22 09:50
500-220856-8	Field Blank	Water	08/11/22 13:35	08/13/22 09:50
500-220856-9	Equipment Blank	Water	08/11/22 13:40	08/13/22 09:50

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# Client Sample Results

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

Job ID: 500-220856-1

**Client Sample ID: MW-1R**

**Lab Sample ID: 500-220856-1**

**Date Collected: 08/11/22 13:05**

**Matrix: Water**

**Date Received: 08/13/22 09:50**

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	5.3		4.6	2.2	ng/L		09/06/22 05:35	09/07/22 19:25	1
Perfluoropentanoic acid (PFPeA)	5.8		1.8	0.45	ng/L		09/06/22 05:35	09/07/22 19:25	1
Perfluorohexanoic acid (PFHxA)	2.8		1.8	0.53	ng/L		09/06/22 05:35	09/07/22 19:25	1
Perfluoroheptanoic acid (PFHpA)	2.9		1.8	0.23	ng/L		09/06/22 05:35	09/07/22 19:25	1
Perfluorooctanoic acid (PFOA)	4.3		1.8	0.77	ng/L		09/06/22 05:35	09/07/22 19:25	1
Perfluorononanoic acid (PFNA)	<0.25		1.8	0.25	ng/L		09/06/22 05:35	09/07/22 19:25	1
Perfluorodecanoic acid (PFDA)	<0.28		1.8	0.28	ng/L		09/06/22 05:35	09/07/22 19:25	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.8	1.0	ng/L		09/06/22 05:35	09/07/22 19:25	1
Perfluorododecanoic acid (PFDoA)	<0.50		1.8	0.50	ng/L		09/06/22 05:35	09/07/22 19:25	1
Perfluorotridecanoic acid (PFTrDA)	<1.2		1.8	1.2	ng/L		09/06/22 05:35	09/07/22 19:25	1
Perfluorotetradecanoic acid (PFTeA)	<0.66		1.8	0.66	ng/L		09/06/22 05:35	09/07/22 19:25	1
Perfluorobutanesulfonic acid (PFBS)	7.1		1.8	0.18	ng/L		09/06/22 05:35	09/07/22 19:25	1
Perfluoropentanesulfonic acid (PFPeS)	<0.27		1.8	0.27	ng/L		09/06/22 05:35	09/07/22 19:25	1
Perfluorohexanesulfonic acid (PFHxS)	1.4	J	1.8	0.52	ng/L		09/06/22 05:35	09/07/22 19:25	1
Perfluoroheptanesulfonic acid (PFHpS)	0.27	J	1.8	0.17	ng/L		09/06/22 05:35	09/07/22 19:25	1
Perfluorooctanesulfonic acid (PFOS)	9.0	C	1.8	0.49	ng/L		09/06/22 05:35	09/07/22 19:25	1
Perfluorononanesulfonic acid (PFNS)	<0.34		1.8	0.34	ng/L		09/06/22 05:35	09/07/22 19:25	1
Perfluorodecanesulfonic acid (PFDS)	<0.29		1.8	0.29	ng/L		09/06/22 05:35	09/07/22 19:25	1
Perfluorododecanesulfonic acid (PFDoS)	<0.88		1.8	0.88	ng/L		09/06/22 05:35	09/07/22 19:25	1
Perfluorooctanesulfonamide (FOSA)	<0.89		1.8	0.89	ng/L		09/06/22 05:35	09/07/22 19:25	1
NEtFOSA	<0.79		1.8	0.79	ng/L		09/06/22 05:35	09/07/22 19:25	1
NMeFOSA	<0.39		1.8	0.39	ng/L		09/06/22 05:35	09/07/22 19:25	1
NMeFOSAA	<1.1		4.6	1.1	ng/L		09/06/22 05:35	09/07/22 19:25	1
NEtFOSAA	<1.2		4.6	1.2	ng/L		09/06/22 05:35	09/07/22 19:25	1
NMeFOSE	<1.3		3.6	1.3	ng/L		09/06/22 05:35	09/07/22 19:25	1
NEtFOSE	<0.77		1.8	0.77	ng/L		09/06/22 05:35	09/07/22 19:25	1
4:2 FTS	<0.22		1.8	0.22	ng/L		09/06/22 05:35	09/07/22 19:25	1
6:2 FTS	<2.3		4.6	2.3	ng/L		09/06/22 05:35	09/07/22 19:25	1
8:2 FTS	<0.42		1.8	0.42	ng/L		09/06/22 05:35	09/07/22 19:25	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.36		1.8	0.36	ng/L		09/06/22 05:35	09/07/22 19:25	1
HFPO-DA (GenX)	<1.4		3.6	1.4	ng/L		09/06/22 05:35	09/07/22 19:25	1
9CI-PF3ONS	<0.22		1.8	0.22	ng/L		09/06/22 05:35	09/07/22 19:25	1
11CI-PF3OUdS	<0.29		1.8	0.29	ng/L		09/06/22 05:35	09/07/22 19:25	1
<b>Isotope Dilution</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
13C4 PFBA	75		25 - 150				09/06/22 05:35	09/07/22 19:25	1
13C5 PFPeA	78		25 - 150				09/06/22 05:35	09/07/22 19:25	1
13C2 PFHxA	95		25 - 150				09/06/22 05:35	09/07/22 19:25	1
13C4 PFHpA	80		25 - 150				09/06/22 05:35	09/07/22 19:25	1
13C4 PFOA	86		25 - 150				09/06/22 05:35	09/07/22 19:25	1
13C5 PFNA	86		25 - 150				09/06/22 05:35	09/07/22 19:25	1
13C2 PFDA	89		25 - 150				09/06/22 05:35	09/07/22 19:25	1
13C2 PFUnA	87		25 - 150				09/06/22 05:35	09/07/22 19:25	1
13C2 PFDoA	89		25 - 150				09/06/22 05:35	09/07/22 19:25	1
13C2 PFTeDA	88		25 - 150				09/06/22 05:35	09/07/22 19:25	1

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# Client Sample Results

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

Job ID: 500-220856-1

**Client Sample ID: MW-1R**  
**Date Collected: 08/11/22 13:05**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220856-1**  
**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	78		25 - 150	09/06/22 05:35	09/07/22 19:25	1
18O2 PFHxS	80		25 - 150	09/06/22 05:35	09/07/22 19:25	1
13C4 PFOS	76		25 - 150	09/06/22 05:35	09/07/22 19:25	1
13C8 FOSA	74		10 - 150	09/06/22 05:35	09/07/22 19:25	1
d3-NMeFOSAA	76		25 - 150	09/06/22 05:35	09/07/22 19:25	1
d5-NEtFOSAA	80		25 - 150	09/06/22 05:35	09/07/22 19:25	1
d-N-MeFOSA-M	64		10 - 150	09/06/22 05:35	09/07/22 19:25	1
d-N-EtFOSA-M	64		10 - 150	09/06/22 05:35	09/07/22 19:25	1
d7-N-MeFOSE-M	71		10 - 150	09/06/22 05:35	09/07/22 19:25	1
d9-N-EtFOSE-M	74		10 - 150	09/06/22 05:35	09/07/22 19:25	1
M2-4:2 FTS	87		25 - 150	09/06/22 05:35	09/07/22 19:25	1
M2-6:2 FTS	86		25 - 150	09/06/22 05:35	09/07/22 19:25	1
M2-8:2 FTS	90		25 - 150	09/06/22 05:35	09/07/22 19:25	1
13C3 HFPO-DA	85		25 - 150	09/06/22 05:35	09/07/22 19:25	1
13C2 10:2 FTS	111		25 - 150	09/06/22 05:35	09/07/22 19:25	1

# Client Sample Results

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

Job ID: 500-220856-1

**Client Sample ID: MW-2**  
**Date Collected: 08/11/22 16:10**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220856-2**  
**Matrix: Water**

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.5	J	4.5	2.2	ng/L		09/06/22 05:35	09/07/22 19:36	1
Perfluoropentanoic acid (PFPeA)	2.8		1.8	0.44	ng/L		09/06/22 05:35	09/07/22 19:36	1
Perfluorohexanoic acid (PFHxA)	2.3		1.8	0.53	ng/L		09/06/22 05:35	09/07/22 19:36	1
Perfluoroheptanoic acid (PFHpA)	4.0		1.8	0.23	ng/L		09/06/22 05:35	09/07/22 19:36	1
Perfluorooctanoic acid (PFOA)	5.7		1.8	0.77	ng/L		09/06/22 05:35	09/07/22 19:36	1
Perfluorononanoic acid (PFNA)	<0.24		1.8	0.24	ng/L		09/06/22 05:35	09/07/22 19:36	1
Perfluorodecanoic acid (PFDA)	<0.28		1.8	0.28	ng/L		09/06/22 05:35	09/07/22 19:36	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.8	1.0	ng/L		09/06/22 05:35	09/07/22 19:36	1
Perfluorododecanoic acid (PFDoA)	<0.50		1.8	0.50	ng/L		09/06/22 05:35	09/07/22 19:36	1
Perfluorotridecanoic acid (PFTrDA)	<1.2		1.8	1.2	ng/L		09/06/22 05:35	09/07/22 19:36	1
Perfluorotetradecanoic acid (PFTeA)	<0.66		1.8	0.66	ng/L		09/06/22 05:35	09/07/22 19:36	1
Perfluorobutanesulfonic acid (PFBS)	2.7		1.8	0.18	ng/L		09/06/22 05:35	09/07/22 19:36	1
Perfluoropentanesulfonic acid (PFPeS)	0.42	J	1.8	0.27	ng/L		09/06/22 05:35	09/07/22 19:36	1
Perfluorohexanesulfonic acid (PFHxS)	9.3		1.8	0.52	ng/L		09/06/22 05:35	09/07/22 19:36	1
Perfluoroheptanesulfonic acid (PFHpS)	0.36	J	1.8	0.17	ng/L		09/06/22 05:35	09/07/22 19:36	1
Perfluorooctanesulfonic acid (PFOS)	2.5	C	1.8	0.49	ng/L		09/06/22 05:35	09/07/22 19:36	1
Perfluorononanesulfonic acid (PFNS)	<0.34		1.8	0.34	ng/L		09/06/22 05:35	09/07/22 19:36	1
Perfluorodecanesulfonic acid (PFDS)	<0.29		1.8	0.29	ng/L		09/06/22 05:35	09/07/22 19:36	1
Perfluorododecanesulfonic acid (PFDoS)	<0.88		1.8	0.88	ng/L		09/06/22 05:35	09/07/22 19:36	1
Perfluorooctanesulfonamide (FOSA)	<0.89		1.8	0.89	ng/L		09/06/22 05:35	09/07/22 19:36	1
NEtFOSA	<0.79		1.8	0.79	ng/L		09/06/22 05:35	09/07/22 19:36	1
NMeFOSA	<0.39		1.8	0.39	ng/L		09/06/22 05:35	09/07/22 19:36	1
NMeFOSAA	<1.1		4.5	1.1	ng/L		09/06/22 05:35	09/07/22 19:36	1
NEtFOSAA	<1.2		4.5	1.2	ng/L		09/06/22 05:35	09/07/22 19:36	1
NMeFOSE	<1.3		3.6	1.3	ng/L		09/06/22 05:35	09/07/22 19:36	1
NEtFOSE	<0.77		1.8	0.77	ng/L		09/06/22 05:35	09/07/22 19:36	1
4:2 FTS	<0.22		1.8	0.22	ng/L		09/06/22 05:35	09/07/22 19:36	1
6:2 FTS	<2.3		4.5	2.3	ng/L		09/06/22 05:35	09/07/22 19:36	1
8:2 FTS	<0.42		1.8	0.42	ng/L		09/06/22 05:35	09/07/22 19:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.36		1.8	0.36	ng/L		09/06/22 05:35	09/07/22 19:36	1
HFPO-DA (GenX)	<1.4		3.6	1.4	ng/L		09/06/22 05:35	09/07/22 19:36	1
9CI-PF3ONS	<0.22		1.8	0.22	ng/L		09/06/22 05:35	09/07/22 19:36	1
11CI-PF3OUdS	<0.29		1.8	0.29	ng/L		09/06/22 05:35	09/07/22 19:36	1
<b>Isotope Dilution</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
13C4 PFBA	83		25 - 150				09/06/22 05:35	09/07/22 19:36	1
13C5 PFPeA	89		25 - 150				09/06/22 05:35	09/07/22 19:36	1
13C2 PFHxA	102		25 - 150				09/06/22 05:35	09/07/22 19:36	1
13C4 PFHpA	87		25 - 150				09/06/22 05:35	09/07/22 19:36	1
13C4 PFOA	98		25 - 150				09/06/22 05:35	09/07/22 19:36	1
13C5 PFNA	100		25 - 150				09/06/22 05:35	09/07/22 19:36	1
13C2 PFDA	100		25 - 150				09/06/22 05:35	09/07/22 19:36	1
13C2 PFUnA	96		25 - 150				09/06/22 05:35	09/07/22 19:36	1
13C2 PFDoA	98		25 - 150				09/06/22 05:35	09/07/22 19:36	1
13C2 PFTeDA	101		25 - 150				09/06/22 05:35	09/07/22 19:36	1

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# Client Sample Results

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

Job ID: 500-220856-1

**Client Sample ID: MW-2**  
**Date Collected: 08/11/22 16:10**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220856-2**  
**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	86		25 - 150	09/06/22 05:35	09/07/22 19:36	1
18O2 PFHxS	90		25 - 150	09/06/22 05:35	09/07/22 19:36	1
13C4 PFOS	90		25 - 150	09/06/22 05:35	09/07/22 19:36	1
13C8 FOSA	82		10 - 150	09/06/22 05:35	09/07/22 19:36	1
d3-NMeFOSAA	85		25 - 150	09/06/22 05:35	09/07/22 19:36	1
d5-NEtFOSAA	87		25 - 150	09/06/22 05:35	09/07/22 19:36	1
d-N-MeFOSA-M	72		10 - 150	09/06/22 05:35	09/07/22 19:36	1
d-N-EtFOSA-M	72		10 - 150	09/06/22 05:35	09/07/22 19:36	1
d7-N-MeFOSE-M	78		10 - 150	09/06/22 05:35	09/07/22 19:36	1
d9-N-EtFOSE-M	80		10 - 150	09/06/22 05:35	09/07/22 19:36	1
M2-4:2 FTS	105		25 - 150	09/06/22 05:35	09/07/22 19:36	1
M2-6:2 FTS	99		25 - 150	09/06/22 05:35	09/07/22 19:36	1
M2-8:2 FTS	104		25 - 150	09/06/22 05:35	09/07/22 19:36	1
13C3 HFPO-DA	96		25 - 150	09/06/22 05:35	09/07/22 19:36	1
13C2 10:2 FTS	109		25 - 150	09/06/22 05:35	09/07/22 19:36	1

# Client Sample Results

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

Job ID: 500-220856-1

**Client Sample ID: MW-3**  
**Date Collected: 08/11/22 17:10**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220856-3**  
**Matrix: Water**

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	4.8		4.5	2.2	ng/L		09/06/22 05:35	09/07/22 19:46	1
Perfluoropentanoic acid (PFPeA)	5.1		1.8	0.44	ng/L		09/06/22 05:35	09/07/22 19:46	1
Perfluorohexanoic acid (PFHxA)	5.6		1.8	0.52	ng/L		09/06/22 05:35	09/07/22 19:46	1
Perfluoroheptanoic acid (PFHpA)	3.9		1.8	0.23	ng/L		09/06/22 05:35	09/07/22 19:46	1
Perfluorooctanoic acid (PFOA)	13		1.8	0.77	ng/L		09/06/22 05:35	09/07/22 19:46	1
Perfluorononanoic acid (PFNA)	0.36	J	1.8	0.24	ng/L		09/06/22 05:35	09/07/22 19:46	1
Perfluorodecanoic acid (PFDA)	<0.28		1.8	0.28	ng/L		09/06/22 05:35	09/07/22 19:46	1
Perfluoroundecanoic acid (PFUnA)	<0.99		1.8	0.99	ng/L		09/06/22 05:35	09/07/22 19:46	1
Perfluorododecanoic acid (PFDoA)	<0.50		1.8	0.50	ng/L		09/06/22 05:35	09/07/22 19:46	1
Perfluorotridecanoic acid (PFTrDA)	<1.2		1.8	1.2	ng/L		09/06/22 05:35	09/07/22 19:46	1
Perfluorotetradecanoic acid (PFTeA)	<0.66		1.8	0.66	ng/L		09/06/22 05:35	09/07/22 19:46	1
Perfluorobutanesulfonic acid (PFBS)	7.9		1.8	0.18	ng/L		09/06/22 05:35	09/07/22 19:46	1
Perfluoropentanesulfonic acid (PFPeS)	0.57	J	1.8	0.27	ng/L		09/06/22 05:35	09/07/22 19:46	1
Perfluorohexanesulfonic acid (PFHxS)	33		1.8	0.51	ng/L		09/06/22 05:35	09/07/22 19:46	1
Perfluoroheptanesulfonic acid (PFHpS)	2.3		1.8	0.17	ng/L		09/06/22 05:35	09/07/22 19:46	1
Perfluorooctanesulfonic acid (PFOS)	19		1.8	0.49	ng/L		09/06/22 05:35	09/07/22 19:46	1
Perfluorononanesulfonic acid (PFNS)	<0.33		1.8	0.33	ng/L		09/06/22 05:35	09/07/22 19:46	1
Perfluorodecanesulfonic acid (PFDS)	<0.29		1.8	0.29	ng/L		09/06/22 05:35	09/07/22 19:46	1
Perfluorododecanesulfonic acid (PFDoS)	<0.88		1.8	0.88	ng/L		09/06/22 05:35	09/07/22 19:46	1
Perfluorooctanesulfonamide (FOSA)	<0.89		1.8	0.89	ng/L		09/06/22 05:35	09/07/22 19:46	1
NEtFOSA	<0.79		1.8	0.79	ng/L		09/06/22 05:35	09/07/22 19:46	1
NMeFOSA	<0.39		1.8	0.39	ng/L		09/06/22 05:35	09/07/22 19:46	1
NMeFOSAA	<1.1		4.5	1.1	ng/L		09/06/22 05:35	09/07/22 19:46	1
NEtFOSAA	<1.2		4.5	1.2	ng/L		09/06/22 05:35	09/07/22 19:46	1
NMeFOSE	<1.3		3.6	1.3	ng/L		09/06/22 05:35	09/07/22 19:46	1
NEtFOSE	<0.77		1.8	0.77	ng/L		09/06/22 05:35	09/07/22 19:46	1
4:2 FTS	<0.22		1.8	0.22	ng/L		09/06/22 05:35	09/07/22 19:46	1
6:2 FTS	<2.3		4.5	2.3	ng/L		09/06/22 05:35	09/07/22 19:46	1
8:2 FTS	<0.42		1.8	0.42	ng/L		09/06/22 05:35	09/07/22 19:46	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.36		1.8	0.36	ng/L		09/06/22 05:35	09/07/22 19:46	1
HFPO-DA (GenX)	<1.4		3.6	1.4	ng/L		09/06/22 05:35	09/07/22 19:46	1
9CI-PF3ONS	<0.22		1.8	0.22	ng/L		09/06/22 05:35	09/07/22 19:46	1
11CI-PF3OUdS	<0.29		1.8	0.29	ng/L		09/06/22 05:35	09/07/22 19:46	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	89		25 - 150				09/06/22 05:35	09/07/22 19:46	1
13C5 PFPeA	96		25 - 150				09/06/22 05:35	09/07/22 19:46	1
13C2 PFHxA	111		25 - 150				09/06/22 05:35	09/07/22 19:46	1
13C4 PFHpA	97		25 - 150				09/06/22 05:35	09/07/22 19:46	1
13C4 PFOA	108		25 - 150				09/06/22 05:35	09/07/22 19:46	1
13C5 PFNA	110		25 - 150				09/06/22 05:35	09/07/22 19:46	1
13C2 PFDA	113		25 - 150				09/06/22 05:35	09/07/22 19:46	1
13C2 PFUnA	104		25 - 150				09/06/22 05:35	09/07/22 19:46	1
13C2 PFDoA	109		25 - 150				09/06/22 05:35	09/07/22 19:46	1
13C2 PFTeDA	103		25 - 150				09/06/22 05:35	09/07/22 19:46	1

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# Client Sample Results

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

Job ID: 500-220856-1

**Client Sample ID: MW-3**  
**Date Collected: 08/11/22 17:10**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220856-3**  
**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	93		25 - 150	09/06/22 05:35	09/07/22 19:46	1
18O2 PFHxS	97		25 - 150	09/06/22 05:35	09/07/22 19:46	1
13C4 PFOS	91		25 - 150	09/06/22 05:35	09/07/22 19:46	1
13C8 FOSA	88		10 - 150	09/06/22 05:35	09/07/22 19:46	1
d3-NMeFOSAA	92		25 - 150	09/06/22 05:35	09/07/22 19:46	1
d5-NEtFOSAA	99		25 - 150	09/06/22 05:35	09/07/22 19:46	1
d-N-MeFOSA-M	76		10 - 150	09/06/22 05:35	09/07/22 19:46	1
d-N-EtFOSA-M	77		10 - 150	09/06/22 05:35	09/07/22 19:46	1
d7-N-MeFOSE-M	85		10 - 150	09/06/22 05:35	09/07/22 19:46	1
d9-N-EtFOSE-M	86		10 - 150	09/06/22 05:35	09/07/22 19:46	1
M2-4:2 FTS	105		25 - 150	09/06/22 05:35	09/07/22 19:46	1
M2-6:2 FTS	103		25 - 150	09/06/22 05:35	09/07/22 19:46	1
M2-8:2 FTS	110		25 - 150	09/06/22 05:35	09/07/22 19:46	1
13C3 HFPO-DA	104		25 - 150	09/06/22 05:35	09/07/22 19:46	1
13C2 10:2 FTS	136		25 - 150	09/06/22 05:35	09/07/22 19:46	1

# Client Sample Results

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

Job ID: 500-220856-1

**Client Sample ID: MW-4**

**Lab Sample ID: 500-220856-4**

Date Collected: 08/11/22 16:35

Matrix: Water

Date Received: 08/13/22 09:50

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	11		4.4	2.1	ng/L		09/06/22 05:35	09/07/22 19:56	1
Perfluoropentanoic acid (PFPeA)	10		1.8	0.43	ng/L		09/06/22 05:35	09/07/22 19:56	1
Perfluorohexanoic acid (PFHxA)	24		1.8	0.51	ng/L		09/06/22 05:35	09/07/22 19:56	1
Perfluoroheptanoic acid (PFHpA)	15		1.8	0.22	ng/L		09/06/22 05:35	09/07/22 19:56	1
Perfluorooctanoic acid (PFOA)	46		1.8	0.75	ng/L		09/06/22 05:35	09/07/22 19:56	1
Perfluorononanoic acid (PFNA)	0.93	J	1.8	0.24	ng/L		09/06/22 05:35	09/07/22 19:56	1
Perfluorodecanoic acid (PFDA)	<0.27		1.8	0.27	ng/L		09/06/22 05:35	09/07/22 19:56	1
Perfluoroundecanoic acid (PFUnA)	<0.98		1.8	0.98	ng/L		09/06/22 05:35	09/07/22 19:56	1
Perfluorododecanoic acid (PFDoA)	<0.49		1.8	0.49	ng/L		09/06/22 05:35	09/07/22 19:56	1
Perfluorotridecanoic acid (PFTriDA)	<1.2		1.8	1.2	ng/L		09/06/22 05:35	09/07/22 19:56	1
Perfluorotetradecanoic acid (PFTeA)	<0.65		1.8	0.65	ng/L		09/06/22 05:35	09/07/22 19:56	1
Perfluorobutanesulfonic acid (PFBS)	85		1.8	0.18	ng/L		09/06/22 05:35	09/07/22 19:56	1
Perfluoropentanesulfonic acid (PFPeS)	5.0		1.8	0.27	ng/L		09/06/22 05:35	09/07/22 19:56	1
Perfluoroheptanesulfonic acid (PFHpS)	1.8		1.8	0.17	ng/L		09/06/22 05:35	09/07/22 19:56	1
Perfluorooctanesulfonic acid (PFOS)	29	C	1.8	0.48	ng/L		09/06/22 05:35	09/07/22 19:56	1
Perfluorononanesulfonic acid (PFNS)	<0.33		1.8	0.33	ng/L		09/06/22 05:35	09/07/22 19:56	1
Perfluorodecanesulfonic acid (PFDS)	<0.28		1.8	0.28	ng/L		09/06/22 05:35	09/07/22 19:56	1
Perfluorododecanesulfonic acid (PFDoS)	<0.86		1.8	0.86	ng/L		09/06/22 05:35	09/07/22 19:56	1
Perfluorooctanesulfonamide (FOSA)	<0.87		1.8	0.87	ng/L		09/06/22 05:35	09/07/22 19:56	1
NEtFOSA	<0.77		1.8	0.77	ng/L		09/06/22 05:35	09/07/22 19:56	1
NMeFOSA	<0.38		1.8	0.38	ng/L		09/06/22 05:35	09/07/22 19:56	1
NMeFOSAA	<1.1		4.4	1.1	ng/L		09/06/22 05:35	09/07/22 19:56	1
NEtFOSAA	<1.2		4.4	1.2	ng/L		09/06/22 05:35	09/07/22 19:56	1
NMeFOSE	<1.2		3.5	1.2	ng/L		09/06/22 05:35	09/07/22 19:56	1
NEtFOSE	<0.75		1.8	0.75	ng/L		09/06/22 05:35	09/07/22 19:56	1
4:2 FTS	<0.21		1.8	0.21	ng/L		09/06/22 05:35	09/07/22 19:56	1
6:2 FTS	<2.2		4.4	2.2	ng/L		09/06/22 05:35	09/07/22 19:56	1
8:2 FTS	<0.41		1.8	0.41	ng/L		09/06/22 05:35	09/07/22 19:56	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.35		1.8	0.35	ng/L		09/06/22 05:35	09/07/22 19:56	1
HFPO-DA (GenX)	<1.3		3.5	1.3	ng/L		09/06/22 05:35	09/07/22 19:56	1
9Cl-PF3ONS	<0.21		1.8	0.21	ng/L		09/06/22 05:35	09/07/22 19:56	1
11Cl-PF3OUdS	<0.28		1.8	0.28	ng/L		09/06/22 05:35	09/07/22 19:56	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	80		25 - 150				09/06/22 05:35	09/07/22 19:56	1
13C5 PFPeA	85		25 - 150				09/06/22 05:35	09/07/22 19:56	1
13C2 PFHxA	102		25 - 150				09/06/22 05:35	09/07/22 19:56	1
13C4 PFHpA	88		25 - 150				09/06/22 05:35	09/07/22 19:56	1
13C4 PFOA	95		25 - 150				09/06/22 05:35	09/07/22 19:56	1
13C5 PFNA	97		25 - 150				09/06/22 05:35	09/07/22 19:56	1
13C2 PFDA	100		25 - 150				09/06/22 05:35	09/07/22 19:56	1
13C2 PFUnA	95		25 - 150				09/06/22 05:35	09/07/22 19:56	1
13C2 PFDoA	97		25 - 150				09/06/22 05:35	09/07/22 19:56	1
13C2 PFTeDA	96		25 - 150				09/06/22 05:35	09/07/22 19:56	1
13C3 PFBS	90		25 - 150				09/06/22 05:35	09/07/22 19:56	1
13C4 PFOS	84		25 - 150				09/06/22 05:35	09/07/22 19:56	1

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# Client Sample Results

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

Job ID: 500-220856-1

**Client Sample ID: MW-4**

**Lab Sample ID: 500-220856-4**

**Date Collected: 08/11/22 16:35**

**Matrix: Water**

**Date Received: 08/13/22 09:50**

**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>
13C8 FOSA	80		10 - 150	09/06/22 05:35	09/07/22 19:56	1
d3-NMeFOSAA	80		25 - 150	09/06/22 05:35	09/07/22 19:56	1
d5-NEtFOSAA	88		25 - 150	09/06/22 05:35	09/07/22 19:56	1
d-N-MeFOSA-M	66		10 - 150	09/06/22 05:35	09/07/22 19:56	1
d-N-EtFOSA-M	65		10 - 150	09/06/22 05:35	09/07/22 19:56	1
d7-N-MeFOSE-M	73		10 - 150	09/06/22 05:35	09/07/22 19:56	1
d9-N-EtFOSE-M	74		10 - 150	09/06/22 05:35	09/07/22 19:56	1
M2-4:2 FTS	98		25 - 150	09/06/22 05:35	09/07/22 19:56	1
M2-6:2 FTS	95		25 - 150	09/06/22 05:35	09/07/22 19:56	1
M2-8:2 FTS	97		25 - 150	09/06/22 05:35	09/07/22 19:56	1
13C3 HFPO-DA	99		25 - 150	09/06/22 05:35	09/07/22 19:56	1
13C2 10:2 FTS	110		25 - 150	09/06/22 05:35	09/07/22 19:56	1

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

<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>LOQ</i>	<i>LOD</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<b>Perfluorohexanesulfonic acid (PFHxS)</b>	<b>460</b>		8.9	2.5	ng/L		09/06/22 05:35	09/10/22 18:39	5

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
18O2 PFHxS	90		25 - 150	09/06/22 05:35	09/10/22 18:39	5

# Client Sample Results

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

Job ID: 500-220856-1

**Client Sample ID: MW-5**  
**Date Collected: 08/11/22 15:10**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220856-5**  
**Matrix: Water**

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	9.2		4.2	2.0	ng/L		09/06/22 05:35	09/07/22 20:06	1
Perfluoropentanoic acid (PFPeA)	5.6		1.7	0.42	ng/L		09/06/22 05:35	09/07/22 20:06	1
Perfluorohexanoic acid (PFHxA)	27		1.7	0.49	ng/L		09/06/22 05:35	09/07/22 20:06	1
Perfluoroheptanoic acid (PFHpA)	11		1.7	0.21	ng/L		09/06/22 05:35	09/07/22 20:06	1
Perfluorooctanoic acid (PFOA)	50		1.7	0.72	ng/L		09/06/22 05:35	09/07/22 20:06	1
Perfluorononanoic acid (PFNA)	<0.23		1.7	0.23	ng/L		09/06/22 05:35	09/07/22 20:06	1
Perfluorodecanoic acid (PFDA)	<0.26		1.7	0.26	ng/L		09/06/22 05:35	09/07/22 20:06	1
Perfluoroundecanoic acid (PFUnA)	<0.93		1.7	0.93	ng/L		09/06/22 05:35	09/07/22 20:06	1
Perfluorododecanoic acid (PFDoA)	<0.47		1.7	0.47	ng/L		09/06/22 05:35	09/07/22 20:06	1
Perfluorotridecanoic acid (PFTriDA)	<1.1		1.7	1.1	ng/L		09/06/22 05:35	09/07/22 20:06	1
Perfluorotetradecanoic acid (PFTeA)	<0.62		1.7	0.62	ng/L		09/06/22 05:35	09/07/22 20:06	1
Perfluorobutanesulfonic acid (PFBS)	18		1.7	0.17	ng/L		09/06/22 05:35	09/07/22 20:06	1
Perfluoropentanesulfonic acid (PFPeS)	7.1		1.7	0.25	ng/L		09/06/22 05:35	09/07/22 20:06	1
Perfluoroheptanesulfonic acid (PFHpS)	1.6	J	1.7	0.16	ng/L		09/06/22 05:35	09/07/22 20:06	1
Perfluorooctanesulfonic acid (PFOS)	58	C	1.7	0.46	ng/L		09/06/22 05:35	09/07/22 20:06	1
Perfluorononanesulfonic acid (PFNS)	<0.31		1.7	0.31	ng/L		09/06/22 05:35	09/07/22 20:06	1
Perfluorodecanesulfonic acid (PFDS)	<0.27		1.7	0.27	ng/L		09/06/22 05:35	09/07/22 20:06	1
Perfluorododecanesulfonic acid (PFDoS)	<0.82		1.7	0.82	ng/L		09/06/22 05:35	09/07/22 20:06	1
Perfluorooctanesulfonamide (FOSA)	<0.83		1.7	0.83	ng/L		09/06/22 05:35	09/07/22 20:06	1
NEtFOSA	<0.74		1.7	0.74	ng/L		09/06/22 05:35	09/07/22 20:06	1
NMeFOSA	<0.36		1.7	0.36	ng/L		09/06/22 05:35	09/07/22 20:06	1
NMeFOSAA	<1.0		4.2	1.0	ng/L		09/06/22 05:35	09/07/22 20:06	1
NEtFOSAA	<1.1		4.2	1.1	ng/L		09/06/22 05:35	09/07/22 20:06	1
NMeFOSE	<1.2		3.4	1.2	ng/L		09/06/22 05:35	09/07/22 20:06	1
NEtFOSE	<0.72		1.7	0.72	ng/L		09/06/22 05:35	09/07/22 20:06	1
4:2 FTS	<0.20		1.7	0.20	ng/L		09/06/22 05:35	09/07/22 20:06	1
6:2 FTS	<2.1		4.2	2.1	ng/L		09/06/22 05:35	09/07/22 20:06	1
8:2 FTS	<0.39		1.7	0.39	ng/L		09/06/22 05:35	09/07/22 20:06	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.34		1.7	0.34	ng/L		09/06/22 05:35	09/07/22 20:06	1
HFPO-DA (GenX)	<1.3		3.4	1.3	ng/L		09/06/22 05:35	09/07/22 20:06	1
9Cl-PF3ONS	<0.20		1.7	0.20	ng/L		09/06/22 05:35	09/07/22 20:06	1
11Cl-PF3OUdS	<0.27		1.7	0.27	ng/L		09/06/22 05:35	09/07/22 20:06	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	91		25 - 150				09/06/22 05:35	09/07/22 20:06	1
13C5 PFPeA	96		25 - 150				09/06/22 05:35	09/07/22 20:06	1
13C2 PFHxA	116		25 - 150				09/06/22 05:35	09/07/22 20:06	1
13C4 PFHpA	97		25 - 150				09/06/22 05:35	09/07/22 20:06	1
13C4 PFOA	106		25 - 150				09/06/22 05:35	09/07/22 20:06	1
13C5 PFNA	112		25 - 150				09/06/22 05:35	09/07/22 20:06	1
13C2 PFDA	114		25 - 150				09/06/22 05:35	09/07/22 20:06	1
13C2 PFUnA	106		25 - 150				09/06/22 05:35	09/07/22 20:06	1
13C2 PFDoA	109		25 - 150				09/06/22 05:35	09/07/22 20:06	1
13C2 PFTeDA	103		25 - 150				09/06/22 05:35	09/07/22 20:06	1
13C3 PFBS	102		25 - 150				09/06/22 05:35	09/07/22 20:06	1
13C4 PFOS	98		25 - 150				09/06/22 05:35	09/07/22 20:06	1

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# Client Sample Results

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

Job ID: 500-220856-1

**Client Sample ID: MW-5**  
**Date Collected: 08/11/22 15:10**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220856-5**  
**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>
13C8 FOSA	94		10 - 150		09/06/22 05:35	09/07/22 20:06	1
d3-NMeFOSAA	94		25 - 150		09/06/22 05:35	09/07/22 20:06	1
d5-NEtFOSAA	99		25 - 150		09/06/22 05:35	09/07/22 20:06	1
d-N-MeFOSA-M	81		10 - 150		09/06/22 05:35	09/07/22 20:06	1
d-N-EtFOSA-M	83		10 - 150		09/06/22 05:35	09/07/22 20:06	1
d7-N-MeFOSE-M	90		10 - 150		09/06/22 05:35	09/07/22 20:06	1
d9-N-EtFOSE-M	91		10 - 150		09/06/22 05:35	09/07/22 20:06	1
M2-4:2 FTS	107		25 - 150		09/06/22 05:35	09/07/22 20:06	1
M2-6:2 FTS	104		25 - 150		09/06/22 05:35	09/07/22 20:06	1
M2-8:2 FTS	109		25 - 150		09/06/22 05:35	09/07/22 20:06	1
13C3 HFPO-DA	109		25 - 150		09/06/22 05:35	09/07/22 20:06	1
13C2 10:2 FTS	123		25 - 150		09/06/22 05:35	09/07/22 20:06	1

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

<i>Analyte</i>	<i>Result</i>	<i>Qualifier</i>	<i>LOQ</i>	<i>LOD</i>	<i>Unit</i>	<i>D</i>	<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
<b>Perfluorohexanesulfonic acid (PFHxS)</b>	<b>470</b>		8.5	2.4	ng/L		09/06/22 05:35	09/10/22 18:49	5

<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>		<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
18O2 PFHxS	102		25 - 150		09/06/22 05:35	09/10/22 18:49	5

# Client Sample Results

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

Job ID: 500-220856-1

**Client Sample ID: MW-8**  
Date Collected: 08/11/22 14:20  
Date Received: 08/13/22 09:50

**Lab Sample ID: 500-220856-6**  
Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	4.3		4.3	2.1	ng/L		09/06/22 05:35	09/07/22 20:16	1
Perfluoropentanoic acid (PFPeA)	1.0	J	1.7	0.42	ng/L		09/06/22 05:35	09/07/22 20:16	1
Perfluorohexanoic acid (PFHxA)	1.6	J	1.7	0.50	ng/L		09/06/22 05:35	09/07/22 20:16	1
Perfluoroheptanoic acid (PFHpA)	0.77	J	1.7	0.22	ng/L		09/06/22 05:35	09/07/22 20:16	1
Perfluorooctanoic acid (PFOA)	1.7		1.7	0.74	ng/L		09/06/22 05:35	09/07/22 20:16	1
Perfluorononanoic acid (PFNA)	<0.23		1.7	0.23	ng/L		09/06/22 05:35	09/07/22 20:16	1
Perfluorodecanoic acid (PFDA)	<0.27		1.7	0.27	ng/L		09/06/22 05:35	09/07/22 20:16	1
Perfluoroundecanoic acid (PFUnA)	<0.95		1.7	0.95	ng/L		09/06/22 05:35	09/07/22 20:16	1
Perfluorododecanoic acid (PFDoA)	<0.48		1.7	0.48	ng/L		09/06/22 05:35	09/07/22 20:16	1
Perfluorotridecanoic acid (PFTrDA)	<1.1		1.7	1.1	ng/L		09/06/22 05:35	09/07/22 20:16	1
Perfluorotetradecanoic acid (PFTeA)	<0.63		1.7	0.63	ng/L		09/06/22 05:35	09/07/22 20:16	1
Perfluorobutanesulfonic acid (PFBS)	43		1.7	0.17	ng/L		09/06/22 05:35	09/07/22 20:16	1
Perfluoropentanesulfonic acid (PFPeS)	0.28	J	1.7	0.26	ng/L		09/06/22 05:35	09/07/22 20:16	1
Perfluorohexanesulfonic acid (PFHxS)	9.6		1.7	0.49	ng/L		09/06/22 05:35	09/07/22 20:16	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.16		1.7	0.16	ng/L		09/06/22 05:35	09/07/22 20:16	1
Perfluorooctanesulfonic acid (PFOS)	4.4		1.7	0.47	ng/L		09/06/22 05:35	09/07/22 20:16	1
Perfluorononanesulfonic acid (PFNS)	<0.32		1.7	0.32	ng/L		09/06/22 05:35	09/07/22 20:16	1
Perfluorodecanesulfonic acid (PFDS)	<0.28		1.7	0.28	ng/L		09/06/22 05:35	09/07/22 20:16	1
Perfluorododecanesulfonic acid (PFDoS)	<0.84		1.7	0.84	ng/L		09/06/22 05:35	09/07/22 20:16	1
Perfluorooctanesulfonamide (FOSA)	<0.85		1.7	0.85	ng/L		09/06/22 05:35	09/07/22 20:16	1
NEtFOSA	<0.75		1.7	0.75	ng/L		09/06/22 05:35	09/07/22 20:16	1
NMeFOSA	<0.37		1.7	0.37	ng/L		09/06/22 05:35	09/07/22 20:16	1
NMeFOSAA	<1.0		4.3	1.0	ng/L		09/06/22 05:35	09/07/22 20:16	1
NEtFOSAA	<1.1		4.3	1.1	ng/L		09/06/22 05:35	09/07/22 20:16	1
NMeFOSE	<1.2		3.5	1.2	ng/L		09/06/22 05:35	09/07/22 20:16	1
NEtFOSE	<0.74		1.7	0.74	ng/L		09/06/22 05:35	09/07/22 20:16	1
4:2 FTS	<0.21		1.7	0.21	ng/L		09/06/22 05:35	09/07/22 20:16	1
6:2 FTS	<2.2		4.3	2.2	ng/L		09/06/22 05:35	09/07/22 20:16	1
8:2 FTS	<0.40		1.7	0.40	ng/L		09/06/22 05:35	09/07/22 20:16	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.35		1.7	0.35	ng/L		09/06/22 05:35	09/07/22 20:16	1
HFPO-DA (GenX)	<1.3		3.5	1.3	ng/L		09/06/22 05:35	09/07/22 20:16	1
9CI-PF3ONS	<0.21		1.7	0.21	ng/L		09/06/22 05:35	09/07/22 20:16	1
11CI-PF3OUdS	<0.28		1.7	0.28	ng/L		09/06/22 05:35	09/07/22 20:16	1
<b>Isotope Dilution</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
13C4 PFBA	95		25 - 150				09/06/22 05:35	09/07/22 20:16	1
13C5 PFPeA	100		25 - 150				09/06/22 05:35	09/07/22 20:16	1
13C2 PFHxA	118		25 - 150				09/06/22 05:35	09/07/22 20:16	1
13C4 PFHpA	105		25 - 150				09/06/22 05:35	09/07/22 20:16	1
13C4 PFOA	111		25 - 150				09/06/22 05:35	09/07/22 20:16	1
13C5 PFNA	108		25 - 150				09/06/22 05:35	09/07/22 20:16	1
13C2 PFDA	114		25 - 150				09/06/22 05:35	09/07/22 20:16	1
13C2 PFUnA	110		25 - 150				09/06/22 05:35	09/07/22 20:16	1
13C2 PFDoA	108		25 - 150				09/06/22 05:35	09/07/22 20:16	1
13C2 PFTeDA	107		25 - 150				09/06/22 05:35	09/07/22 20:16	1

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# Client Sample Results

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

Job ID: 500-220856-1

**Client Sample ID: MW-8**  
**Date Collected: 08/11/22 14:20**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220856-6**  
**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	103		25 - 150	09/06/22 05:35	09/07/22 20:16	1
18O2 PFHxS	100		25 - 150	09/06/22 05:35	09/07/22 20:16	1
13C4 PFOS	99		25 - 150	09/06/22 05:35	09/07/22 20:16	1
13C8 FOSA	95		10 - 150	09/06/22 05:35	09/07/22 20:16	1
d3-NMeFOSAA	94		25 - 150	09/06/22 05:35	09/07/22 20:16	1
d5-NEtFOSAA	100		25 - 150	09/06/22 05:35	09/07/22 20:16	1
d-N-MeFOSA-M	84		10 - 150	09/06/22 05:35	09/07/22 20:16	1
d-N-EtFOSA-M	81		10 - 150	09/06/22 05:35	09/07/22 20:16	1
d7-N-MeFOSE-M	87		10 - 150	09/06/22 05:35	09/07/22 20:16	1
d9-N-EtFOSE-M	92		10 - 150	09/06/22 05:35	09/07/22 20:16	1
M2-4:2 FTS	114		25 - 150	09/06/22 05:35	09/07/22 20:16	1
M2-6:2 FTS	111		25 - 150	09/06/22 05:35	09/07/22 20:16	1
M2-8:2 FTS	113		25 - 150	09/06/22 05:35	09/07/22 20:16	1
13C3 HFPO-DA	113		25 - 150	09/06/22 05:35	09/07/22 20:16	1
13C2 10:2 FTS	119		25 - 150	09/06/22 05:35	09/07/22 20:16	1

# Client Sample Results

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

Job ID: 500-220856-1

**Client Sample ID: MW-1R DUP**

**Lab Sample ID: 500-220856-7**

Date Collected: 08/11/22 13:10

Matrix: Water

Date Received: 08/13/22 09:50

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	3.5	J	4.1	2.0	ng/L		09/06/22 05:35	09/07/22 20:26	1
Perfluoropentanoic acid (PFPeA)	3.8		1.7	0.40	ng/L		09/06/22 05:35	09/07/22 20:26	1
Perfluorohexanoic acid (PFHxA)	2.2		1.7	0.48	ng/L		09/06/22 05:35	09/07/22 20:26	1
Perfluoroheptanoic acid (PFHpA)	2.9		1.7	0.21	ng/L		09/06/22 05:35	09/07/22 20:26	1
Perfluorooctanoic acid (PFOA)	3.5		1.7	0.70	ng/L		09/06/22 05:35	09/07/22 20:26	1
Perfluorononanoic acid (PFNA)	<0.22		1.7	0.22	ng/L		09/06/22 05:35	09/07/22 20:26	1
Perfluorodecanoic acid (PFDA)	<0.26		1.7	0.26	ng/L		09/06/22 05:35	09/07/22 20:26	1
Perfluoroundecanoic acid (PFUnA)	<0.91		1.7	0.91	ng/L		09/06/22 05:35	09/07/22 20:26	1
Perfluorododecanoic acid (PFDoA)	<0.45		1.7	0.45	ng/L		09/06/22 05:35	09/07/22 20:26	1
Perfluorotridecanoic acid (PFTrDA)	<1.1		1.7	1.1	ng/L		09/06/22 05:35	09/07/22 20:26	1
Perfluorotetradecanoic acid (PFTeA)	<0.60		1.7	0.60	ng/L		09/06/22 05:35	09/07/22 20:26	1
Perfluorobutanesulfonic acid (PFBS)	6.9		1.7	0.17	ng/L		09/06/22 05:35	09/07/22 20:26	1
Perfluoropentanesulfonic acid (PFPeS)	<0.25		1.7	0.25	ng/L		09/06/22 05:35	09/07/22 20:26	1
Perfluorohexanesulfonic acid (PFHxS)	0.96	J	1.7	0.47	ng/L		09/06/22 05:35	09/07/22 20:26	1
Perfluoroheptanesulfonic acid (PFHpS)	0.20	J	1.7	0.16	ng/L		09/06/22 05:35	09/07/22 20:26	1
Perfluorooctanesulfonic acid (PFOS)	6.6	C	1.7	0.45	ng/L		09/06/22 05:35	09/07/22 20:26	1
Perfluorononanesulfonic acid (PFNS)	<0.31		1.7	0.31	ng/L		09/06/22 05:35	09/07/22 20:26	1
Perfluorodecanesulfonic acid (PFDS)	<0.26		1.7	0.26	ng/L		09/06/22 05:35	09/07/22 20:26	1
Perfluorododecanesulfonic acid (PFDoS)	<0.80		1.7	0.80	ng/L		09/06/22 05:35	09/07/22 20:26	1
Perfluorooctanesulfonamide (FOSA)	<0.81		1.7	0.81	ng/L		09/06/22 05:35	09/07/22 20:26	1
NEtFOSA	<0.72		1.7	0.72	ng/L		09/06/22 05:35	09/07/22 20:26	1
NMeFOSA	<0.35		1.7	0.35	ng/L		09/06/22 05:35	09/07/22 20:26	1
NMeFOSAA	<0.99		4.1	0.99	ng/L		09/06/22 05:35	09/07/22 20:26	1
NEtFOSAA	<1.1		4.1	1.1	ng/L		09/06/22 05:35	09/07/22 20:26	1
NMeFOSE	<1.2		3.3	1.2	ng/L		09/06/22 05:35	09/07/22 20:26	1
NEtFOSE	<0.70		1.7	0.70	ng/L		09/06/22 05:35	09/07/22 20:26	1
4:2 FTS	<0.20		1.7	0.20	ng/L		09/06/22 05:35	09/07/22 20:26	1
6:2 FTS	<2.1		4.1	2.1	ng/L		09/06/22 05:35	09/07/22 20:26	1
8:2 FTS	<0.38		1.7	0.38	ng/L		09/06/22 05:35	09/07/22 20:26	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.33		1.7	0.33	ng/L		09/06/22 05:35	09/07/22 20:26	1
HFPO-DA (GenX)	<1.2		3.3	1.2	ng/L		09/06/22 05:35	09/07/22 20:26	1
9CI-PF3ONS	<0.20		1.7	0.20	ng/L		09/06/22 05:35	09/07/22 20:26	1
11CI-PF3OUdS	<0.26		1.7	0.26	ng/L		09/06/22 05:35	09/07/22 20:26	1
<b>Isotope Dilution</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
13C4 PFBA	92		25 - 150				09/06/22 05:35	09/07/22 20:26	1
13C5 PFPeA	95		25 - 150				09/06/22 05:35	09/07/22 20:26	1
13C2 PFHxA	112		25 - 150				09/06/22 05:35	09/07/22 20:26	1
13C4 PFHpA	100		25 - 150				09/06/22 05:35	09/07/22 20:26	1
13C4 PFOA	105		25 - 150				09/06/22 05:35	09/07/22 20:26	1
13C5 PFNA	108		25 - 150				09/06/22 05:35	09/07/22 20:26	1
13C2 PFDA	115		25 - 150				09/06/22 05:35	09/07/22 20:26	1
13C2 PFUnA	105		25 - 150				09/06/22 05:35	09/07/22 20:26	1
13C2 PFDoA	108		25 - 150				09/06/22 05:35	09/07/22 20:26	1
13C2 PFTeDA	103		25 - 150				09/06/22 05:35	09/07/22 20:26	1

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# Client Sample Results

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

Job ID: 500-220856-1

**Client Sample ID: MW-1R DUP**

**Lab Sample ID: 500-220856-7**

**Date Collected: 08/11/22 13:10**

**Matrix: Water**

**Date Received: 08/13/22 09:50**

**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	96		25 - 150	09/06/22 05:35	09/07/22 20:26	1
18O2 PFHxS	99		25 - 150	09/06/22 05:35	09/07/22 20:26	1
13C4 PFOS	95		25 - 150	09/06/22 05:35	09/07/22 20:26	1
13C8 FOSA	93		10 - 150	09/06/22 05:35	09/07/22 20:26	1
d3-NMeFOSAA	92		25 - 150	09/06/22 05:35	09/07/22 20:26	1
d5-NEtFOSAA	97		25 - 150	09/06/22 05:35	09/07/22 20:26	1
d-N-MeFOSA-M	83		10 - 150	09/06/22 05:35	09/07/22 20:26	1
d-N-EtFOSA-M	80		10 - 150	09/06/22 05:35	09/07/22 20:26	1
d7-N-MeFOSE-M	88		10 - 150	09/06/22 05:35	09/07/22 20:26	1
d9-N-EtFOSE-M	91		10 - 150	09/06/22 05:35	09/07/22 20:26	1
M2-4:2 FTS	106		25 - 150	09/06/22 05:35	09/07/22 20:26	1
M2-6:2 FTS	108		25 - 150	09/06/22 05:35	09/07/22 20:26	1
M2-8:2 FTS	121		25 - 150	09/06/22 05:35	09/07/22 20:26	1
13C3 HFPO-DA	109		25 - 150	09/06/22 05:35	09/07/22 20:26	1
13C2 10:2 FTS	131		25 - 150	09/06/22 05:35	09/07/22 20:26	1

# Client Sample Results

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

Job ID: 500-220856-1

**Client Sample ID: Field Blank**

**Lab Sample ID: 500-220856-8**

**Date Collected: 08/11/22 13:35**

**Matrix: Water**

**Date Received: 08/13/22 09:50**

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.1		4.4	2.1	ng/L		09/06/22 05:35	09/07/22 20:36	1
Perfluoropentanoic acid (PFPeA)	<0.43		1.8	0.43	ng/L		09/06/22 05:35	09/07/22 20:36	1
Perfluorohexanoic acid (PFHxA)	<0.51		1.8	0.51	ng/L		09/06/22 05:35	09/07/22 20:36	1
Perfluoroheptanoic acid (PFHpA)	<0.22		1.8	0.22	ng/L		09/06/22 05:35	09/07/22 20:36	1
Perfluorooctanoic acid (PFOA)	<0.75		1.8	0.75	ng/L		09/06/22 05:35	09/07/22 20:36	1
Perfluorononanoic acid (PFNA)	<0.24		1.8	0.24	ng/L		09/06/22 05:35	09/07/22 20:36	1
Perfluorodecanoic acid (PFDA)	<0.27		1.8	0.27	ng/L		09/06/22 05:35	09/07/22 20:36	1
Perfluoroundecanoic acid (PFUnA)	<0.97		1.8	0.97	ng/L		09/06/22 05:35	09/07/22 20:36	1
Perfluorododecanoic acid (PFDoA)	<0.49		1.8	0.49	ng/L		09/06/22 05:35	09/07/22 20:36	1
Perfluorotridecanoic acid (PFTrDA)	<1.1		1.8	1.1	ng/L		09/06/22 05:35	09/07/22 20:36	1
Perfluorotetradecanoic acid (PFTeA)	<0.64		1.8	0.64	ng/L		09/06/22 05:35	09/07/22 20:36	1
Perfluorobutanesulfonic acid (PFBS)	<0.18		1.8	0.18	ng/L		09/06/22 05:35	09/07/22 20:36	1
Perfluoropentanesulfonic acid (PFPeS)	<0.26		1.8	0.26	ng/L		09/06/22 05:35	09/07/22 20:36	1
Perfluorohexanesulfonic acid (PFHxS)	<0.50		1.8	0.50	ng/L		09/06/22 05:35	09/07/22 20:36	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.17		1.8	0.17	ng/L		09/06/22 05:35	09/07/22 20:36	1
Perfluorooctanesulfonic acid (PFOS)	<0.48		1.8	0.48	ng/L		09/06/22 05:35	09/07/22 20:36	1
Perfluorononanesulfonic acid (PFNS)	<0.33		1.8	0.33	ng/L		09/06/22 05:35	09/07/22 20:36	1
Perfluorodecanesulfonic acid (PFDS)	<0.28		1.8	0.28	ng/L		09/06/22 05:35	09/07/22 20:36	1
Perfluorododecanesulfonic acid (PFDoS)	<0.86		1.8	0.86	ng/L		09/06/22 05:35	09/07/22 20:36	1
Perfluorooctanesulfonamide (FOSA)	<0.87		1.8	0.87	ng/L		09/06/22 05:35	09/07/22 20:36	1
NEtFOSA	<0.77		1.8	0.77	ng/L		09/06/22 05:35	09/07/22 20:36	1
NMeFOSA	<0.38		1.8	0.38	ng/L		09/06/22 05:35	09/07/22 20:36	1
NMeFOSAA	<1.1		4.4	1.1	ng/L		09/06/22 05:35	09/07/22 20:36	1
NEtFOSAA	<1.1		4.4	1.1	ng/L		09/06/22 05:35	09/07/22 20:36	1
NMeFOSE	<1.2		3.5	1.2	ng/L		09/06/22 05:35	09/07/22 20:36	1
NEtFOSE	<0.75		1.8	0.75	ng/L		09/06/22 05:35	09/07/22 20:36	1
4:2 FTS	<0.21		1.8	0.21	ng/L		09/06/22 05:35	09/07/22 20:36	1
6:2 FTS	<2.2		4.4	2.2	ng/L		09/06/22 05:35	09/07/22 20:36	1
8:2 FTS	<0.41		1.8	0.41	ng/L		09/06/22 05:35	09/07/22 20:36	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.35		1.8	0.35	ng/L		09/06/22 05:35	09/07/22 20:36	1
HFPO-DA (GenX)	<1.3		3.5	1.3	ng/L		09/06/22 05:35	09/07/22 20:36	1
9Cl-PF3ONS	<0.21		1.8	0.21	ng/L		09/06/22 05:35	09/07/22 20:36	1
11Cl-PF3OUdS	<0.28		1.8	0.28	ng/L		09/06/22 05:35	09/07/22 20:36	1
Isotope Dilution	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C4 PFBA	92		25 - 150				09/06/22 05:35	09/07/22 20:36	1
13C5 PFPeA	95		25 - 150				09/06/22 05:35	09/07/22 20:36	1
13C2 PFHxA	114		25 - 150				09/06/22 05:35	09/07/22 20:36	1
13C4 PFHpA	94		25 - 150				09/06/22 05:35	09/07/22 20:36	1
13C4 PFOA	111		25 - 150				09/06/22 05:35	09/07/22 20:36	1
13C5 PFNA	112		25 - 150				09/06/22 05:35	09/07/22 20:36	1
13C2 PFDA	111		25 - 150				09/06/22 05:35	09/07/22 20:36	1
13C2 PFUnA	106		25 - 150				09/06/22 05:35	09/07/22 20:36	1
13C2 PFDoA	104		25 - 150				09/06/22 05:35	09/07/22 20:36	1
13C2 PFTeDA	101		25 - 150				09/06/22 05:35	09/07/22 20:36	1
13C3 PFBS	99		25 - 150				09/06/22 05:35	09/07/22 20:36	1
18O2 PFHxS	101		25 - 150				09/06/22 05:35	09/07/22 20:36	1

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# Client Sample Results

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

Job ID: 500-220856-1

**Client Sample ID: Field Blank**

**Lab Sample ID: 500-220856-8**

**Date Collected: 08/11/22 13:35**

**Matrix: Water**

**Date Received: 08/13/22 09:50**

**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	98		25 - 150	09/06/22 05:35	09/07/22 20:36	1
13C8 FOSA	86		10 - 150	09/06/22 05:35	09/07/22 20:36	1
d3-NMeFOSAA	90		25 - 150	09/06/22 05:35	09/07/22 20:36	1
d5-NEtFOSAA	95		25 - 150	09/06/22 05:35	09/07/22 20:36	1
d-N-MeFOSA-M	77		10 - 150	09/06/22 05:35	09/07/22 20:36	1
d-N-EtFOSA-M	76		10 - 150	09/06/22 05:35	09/07/22 20:36	1
d7-N-MeFOSE-M	86		10 - 150	09/06/22 05:35	09/07/22 20:36	1
d9-N-EtFOSE-M	89		10 - 150	09/06/22 05:35	09/07/22 20:36	1
M2-4:2 FTS	112		25 - 150	09/06/22 05:35	09/07/22 20:36	1
M2-6:2 FTS	109		25 - 150	09/06/22 05:35	09/07/22 20:36	1
M2-8:2 FTS	111		25 - 150	09/06/22 05:35	09/07/22 20:36	1
13C3 HFPO-DA	107		25 - 150	09/06/22 05:35	09/07/22 20:36	1
13C2 10:2 FTS	112		25 - 150	09/06/22 05:35	09/07/22 20:36	1

# Client Sample Results

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

Job ID: 500-220856-1

**Client Sample ID: Equipment Blank**

**Lab Sample ID: 500-220856-9**

**Date Collected: 08/11/22 13:40**

**Matrix: Water**

**Date Received: 08/13/22 09:50**

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.2		4.7	2.2	ng/L		09/06/22 05:35	09/07/22 21:17	1
Perfluoropentanoic acid (PFPeA)	<0.46		1.9	0.46	ng/L		09/06/22 05:35	09/07/22 21:17	1
Perfluorohexanoic acid (PFHxA)	<0.54		1.9	0.54	ng/L		09/06/22 05:35	09/07/22 21:17	1
Perfluoroheptanoic acid (PFHpA)	<0.23		1.9	0.23	ng/L		09/06/22 05:35	09/07/22 21:17	1
Perfluorooctanoic acid (PFOA)	<0.79		1.9	0.79	ng/L		09/06/22 05:35	09/07/22 21:17	1
Perfluorononanoic acid (PFNA)	<0.25		1.9	0.25	ng/L		09/06/22 05:35	09/07/22 21:17	1
Perfluorodecanoic acid (PFDA)	<0.29		1.9	0.29	ng/L		09/06/22 05:35	09/07/22 21:17	1
Perfluoroundecanoic acid (PFUnA)	<1.0		1.9	1.0	ng/L		09/06/22 05:35	09/07/22 21:17	1
Perfluorododecanoic acid (PFDoA)	<0.51		1.9	0.51	ng/L		09/06/22 05:35	09/07/22 21:17	1
Perfluorotridecanoic acid (PFTrDA)	<1.2		1.9	1.2	ng/L		09/06/22 05:35	09/07/22 21:17	1
Perfluorotetradecanoic acid (PFTeA)	<0.68		1.9	0.68	ng/L		09/06/22 05:35	09/07/22 21:17	1
Perfluorobutanesulfonic acid (PFBS)	<0.19		1.9	0.19	ng/L		09/06/22 05:35	09/07/22 21:17	1
Perfluoropentanesulfonic acid (PFPeS)	<0.28		1.9	0.28	ng/L		09/06/22 05:35	09/07/22 21:17	1
Perfluorohexanesulfonic acid (PFHxS)	<0.53		1.9	0.53	ng/L		09/06/22 05:35	09/07/22 21:17	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.18		1.9	0.18	ng/L		09/06/22 05:35	09/07/22 21:17	1
Perfluorooctanesulfonic acid (PFOS)	<0.50		1.9	0.50	ng/L		09/06/22 05:35	09/07/22 21:17	1
Perfluorononanesulfonic acid (PFNS)	<0.35		1.9	0.35	ng/L		09/06/22 05:35	09/07/22 21:17	1
Perfluorodecanesulfonic acid (PFDS)	<0.30		1.9	0.30	ng/L		09/06/22 05:35	09/07/22 21:17	1
Perfluorododecanesulfonic acid (PFDoS)	<0.90		1.9	0.90	ng/L		09/06/22 05:35	09/07/22 21:17	1
Perfluorooctanesulfonamide (FOSA)	<0.91		1.9	0.91	ng/L		09/06/22 05:35	09/07/22 21:17	1
NEtFOSA	<0.81		1.9	0.81	ng/L		09/06/22 05:35	09/07/22 21:17	1
NMeFOSA	<0.40		1.9	0.40	ng/L		09/06/22 05:35	09/07/22 21:17	1
NMeFOSAA	<1.1		4.7	1.1	ng/L		09/06/22 05:35	09/07/22 21:17	1
NEtFOSAA	<1.2		4.7	1.2	ng/L		09/06/22 05:35	09/07/22 21:17	1
NMeFOSE	<1.3		3.7	1.3	ng/L		09/06/22 05:35	09/07/22 21:17	1
NEtFOSE	<0.79		1.9	0.79	ng/L		09/06/22 05:35	09/07/22 21:17	1
4:2 FTS	<0.22		1.9	0.22	ng/L		09/06/22 05:35	09/07/22 21:17	1
6:2 FTS	<2.3		4.7	2.3	ng/L		09/06/22 05:35	09/07/22 21:17	1
8:2 FTS	<0.43		1.9	0.43	ng/L		09/06/22 05:35	09/07/22 21:17	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.37		1.9	0.37	ng/L		09/06/22 05:35	09/07/22 21:17	1
HFPO-DA (GenX)	<1.4		3.7	1.4	ng/L		09/06/22 05:35	09/07/22 21:17	1
9Cl-PF3ONS	<0.22		1.9	0.22	ng/L		09/06/22 05:35	09/07/22 21:17	1
11Cl-PF3OUdS	<0.30		1.9	0.30	ng/L		09/06/22 05:35	09/07/22 21:17	1
<i>Isotope Dilution</i>	<i>%Recovery</i>	<i>Qualifier</i>	<i>Limits</i>				<i>Prepared</i>	<i>Analyzed</i>	<i>Dil Fac</i>
13C4 PFBA	90		25 - 150				09/06/22 05:35	09/07/22 21:17	1
13C5 PFPeA	97		25 - 150				09/06/22 05:35	09/07/22 21:17	1
13C2 PFHxA	114		25 - 150				09/06/22 05:35	09/07/22 21:17	1
13C4 PFHpA	99		25 - 150				09/06/22 05:35	09/07/22 21:17	1
13C4 PFOA	110		25 - 150				09/06/22 05:35	09/07/22 21:17	1
13C5 PFNA	115		25 - 150				09/06/22 05:35	09/07/22 21:17	1
13C2 PFDA	114		25 - 150				09/06/22 05:35	09/07/22 21:17	1
13C2 PFUnA	109		25 - 150				09/06/22 05:35	09/07/22 21:17	1
13C2 PFDoA	115		25 - 150				09/06/22 05:35	09/07/22 21:17	1
13C2 PFTeDA	109		25 - 150				09/06/22 05:35	09/07/22 21:17	1
13C3 PFBS	94		25 - 150				09/06/22 05:35	09/07/22 21:17	1
18O2 PFHxS	100		25 - 150				09/06/22 05:35	09/07/22 21:17	1

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# Client Sample Results

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

Job ID: 500-220856-1

**Client Sample ID: Equipment Blank**

**Lab Sample ID: 500-220856-9**

**Date Collected: 08/11/22 13:40**

**Matrix: Water**

**Date Received: 08/13/22 09:50**

**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	99		25 - 150	09/06/22 05:35	09/07/22 21:17	1
13C8 FOSA	85		10 - 150	09/06/22 05:35	09/07/22 21:17	1
d3-NMeFOSAA	98		25 - 150	09/06/22 05:35	09/07/22 21:17	1
d5-NEtFOSAA	106		25 - 150	09/06/22 05:35	09/07/22 21:17	1
d-N-MeFOSA-M	63		10 - 150	09/06/22 05:35	09/07/22 21:17	1
d-N-EtFOSA-M	63		10 - 150	09/06/22 05:35	09/07/22 21:17	1
d7-N-MeFOSE-M	79		10 - 150	09/06/22 05:35	09/07/22 21:17	1
d9-N-EtFOSE-M	78		10 - 150	09/06/22 05:35	09/07/22 21:17	1
M2-4:2 FTS	115		25 - 150	09/06/22 05:35	09/07/22 21:17	1
M2-6:2 FTS	114		25 - 150	09/06/22 05:35	09/07/22 21:17	1
M2-8:2 FTS	120		25 - 150	09/06/22 05:35	09/07/22 21:17	1
13C3 HFPO-DA	107		25 - 150	09/06/22 05:35	09/07/22 21:17	1
13C2 10:2 FTS	124		25 - 150	09/06/22 05:35	09/07/22 21:17	1

# Definitions/Glossary

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

Job ID: 500-220856-1

## Qualifiers

### 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.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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: 500-220856-1

## LCMS

### Prep Batch: 614506

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-220856-1	MW-1R	Total/NA	Water	3535	
500-220856-2	MW-2	Total/NA	Water	3535	
500-220856-3	MW-3	Total/NA	Water	3535	
500-220856-4	MW-4	Total/NA	Water	3535	
500-220856-4 - DL	MW-4	Total/NA	Water	3535	
500-220856-5	MW-5	Total/NA	Water	3535	
500-220856-5 - DL	MW-5	Total/NA	Water	3535	
500-220856-6	MW-8	Total/NA	Water	3535	
500-220856-7	MW-1R DUP	Total/NA	Water	3535	
500-220856-8	Field Blank	Total/NA	Water	3535	
500-220856-9	Equipment Blank	Total/NA	Water	3535	
MB 320-614506/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-614506/2-A	Lab Control Sample	Total/NA	Water	3535	

### Analysis Batch: 615027

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-220856-1	MW-1R	Total/NA	Water	537 (modified)	614506
500-220856-2	MW-2	Total/NA	Water	537 (modified)	614506
500-220856-3	MW-3	Total/NA	Water	537 (modified)	614506
500-220856-4	MW-4	Total/NA	Water	537 (modified)	614506
500-220856-5	MW-5	Total/NA	Water	537 (modified)	614506
500-220856-6	MW-8	Total/NA	Water	537 (modified)	614506
500-220856-7	MW-1R DUP	Total/NA	Water	537 (modified)	614506
500-220856-8	Field Blank	Total/NA	Water	537 (modified)	614506
500-220856-9	Equipment Blank	Total/NA	Water	537 (modified)	614506
MB 320-614506/1-A	Method Blank	Total/NA	Water	537 (modified)	614506
LCS 320-614506/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	614506

### Analysis Batch: 615594

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-220856-4 - DL	MW-4	Total/NA	Water	537 (modified)	614506
500-220856-5 - DL	MW-5	Total/NA	Water	537 (modified)	614506

# QC Sample Results

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

Job ID: 500-220856-1

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

**Lab Sample ID: MB 320-614506/1-A**  
**Matrix: Water**  
**Analysis Batch: 615027**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 614506**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	<2.4		5.0	2.4	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluoropentanoic acid (PFPeA)	<0.49		2.0	0.49	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorohexanoic acid (PFHxA)	<0.58		2.0	0.58	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluoroheptanoic acid (PFHpA)	<0.25		2.0	0.25	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorooctanoic acid (PFOA)	<0.85		2.0	0.85	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorononanoic acid (PFNA)	<0.27		2.0	0.27	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorodecanoic acid (PFDA)	<0.31		2.0	0.31	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluoroundecanoic acid (PFUnA)	<1.1		2.0	1.1	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorododecanoic acid (PFDoA)	<0.55		2.0	0.55	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorotridecanoic acid (PFTrDA)	<1.3		2.0	1.3	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorotetradecanoic acid (PFTeA)	<0.73		2.0	0.73	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorobutanesulfonic acid (PFBS)	<0.20		2.0	0.20	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluoropentanesulfonic acid (PFPeS)	<0.30		2.0	0.30	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorohexanesulfonic acid (PFHxS)	<0.57		2.0	0.57	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluoroheptanesulfonic acid (PFHpS)	<0.19		2.0	0.19	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorooctanesulfonic acid (PFOS)	<0.54		2.0	0.54	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorononanesulfonic acid (PFNS)	<0.37		2.0	0.37	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorodecanesulfonic acid (PFDS)	<0.32		2.0	0.32	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorododecanesulfonic acid (PFDoS)	<0.97		2.0	0.97	ng/L		09/06/22 05:35	09/07/22 19:05	1
Perfluorooctanesulfonamide (FOSA)	<0.98		2.0	0.98	ng/L		09/06/22 05:35	09/07/22 19:05	1
NEtFOSA	<0.87		2.0	0.87	ng/L		09/06/22 05:35	09/07/22 19:05	1
NMeFOSA	<0.43		2.0	0.43	ng/L		09/06/22 05:35	09/07/22 19:05	1
NMeFOSAA	<1.2		5.0	1.2	ng/L		09/06/22 05:35	09/07/22 19:05	1
NEtFOSAA	<1.3		5.0	1.3	ng/L		09/06/22 05:35	09/07/22 19:05	1
NMeFOSE	<1.4		4.0	1.4	ng/L		09/06/22 05:35	09/07/22 19:05	1
NEtFOSE	<0.85		2.0	0.85	ng/L		09/06/22 05:35	09/07/22 19:05	1
4:2 FTS	<0.24		2.0	0.24	ng/L		09/06/22 05:35	09/07/22 19:05	1
6:2 FTS	<2.5		5.0	2.5	ng/L		09/06/22 05:35	09/07/22 19:05	1
8:2 FTS	<0.46		2.0	0.46	ng/L		09/06/22 05:35	09/07/22 19:05	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	<0.40		2.0	0.40	ng/L		09/06/22 05:35	09/07/22 19:05	1
HFPO-DA (GenX)	<1.5		4.0	1.5	ng/L		09/06/22 05:35	09/07/22 19:05	1
9Cl-PF3ONS	<0.24		2.0	0.24	ng/L		09/06/22 05:35	09/07/22 19:05	1
11Cl-PF3OUdS	<0.32		2.0	0.32	ng/L		09/06/22 05:35	09/07/22 19:05	1

Isotope Dilution	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C4 PFBA	82		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C5 PFPeA	81		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C2 PFHxA	95		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C4 PFHpA	86		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C4 PFOA	97		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C5 PFNA	97		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C2 PFDA	99		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C2 PFUnA	94		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C2 PFDoA	98		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C2 PFTeDA	94		25 - 150	09/06/22 05:35	09/07/22 19:05	1

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# QC Sample Results

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

Job ID: 500-220856-1

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

**Lab Sample ID: MB 320-614506/1-A**  
**Matrix: Water**  
**Analysis Batch: 615027**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 614506**

Isotope Dilution	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C3 PFBS	88		25 - 150	09/06/22 05:35	09/07/22 19:05	1
18O2 PFHxS	88		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C4 PFOS	84		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C8 FOSA	75		10 - 150	09/06/22 05:35	09/07/22 19:05	1
d3-NMeFOSAA	81		25 - 150	09/06/22 05:35	09/07/22 19:05	1
d5-NEtFOSAA	83		25 - 150	09/06/22 05:35	09/07/22 19:05	1
d-N-MeFOSA-M	63		10 - 150	09/06/22 05:35	09/07/22 19:05	1
d-N-EtFOSA-M	65		10 - 150	09/06/22 05:35	09/07/22 19:05	1
d7-N-MeFOSE-M	78		10 - 150	09/06/22 05:35	09/07/22 19:05	1
d9-N-EtFOSE-M	79		10 - 150	09/06/22 05:35	09/07/22 19:05	1
M2-4:2 FTS	94		25 - 150	09/06/22 05:35	09/07/22 19:05	1
M2-6:2 FTS	92		25 - 150	09/06/22 05:35	09/07/22 19:05	1
M2-8:2 FTS	101		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C3 HFPO-DA	95		25 - 150	09/06/22 05:35	09/07/22 19:05	1
13C2 10:2 FTS	108		25 - 150	09/06/22 05:35	09/07/22 19:05	1

**Lab Sample ID: LCS 320-614506/2-A**  
**Matrix: Water**  
**Analysis Batch: 615027**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 614506**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec
							Limits
Perfluorobutanoic acid (PFBA)	40.0	46.0		ng/L		115	60 - 135
Perfluoropentanoic acid (PFPeA)	40.0	44.3		ng/L		111	60 - 135
Perfluorohexanoic acid (PFHxA)	40.0	37.7		ng/L		94	60 - 135
Perfluoroheptanoic acid (PFHpA)	40.0	46.1		ng/L		115	60 - 135
Perfluorooctanoic acid (PFOA)	40.0	42.6		ng/L		107	60 - 135
Perfluorononanoic acid (PFNA)	40.0	42.8		ng/L		107	60 - 135
Perfluorodecanoic acid (PFDA)	40.0	45.4		ng/L		113	60 - 135
Perfluoroundecanoic acid (PFUnA)	40.0	44.0		ng/L		110	60 - 135
Perfluorododecanoic acid (PFDoA)	40.0	41.9		ng/L		105	60 - 135
Perfluorotridecanoic acid (PFTrDA)	40.0	41.7		ng/L		104	60 - 135
Perfluorotetradecanoic acid (PFTeA)	40.0	42.4		ng/L		106	60 - 135
Perfluorobutanesulfonic acid (PFBS)	35.5	40.1		ng/L		113	60 - 135
Perfluoropentanesulfonic acid (PFPeS)	37.5	40.4		ng/L		108	60 - 135
Perfluorohexanesulfonic acid (PFHxS)	36.5	37.3		ng/L		102	60 - 135
Perfluoroheptanesulfonic acid (PFHpS)	38.2	44.6		ng/L		117	60 - 135
Perfluorooctanesulfonic acid (PFOS)	37.2	41.9		ng/L		113	60 - 135
Perfluorononanesulfonic acid (PFNS)	38.5	44.2		ng/L		115	60 - 135
Perfluorodecanesulfonic acid (PFDS)	38.6	43.1		ng/L		112	60 - 135
Perfluorododecanesulfonic acid (PFDoS)	38.8	40.7		ng/L		105	60 - 135

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# QC Sample Results

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

Job ID: 500-220856-1

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

**Lab Sample ID: LCS 320-614506/2-A**  
**Matrix: Water**  
**Analysis Batch: 615027**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 614506**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorooctanesulfonamide (FOSA)	40.0	45.3		ng/L		113	60 - 135
NEtFOSA	40.0	43.1		ng/L		108	60 - 135
NMeFOSA	40.0	46.0		ng/L		115	60 - 135
NMeFOSAA	40.0	44.0		ng/L		110	60 - 135
NEtFOSAA	40.0	41.1		ng/L		103	60 - 135
NMeFOSE	40.0	42.3		ng/L		106	60 - 135
NEtFOSE	40.0	41.9		ng/L		105	60 - 135
4:2 FTS	37.5	42.5		ng/L		113	60 - 135
6:2 FTS	38.1	42.7		ng/L		112	60 - 135
8:2 FTS	38.4	43.9		ng/L		114	60 - 135
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	37.8	47.3		ng/L		125	60 - 135
HFPO-DA (GenX)	40.0	45.5		ng/L		114	60 - 135
9Cl-PF3ONS	37.4	44.9		ng/L		120	60 - 135
11Cl-PF3OUdS	37.8	44.9		ng/L		119	60 - 135

Isotope Dilution	LCS LCS		Limits
	%Recovery	Qualifier	
13C4 PFBA	93		25 - 150
13C5 PFPeA	94		25 - 150
13C2 PFHxA	115		25 - 150
13C4 PFHpA	97		25 - 150
13C4 PFOA	109		25 - 150
13C5 PFNA	107		25 - 150
13C2 PFDA	111		25 - 150
13C2 PFUnA	108		25 - 150
13C2 PFDoA	112		25 - 150
13C2 PFTeDA	105		25 - 150
13C3 PFBS	98		25 - 150
18O2 PFHxS	98		25 - 150
13C4 PFOS	92		25 - 150
13C8 FOSA	85		10 - 150
d3-NMeFOSAA	93		25 - 150
d5-NEtFOSAA	96		25 - 150
d-N-MeFOSA-M	74		10 - 150
d-N-EtFOSA-M	76		10 - 150
d7-N-MeFOSE-M	89		10 - 150
d9-N-EtFOSE-M	90		10 - 150
M2-4:2 FTS	106		25 - 150
M2-6:2 FTS	112		25 - 150
M2-8:2 FTS	109		25 - 150
13C3 HFPO-DA	112		25 - 150
13C2 10:2 FTS	121		25 - 150

# Lab Chronicle

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

Job ID: 500-220856-1

**Client Sample ID: MW-1R**  
**Date Collected: 08/11/22 13:05**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220856-1**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			614506	EFG	EET SAC	09/06/22 05:35
Total/NA	Analysis	537 (modified)		1	615027	RS1	EET SAC	09/07/22 19:25

**Client Sample ID: MW-2**  
**Date Collected: 08/11/22 16:10**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220856-2**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			614506	EFG	EET SAC	09/06/22 05:35
Total/NA	Analysis	537 (modified)		1	615027	RS1	EET SAC	09/07/22 19:36

**Client Sample ID: MW-3**  
**Date Collected: 08/11/22 17:10**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220856-3**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			614506	EFG	EET SAC	09/06/22 05:35
Total/NA	Analysis	537 (modified)		1	615027	RS1	EET SAC	09/07/22 19:46

**Client Sample ID: MW-4**  
**Date Collected: 08/11/22 16:35**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220856-4**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			614506	EFG	EET SAC	09/06/22 05:35
Total/NA	Analysis	537 (modified)		1	615027	RS1	EET SAC	09/07/22 19:56
Total/NA	Prep	3535	DL		614506	EFG	EET SAC	09/06/22 05:35
Total/NA	Analysis	537 (modified)	DL	5	615594	K1S	EET SAC	09/10/22 18:39

**Client Sample ID: MW-5**  
**Date Collected: 08/11/22 15:10**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220856-5**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			614506	EFG	EET SAC	09/06/22 05:35
Total/NA	Analysis	537 (modified)		1	615027	RS1	EET SAC	09/07/22 20:06
Total/NA	Prep	3535	DL		614506	EFG	EET SAC	09/06/22 05:35
Total/NA	Analysis	537 (modified)	DL	5	615594	K1S	EET SAC	09/10/22 18:49

**Client Sample ID: MW-8**  
**Date Collected: 08/11/22 14:20**  
**Date Received: 08/13/22 09:50**

**Lab Sample ID: 500-220856-6**  
**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			614506	EFG	EET SAC	09/06/22 05:35
Total/NA	Analysis	537 (modified)		1	615027	RS1	EET SAC	09/07/22 20:16

# Lab Chronicle

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

Job ID: 500-220856-1

**Client Sample ID: MW-1R DUP**

**Lab Sample ID: 500-220856-7**

**Date Collected: 08/11/22 13:10**

**Matrix: Water**

**Date Received: 08/13/22 09:50**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			614506	EFG	EET SAC	09/06/22 05:35
Total/NA	Analysis	537 (modified)		1	615027	RS1	EET SAC	09/07/22 20:26

**Client Sample ID: Field Blank**

**Lab Sample ID: 500-220856-8**

**Date Collected: 08/11/22 13:35**

**Matrix: Water**

**Date Received: 08/13/22 09:50**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			614506	EFG	EET SAC	09/06/22 05:35
Total/NA	Analysis	537 (modified)		1	615027	RS1	EET SAC	09/07/22 20:36

**Client Sample ID: Equipment Blank**

**Lab Sample ID: 500-220856-9**

**Date Collected: 08/11/22 13:40**

**Matrix: Water**

**Date Received: 08/13/22 09:50**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3535			614506	EFG	EET SAC	09/06/22 05:35
Total/NA	Analysis	537 (modified)		1	615027	RS1	EET SAC	09/07/22 21:17

**Laboratory References:**

EET 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: 500-220856-1

## Laboratory: Eurofins Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-020	02-20-24
ANAB	Dept. of Defense ELAP	L2468	01-20-24
ANAB	Dept. of Energy	L2468.01	01-20-24
ANAB	ISO/IEC 17025	L2468	01-20-24
Arizona	State	AZ0708	08-11-23
Arkansas DEQ	State	88-0691	06-17-22 *
California	State	2897	01-31-23
Colorado	State	CA0004	08-31-23
Florida	NELAP	E87570	06-30-23
Georgia	State	4040	01-30-23
Hawaii	State	<cert No.>	01-29-23
Illinois	NELAP	200060	03-17-24
Kansas	NELAP	E-10375	10-31-22
Louisiana	NELAP	01944	06-30-23
Louisiana (All)	NELAP	01944	06-30-23
Maine	State	CA00004	04-14-24
Michigan	State	9947	01-31-23
Nevada	State	CA00044	07-31-23
New Hampshire	NELAP	2997	04-18-23
New Jersey	NELAP	CA005	06-30-23
New York	NELAP	11666	04-01-23
Ohio	State	41252	01-29-23
Oregon	NELAP	4040	01-29-23
Texas	NELAP	T104704399-19-13	05-31-23
US Fish & Wildlife	US Federal Programs	58448	04-30-23
USDA	US Federal Programs	P330-18-00239	01-23-23
Utah	NELAP	CA000442021-12	02-28-23
Virginia	NELAP	460278	03-14-23
Washington	State	C581	05-05-23
West Virginia (DW)	State	9930C	12-31-22
Wisconsin	State	998204680	08-31-23
Wyoming	State Program	8TMS-L	01-28-19 *


\* Accreditation/Certification renewal pending - accreditation/certification considered valid.

**Eurofins Chicago**

241<sup>st</sup> Bond Street  
 University Park IL 60484  
 Phone 708-534 5200 Fax 708-534-5211

**Chain of Custody Record**



<b>Client Information</b>		Sampler <i>Ryan Matzuk</i>	Lab PM Fredrick, Sandie	Carrier Tracking No(s)	COC No. 500-103903-44520					
Client Contact Mr Robert Langdon		Phone <i>608 400 9597</i>	E-Mail Sandra.Fredrick@et.eurofinsus.com	State of Origin	Page Page 1 of 2					
Company SCS Engineers		PWS#	<b>Analysis Rec</b>							
Address 2830 Dairy Dr		Due Date Requested	 500-220856 COC							
City Madison		TAT Requested (days)								
State/Zip WI 53718		Compliance Project <input type="checkbox"/> Yes <input type="checkbox"/> No								
Phone		PO # 25221094 00								
Email rlangdon@scsengineers.com		WC #	Job #: <i>500-220856</i> <b>Preservation Codes</b> A H <sub>2</sub> L M Hexane B NaOH N None C Zn Acetate O AsvaO2 D Nitric Acid P Na2O4S E NaHSO4 Q Na2SO3 F MeOH S H <sub>2</sub> SO4 G Amchlor T TSP Dodecahydrate H Ascorbic Acid U Acetone I ce V MCAA J DI Water W pH 4 <sup>+</sup> K EDTA Y Trizma L EDA Z Other (specify)							
Project Name Black Hawk Junction 25221094 00		Project # 50006561								
Site		SSOW#								
<b>Sample Identification</b>		Sample Date	Sample Time	Sample Type (C=comp G=grab)	Matrix (W=water S=solid, O=waste/soil BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA_WI PFAS Standard List (33 analytes)	Total Number of Containers	Special Instructions/Note
		Preservation Code: <input checked="" type="checkbox"/> N								
1	MW-1R	8/11/22	1305	G	Water	X				
2	MW-2		1610		Water	X				
3	MW-3		1710		Water	X				
4	MW-4		1635		Water	X				
5	MW-5		1510		Water	X				
6	MW-8		1420		Water	X				
7	MW-1R DUP		1310		Water	X				
8	Field Blank		1335		Water	X				
9	Equipment Blank	↓	1340	↓	Water	X				
					Water					
					Water					
<b>Possible Hazard Identification</b>					<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b>					
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological					<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Deliverable Requested I II III IV Other (specify)					Special Instructions/QC Requirements					
Empty Kit Reinquished by		Date	Time	Method of Shipment						
Reinquished by <i>[Signature]</i>		Date/Time 8/11/22 1300	Company	Received by <i>Stephane Hernandez</i>		Date/Time 8/13/22 0950	Company EETA			
Reinquished by		Date/Time	Company	Received by		Date/Time	Company			
Reinquished by		Date/Time	Company	Received by		Date/Time	Company			
Custody Seals Intact <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No		Cooler Temperature (C and Other Remarks)		2.0 → 0.7				

TD-RRLA (262) 202-5555  
WISCONSIN  
MADISON  
DRIVE  
WI 53718  
STATES US

SHIP DATE: 19JUL22  
ACTWT: 20 00 LB MAN  
CAD 0269688/CAFE3511



500-220856 Waybi

**SAMPLE RECEIPT**  
**EUROFINS**  
**2417 BOND ST.**

57002/0002/AF 60

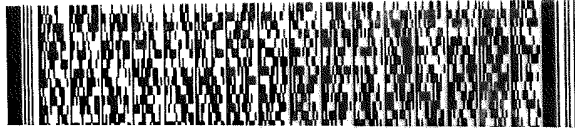
**UNIVERSITY PARK IL 60484**

(262) 202-5965  
INU:  
PO

REF

DEPT

RMA



**FedEx**  
Express



001011416

**FedEx**

TRK# 5887 6287 9770  
0221

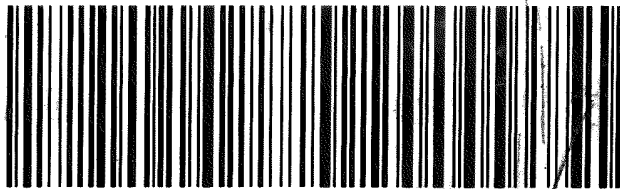
**SATURDAY 12:00P**  
**PRIORITY OVERNIGHT**

**XO JOTA**

60484

IL-US ORD

001011416  
00097-435  
PRIORITY  
EXP 02/23



# Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b>		Sampler:	Lab PM:	Carrier Tracking No(s):	COC No:
Shipping/Receiving		Phone:	Frederick, Sandie		500-164219.1
Company: Eurofins Environment Testing Northern Ca		E-Mail: Sandra.Fredrick@et.eurofins.com		State of Origin:	Page:
Address: 880 Riverside Parkway,		Accreditations Required (See note):		Wisconsin	Page 1 of 1
City: West Sacramento	State, Zip: CA, 95605	Due Date Requested:	Job #:		
Phone: 916-373-5600(Tel) 916-372-1059(Fax)	PO #:	9/12/2022	500-220856-1		
Email:	WO #:	TAT Requested (days):	Preservation Codes:		
Project Name: Black Hawk Junction - 25221094.00	Project #: 50006561		A - HCL M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2SO3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Y - Trizma Z - other (specify)		
Site:	SSOW#:		Other:		
<b>Sample Identification - Client ID (Lab ID)</b>		<b>Sample Date</b>	<b>Sample Time</b>	<b>Sample Type (C=Comp, G=grab)</b>	<b>Matrix (Water, Snow/Ice, Soil, Oil, B1* Tissue, A=Air)</b>
MW-1R (500-220856-1)	8/11/22	13:05 Central	Water	Water	Field Filtered Sample (Yes or No)
MW-2 (500-220856-2)	8/11/22	16:10 Central	Water	Water	Perform MS/MSD (Yes or No)
MW-3 (500-220856-3)	8/11/22	17:10 Central	Water	Water	PFC, IDA, W/3535_PFC_280 PFAS, Standard List (33 analytes)
MW-4 (500-220856-4)	8/11/22	16:35 Central	Water	Water	
MW-5 (500-220856-5)	8/11/22	15:10 Central	Water	Water	
MW-8 (500-220856-6)	8/11/22	14:20 Central	Water	Water	
MW-1R DUP (500-220856-7)	8/11/22	13:10 Central	Water	Water	
Field Blank (500-220856-8)	8/11/22	13:35 Central	Water	Water	
Equipment Blank (500-220856-9)	8/11/22	13:40 Central	Water	Water	
<p>Note: Since laboratory accreditations are subject to change, Eurofins Chicago places the ownership of method, analyte &amp; accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Chicago laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Chicago attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Chicago.</p>					
<b>Possible Hazard Identification</b>					
Unconfirmed					
Deliverable Requested: I, II, III, IV, Other (specify)					
Primary Deliverable Rank: 2					
Date/Time: 8/15/22 0820					
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# Login Sample Receipt Checklist

Client: SCS Engineers

Job Number: 500-220856-1

**Login Number: 220856**

**List Source: Eurofins Chicago**

**List Number: 1**

**Creator: Hernandez, Stephanie**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> 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	0.7
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 <math><6\text{mm}</math> (1/4").	N/A	
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: 500-220856-1

**Login Number: 220856**

**List Number: 2**

**Creator: Her, David A**

**List Source: Eurofins Sacramento**

**List Creation: 08/17/22 05:52 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	1993702
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	2.1 c
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 <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# Isotope Dilution Summary

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

Job ID: 500-220856-1

## 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)
500-220856-1	MW-1R	75	78	95	80	86	86	89	87
500-220856-2	MW-2	83	89	102	87	98	100	100	96
500-220856-3	MW-3	89	96	111	97	108	110	113	104
500-220856-4	MW-4	80	85	102	88	95	97	100	95
500-220856-4 - DL	MW-4								
500-220856-5	MW-5	91	96	116	97	106	112	114	106
500-220856-5 - DL	MW-5								
500-220856-6	MW-8	95	100	118	105	111	108	114	110
500-220856-7	MW-1R DUP	92	95	112	100	105	108	115	105
500-220856-8	Field Blank	92	95	114	94	111	112	111	106
500-220856-9	Equipment Blank	90	97	114	99	110	115	114	109
LCS 320-614506/2-A	Lab Control Sample	93	94	115	97	109	107	111	108
MB 320-614506/1-A	Method Blank	82	81	95	86	97	97	99	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)
500-220856-1	MW-1R	89	88	78	80	76	74	76	80
500-220856-2	MW-2	98	101	86	90	90	82	85	87
500-220856-3	MW-3	109	103	93	97	91	88	92	99
500-220856-4	MW-4	97	96	90		84	80	80	88
500-220856-4 - DL	MW-4				90				
500-220856-5	MW-5	109	103	102		98	94	94	99
500-220856-5 - DL	MW-5				102				
500-220856-6	MW-8	108	107	103	100	99	95	94	100
500-220856-7	MW-1R DUP	108	103	96	99	95	93	92	97
500-220856-8	Field Blank	104	101	99	101	98	86	90	95
500-220856-9	Equipment Blank	115	109	94	100	99	85	98	106
LCS 320-614506/2-A	Lab Control Sample	112	105	98	98	92	85	93	96
MB 320-614506/1-A	Method Blank	98	94	88	88	84	75	81	83

		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)
500-220856-1	MW-1R	64	64	71	74	87	86	90	85
500-220856-2	MW-2	72	72	78	80	105	99	104	96
500-220856-3	MW-3	76	77	85	86	105	103	110	104
500-220856-4	MW-4	66	65	73	74	98	95	97	99
500-220856-4 - DL	MW-4								
500-220856-5	MW-5	81	83	90	91	107	104	109	109
500-220856-5 - DL	MW-5								
500-220856-6	MW-8	84	81	87	92	114	111	113	113
500-220856-7	MW-1R DUP	83	80	88	91	106	108	121	109
500-220856-8	Field Blank	77	76	86	89	112	109	111	107
500-220856-9	Equipment Blank	63	63	79	78	115	114	120	107
LCS 320-614506/2-A	Lab Control Sample	74	76	89	90	106	112	109	112
MB 320-614506/1-A	Method Blank	63	65	78	79	94	92	101	95

		M102FTS (25-150)
Lab Sample ID	Client Sample ID	111
500-220856-1	MW-1R	111

Eurofins Chicago

# Isotope Dilution Summary

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

Job ID: 500-220856-1

## 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)
500-220856-2	MW-2	109
500-220856-3	MW-3	136
500-220856-4	MW-4	110
500-220856-4 - DL	MW-4	
500-220856-5	MW-5	123
500-220856-5 - DL	MW-5	
500-220856-6	MW-8	119
500-220856-7	MW-1R DUP	131
500-220856-8	Field Blank	112
500-220856-9	Equipment Blank	124
LCS 320-614506/2-A	Lab Control Sample	121
MB 320-614506/1-A	Method Blank	108

#### Surrogate Legend

- PFBA = 13C4 PFBA
- PFPeA = 13C5 PFPeA
- PFHxA = 13C2 PFHxA
- C4PFHA = 13C4 PFHpA
- PFOA = 13C4 PFOA
- PFNA = 13C5 PFNA
- PFDA = 13C2 PFDA
- PFUnA = 13C2 PFUnA
- PFDoA = 13C2 PFDoA
- 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