July 22, 2024

Mr. Michael W. Smith, P.E.
Environmental Engineer Senior
Iowa Department of Natural Resources
6200 Park Avenue, Suite 200
Des Moines, Iowa 50321

HLW Engineering Group
Engineering Management

RE: Notification of Results of Appendix II Testing at MW-38
Clarke County Sanitary Landfill, IDNR Permit #20-SDP-04-94C

Dear Mr. Smith:

The IDNR Comment Letter dated May 29, 2024 (Doc #110159) pertaining to the Clarke County Sanitary Landfill (20-SDP-04-94C) required reporting of the Appendix II water quality results collected at MW-38.

The Appendix II sample was collected at MW-38 on June 3, 2024. The results were received on July 9, 2024 (attached). Pursuant Iowa Administrative Code (IAC) 567 110.10(6)b, notification is due to IDNR within 14 days of receipt of the data (by July 23, 2024).

The attached results indicate that there were only four (4) compounds detected (all included in the Appendix I list) and the four (4) compounds are arsenic, barium, cobalt, and nickel. All four (4) detected compounds are below the respective prediction limits (Table 5 attached) as follows:

Compound	Concentration (ug/L)	Prediction Limit (ug/L)
Arsenic	5.2	6.3
Barium	17.5	51.7
Cobalt	1.3	20.4
Nickel	4.3	64.2

Please contact the HLW Engineering Group office at (515) 733-4144 with any questions you may have.

Sincerely,
HLW Engineering Group

Todd Whipple, CPG.
Project Manager

cc: Dean Robins, Chair, Clarke County Landfill Commission

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1HF0855

Project Description

6037

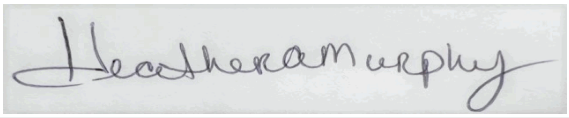
For:

Todd Whipple

HLW Engineering

PO Box 314

Story City, IA 50248



Heather Murphy

Customer Relationship Specialist

Tuesday, July 9, 2024

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc., Newton. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

MICROBAC®

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1HF0855

HLW Engineering

Todd Whipple
PO Box 314
Story City, IA 50248

Project Name: 6037

Project / PO Number: 050312
Received: 06/05/2024
Reported: 07/09/2024

Sample Summary Report

Sample Name	Laboratory ID	Client Matrix	Sample Type	Sample Begin	Sample Taken	Lab Received
MW-38	1HF0855-01	Aqueous	GRAB		06/03/24 09:42	06/05/24 09:42

Analytical Testing Parameters

Client Sample ID:	MW-38		
Sample Matrix:	Aqueous	**Collected By:**	Whipple, Todd
Lab Sample ID:	1HF0855-01	**Collection Date:**	06/03/2024 9:42

Determination of Volatile Organic Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 5030B/EPA 8260B								
Dichlorodifluoromethane	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Chloromethane	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Vinyl Chloride	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Bromomethane	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Chloroethane	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Trichlorofluoromethane	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Acrolein	<10.0	10.0	ug/L	1	**I-02**	06/14/24 0000	06/14/24 1102	CSM
1,1-Dichloroethylene	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Acetone	<10.0	10.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Methyl Iodide	<2.0	2.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Carbon Disulfide	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Acetonitrile	<10.0	10.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Methylene Chloride	<5.0	5.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Acrylonitrile	<5.0	5.0	ug/L	1	**I-02**	06/14/24 0000	06/14/24 1102	CSM
trans-1,2-Dichloroethylene	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
1,1-Dichloroethane	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Vinyl Acetate	<5.0	5.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
2,2-Dichloropropane	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
cis-1,2-Dichloroethylene	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
2-Butanone (MEK)	<5.0	5.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Bromochloromethane	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Chloroform	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
1,1,1-Trichloroethane	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
1,1-Dichloropropene	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Carbon Tetrachloride	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Benzene	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
1,2-Dichloroethane	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Trichloroethylene	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
1,2-Dichloropropane	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Dibromomethane	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Bromodichloromethane	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
cis-1,3-Dichloropropene	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
4-Methyl-2-pentanone (MIBK)	<5.0	5.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Toluene	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
trans-1,3-Dichloropropene	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Ethyl Methacrylate	<10.0	10.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
1,1,2-Trichloroethane	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Tetrachloroethylene	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
1,3-Dichloropropane	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
2-Hexanone (MBK)	<5.0	5.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM

Client Sample ID:	MW-38		
Sample Matrix:	Aqueous	**Collected By:**	Whipple, Todd
Lab Sample ID:	1HF0855-01	**Collection Date:**	06/03/2024 9:42

Determination of Volatile Organic Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Dibromochloromethane	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
1,2-Dibromoethane	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Chlorobenzene	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
1,1,1,2-Tetrachloroethane	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Ethylbenzene	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Xylenes, total	<2.0	2.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Styrene	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Bromoform	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
1,2,3-Trichloropropane	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
trans-1,4-Dichloro-2-butene	<5.0	5.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
1,1,2,2-Tetrachloroethane	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
1,3-Dichlorobenzene	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
1,4-Dichlorobenzene	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
1,2-Dichlorobenzene	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
1,2-Dibromo-3-chloropropane	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
1,2,4-Trichlorobenzene	<1.0	1.0	ug/L	1		06/14/24 0000	06/14/24 1102	CSM
Allyl chloride	<1.0	1.0	ug/L	1		06/17/24 0000	06/17/24 1346	CSM
Chloroprene	<1.0	1.0	ug/L	1		06/17/24 0000	06/17/24 1346	CSM
Methacrylonitrile	<1.0	1.0	ug/L	1		06/17/24 0000	06/17/24 1346	CSM
Methyl Methacrylate	<1.0	1.0	ug/L	1		06/17/24 0000	06/17/24 1346	CSM
Propionitrile	<10.0	10.0	ug/L	1		06/17/24 0000	06/17/24 1346	CSM
Surrogate: Dibromofluoromethane	88.0	Limit: 80-126	% Rec	1		06/17/24 0000	06/17/24 1346	CSM
Surrogate: Dibromofluoromethane	86.4	Limit: 80-126	% Rec	1		06/14/24 0000	06/14/24 1102	CSM
Surrogate: 1,2-Dichloroethane-d4	90.7	Limit: 63-138	% Rec	1		06/14/24 0000	06/14/24 1102	CSM
Surrogate: 1,2-Dichloroethane-d4	89.0	Limit: 63-138	% Rec	1		06/17/24 0000	06/17/24 1346	CSM
Surrogate: 1,2-Dichloroethane-d4	90.7	Limit: 63-138	% Rec	1	**I-02**	06/14/24 0000	06/14/24 1102	CSM
Surrogate: Toluene-d8	97.0	Limit: 87-116	% Rec	1		06/14/24 0000	06/14/24 1102	CSM
Surrogate: Toluene-d8	97.0	Limit: 87-116	% Rec	1	**I-02**	06/14/24 0000	06/14/24 1102	CSM
Surrogate: Toluene-d8	102	Limit: 87-116	% Rec	1		06/17/24 0000	06/17/24 1346	CSM
Surrogate: 4-Bromofluorobenzene	97.2	Limit: 85-111	% Rec	1		06/14/24 0000	06/14/24 1102	CSM
Surrogate: 4-Bromofluorobenzene	96.6	Limit: 85-111	% Rec	1		06/17/24 0000	06/17/24 1346	CSM
Surrogate: 4-Bromofluorobenzene	97.2	Limit: 85-111	% Rec	1	**I-02**	06/14/24 0000	06/14/24 1102	CSM

Determination of General Solvents	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 8015C								
Isobutanol	<1.0	1.0	mg/L	1		06/16/24 1344	06/16/24 2030	PDS

Determination of Base/Neutral/Acid Extractable Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3520C/EPA 8270C			**Method Notes:** O-05					
N-Nitrosodimethylamine	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Methyl Methanesulfonate	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
N-Nitrosodiethylamine	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
N-Nitrosomethylethylamine	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP

Client Sample ID:	MW-38		
Sample Matrix:	Aqueous	**Collected By:**	Whipple, Todd
Lab Sample ID:	1HF0855-01	**Collection Date:**	06/03/2024 9:42

Determination of Base/Neutral/Acid Extractable Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Ethyl Methanesulfonate	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Phenol	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Bis(2-Chloroethyl) Ether	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
2-Chlorophenol	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Benzyl Alcohol	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
2-Methylphenol (o-Cresol)	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Bis[2-Chloroisopropyl]ether	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
n-Nitroso-di-n-propylamine	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
N-Nitrosopyrrolidine	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Acetophenone	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
o-Toluidine	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
(3 & 4)-Methylphenol	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Hexachloroethane	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Nitrobenzene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
N-Nitrosopiperidine	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Isophorone	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
2-Nitrophenol	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
2,4-Dimethylphenol	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Bis (2-Chloroethoxy) Methane	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
2,4-Dichlorophenol	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Naphthalene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
4-Chloroaniline	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
2,6-Dichlorophenol	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Hexachloropropene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Hexachlorobutadiene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
N-Nitrosodi-n-butylamine	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
1,4-Phenylenediamine	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
4-Chloro-3-methylphenol	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
2-Methylnaphthalene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Isosafrole	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
1,2,4,5-Tetrachlorobenzene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Hexachlorocyclopentadiene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
2,4,6-Trichlorophenol	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
2,4,5-Trichlorophenol	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Safrole	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
2-Chloronaphthalene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
2-Nitroaniline	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
1,4-Naphthoquinone	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Dimethylphthalate	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
1,3-Dinitrobenzene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
1,2-Dinitrobenzene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
2,6-Dinitrotoluene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Acenaphthylene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP

Client Sample ID:	MW-38		
Sample Matrix:	Aqueous	**Collected By:**	Whipple, Todd
Lab Sample ID:	1HF0855-01	**Collection Date:**	06/03/2024 9:42

Determination of Base/Neutral/Acid Extractable Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
3-Nitroaniline	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Acenaphthene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
2,4-Dinitrophenol	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
4-Nitrophenol	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Dibenzofuran	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
2,4-Dinitrotoluene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
2,3,4,6-Tetrachlorophenol	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Pentachlorobenzene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
1-Naphthylamine	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
2-Naphthylamine	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Diethyl Phthalate	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Fluorene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
4-Chlorophenyl Phenyl Ether	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
4-Nitroaniline	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
5-Nitro-o-toluidine	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
4,6-Dinitro-2-methylphenol	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
N-Nitrosodiphenylamine	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Diphenylamine	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Azobenzene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Diallate	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
1,3,5-Trinitrobenzene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Phenacetin	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
4-Bromophenyl Phenyl Ether	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
4-Aminobiphenyl	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Pentachlorophenol	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Pronamide	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Pentachloronitrobenzene (PCNB)	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Phenanthrene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Anthracene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Di-n-butyl Phthalate	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Methapyrilene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Fluoranthene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Isodrin	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Chlorobenzilate	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Pyrene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
p-(Dimethylamino)azobenzene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
3,3-Dimethylbenzidine	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Butyl Benzyl Phthalate	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Benzo(a)anthracene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Chrysene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Bis(2-Ethylhexyl) Phthalate	<6	6	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Kepone	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
3,3´-Dichlorobenzidine	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP

CERTIFICATE OF ANALYSIS

1HF0855

Client Sample ID:	MW-38		
Sample Matrix:	Aqueous	**Collected By:**	Whipple, Todd
Lab Sample ID:	1HF0855-01	**Collection Date:**	06/03/2024 9:42

Determination of Base/Neutral/Acid Extractable Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
2-Acetylaminofluorene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Di-n-octyl Phthalate	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Benzo(b)Fluoranthene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
7,12-Dimethylbenz [a] anthracene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Benzo(k)Fluoranthene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Benzo(a)Pyrene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
3-Methylcholanthrene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Dibenzo(a,h)anthracene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Indeno(1,2,3-cd)Pyrene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Benzo(g,h,i)perylene	<8	8	ug/L	1		06/17/24 1029	07/05/24 1554	EPP
Surrogate: 2-Fluorophenol	119	Limit: 24-136	% Rec	1		06/17/24 1029	07/05/24 1554	EPP
Surrogate: Phenol-d6	128	Limit: 15-140	% Rec	1		06/17/24 1029	07/05/24 1554	EPP
Surrogate: Nitrobenzene-d5	134	Limit: 29-130	% Rec	1	**S-GC**	06/17/24 1029	07/05/24 1554	EPP
Surrogate: 2-Fluorobiphenyl	120	Limit: 23-113	% Rec	1	**S-GC**	06/17/24 1029	07/05/24 1554	EPP
Surrogate: 2,4,6-Tribromophenol	149	Limit: 15-139	% Rec	1	**S-GC**	06/17/24 1029	07/05/24 1554	EPP
Surrogate: Terphenyl-dl4	124	Limit: 27-141	% Rec	1		06/17/24 1029	07/05/24 1554	EPP

Determination of Organophosphorus Insecticides	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3510C/EPA 8141			**Method Notes:** I-02					
O,O,O-Triethyl phosphorothioate	<0.4	0.4	ug/L	1		06/13/24 1356	06/21/24 1241	PDS
Thionazin	<0.4	0.4	ug/L	1		06/13/24 1356	06/21/24 1241	PDS
Phorate	<0.4	0.4	ug/L	1		06/13/24 1356	06/21/24 1241	PDS
Dimethoate	<0.4	0.4	ug/L	1		06/13/24 1356	06/21/24 1241	PDS
Disulfoton	<0.4	0.4	ug/L	1		06/13/24 1356	06/21/24 1241	PDS
Methyl Parathion	<0.4	0.4	ug/L	1		06/13/24 1356	06/21/24 1241	PDS
Parathion	<0.4	0.4	ug/L	1		06/13/24 1356	06/21/24 1241	PDS
Famphur	<0.4	0.4	ug/L	1		06/13/24 1356	06/21/24 1241	PDS
Surrogate: 2-Nitro-m-xylene	48.9	Limit: 38-122	% Rec	1		06/13/24 1356	06/21/24 1241	PDS

Determination of Chlorinated Phenoxy Herbicides	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 8151A								
2,4-D	<2.0	2.0	ug/L	1	**O-05**	06/17/24 1020	06/25/24 1948	PDS
2,4,5-TP (Silvex)	<0.5	0.5	ug/L	1	**O-05**	06/17/24 1020	06/25/24 1948	PDS
2,4,5-T	<0.5	0.5	ug/L	1	**O-05**	06/17/24 1020	06/25/24 1948	PDS
Dinoseb	<0.5	0.5	ug/L	1	**O-05**	06/17/24 1020	06/25/24 1948	PDS
Surrogate: 2,5-Dichlorobenzoic Acid	129	Limit: 31-116	% Rec	1	**O-05, S-07**	06/17/24 1020	06/25/24 1948	PDS

Determination of Organochlorine Insecticides & Metabolites	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3510C/EPA 8081			**Method Notes:** I-02					
Alpha-BHC	<0.05	0.05	ug/L	1		06/13/24 1400	06/19/24 1646	PDS

Client Sample ID:	MW-38		
Sample Matrix:	Aqueous	**Collected By:**	Whipple, Todd
Lab Sample ID:	1HF0855-01	**Collection Date:**	06/03/2024 9:42

Determination of Organochlorine Insecticides & Metabolites	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Gamma-BHC [Lindane]	<0.05	0.05	ug/L	1		06/13/24 1400	06/19/24 1646	PDS
Beta-BHC	<0.05	0.05	ug/L	1		06/13/24 1400	06/19/24 1646	PDS
Heptachlor	<0.05	0.05	ug/L	1		06/13/24 1400	06/19/24 1646	PDS
Delta-BHC	<0.05	0.05	ug/L	1		06/13/24 1400	06/19/24 1646	PDS
Aldrin	<0.05	0.05	ug/L	1		06/13/24 1400	06/19/24 1646	PDS
Heptachlor Epoxide	<0.05	0.05	ug/L	1		06/13/24 1400	06/19/24 1646	PDS
Endosulfan I	<0.05	0.05	ug/L	1		06/13/24 1400	06/19/24 1646	PDS
4,4`-DDE	<0.05	0.05	ug/L	1		06/13/24 1400	06/19/24 1646	PDS
Dieldrin	<0.05	0.05	ug/L	1		06/13/24 1400	06/19/24 1646	PDS
Endrin	<0.05	0.05	ug/L	1		06/13/24 1400	06/19/24 1646	PDS
4,4`-DDD	<0.05	0.05	ug/L	1		06/13/24 1400	06/19/24 1646	PDS
Endosulfan II	<0.05	0.05	ug/L	1		06/13/24 1400	06/19/24 1646	PDS
4,4`-DDT	<0.05	0.05	ug/L	1		06/13/24 1400	06/19/24 1646	PDS
Endrin Aldehyde	<0.05	0.05	ug/L	1		06/13/24 1400	06/19/24 1646	PDS
Endosulfan Sulfate	<0.05	0.05	ug/L	1		06/13/24 1400	06/19/24 1646	PDS
Methoxychlor	<0.05	0.05	ug/L	1		06/13/24 1400	06/19/24 1646	PDS
Chlordane	<0.10	0.10	ug/L	1		06/13/24 1400	06/19/24 1646	PDS
Toxaphene	<0.20	0.20	ug/L	1		06/13/24 1400	06/19/24 1646	PDS
Hexachlorobenzene	<0.05	0.05	ug/L	1		06/13/24 1400	06/19/24 1646	PDS
Surrogate: Tetrachloro-m-xylene	78.6	Limit: 10-121	% Rec	1		06/13/24 1400	06/19/24 1646	PDS

Determination of Polychlorinated Biphenyls (PCB)	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3510C/EPA 8082								
Arochlor 1016	<0.20	0.20	ug/L	1		06/13/24 1359	06/19/24 1646	PDS
Arochlor 1221	<0.20	0.20	ug/L	1		06/13/24 1359	06/19/24 1646	PDS
Arochlor 1232	<0.20	0.20	ug/L	1		06/13/24 1359	06/19/24 1646	PDS
Arochlor 1242	<0.20	0.20	ug/L	1		06/13/24 1359	06/19/24 1646	PDS
Arochlor 1248	<0.20	0.20	ug/L	1		06/13/24 1359	06/19/24 1646	PDS
Arochlor 1254	<0.20	0.20	ug/L	1		06/13/24 1359	06/19/24 1646	PDS
Arochlor 1260	<0.20	0.20	ug/L	1		06/13/24 1359	06/19/24 1646	PDS
Surrogate: Tetrachloro-m-xylene	74.4	Limit: 38-121	% Rec	1		06/13/24 1359	06/19/24 1646	PDS
Surrogate: Decachlorobiphenyl	1.51	Limit: 25-119	% Rec	1	**S-GC**	06/13/24 1359	06/19/24 1646	PDS

Determination of Conventional Chemistry Parameters	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 376.2								
Sulfide, total	<0.15	0.15	mg/L	1	**I-02**	06/13/24 1427	06/13/24 1700	CHP
EPA 9010B								
Cyanide, total	<0.005	0.005	mg/L	1		06/17/24 0810	06/18/24 1730	CHP

Determination of Total Metals	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 3005A/EPA 6020A								

CERTIFICATE OF ANALYSIS

1HF0855

Client Sample ID:	MW-38		
Sample Matrix:	Aqueous	**Collected By:**	Whipple, Todd
Lab Sample ID:	1HF0855-01	**Collection Date:**	06/03/2024 9:42

Determination of Total Metals	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Antimony, total	<0.0020	0.0020	mg/L	4		06/13/24 1609	06/15/24 0213	RVV
Arsenic, total	**0.0052**	0.0040	mg/L	4		06/13/24 1609	06/15/24 0213	RVV
Barium, total	**0.0175**	0.0040	mg/L	4		06/13/24 1609	06/15/24 0213	RVV
Beryllium, total	<0.0040	0.0040	mg/L	4		06/13/24 1609	06/15/24 0213	RVV
Cadmium, total	<0.0008	0.0008	mg/L	4		06/13/24 1609	06/15/24 0213	RVV
Chromium, total	<0.0080	0.0080	mg/L	4		06/13/24 1609	06/15/24 0213	RVV
Cobalt, total	**0.0013**	0.0004	mg/L	4		06/13/24 1609	06/15/24 0213	RVV
Copper, total	<0.0040	0.0040	mg/L	4		06/13/24 1609	06/15/24 0213	RVV
Lead, total	<0.0040	0.0040	mg/L	4		06/13/24 1609	06/15/24 0213	RVV
Nickel, total	**0.0043**	0.0040	mg/L	4		06/13/24 1609	06/15/24 0213	RVV
Selenium, total	<0.0040	0.0040	mg/L	4		06/13/24 1609	06/15/24 0213	RVV
Silver, total	<0.0040	0.0040	mg/L	4		06/13/24 1609	06/15/24 0213	RVV
Thallium, total	<0.0020	0.0020	mg/L	4		06/13/24 1609	06/15/24 0213	RVV
Tin, total	<0.0200	0.0200	mg/L	4		06/13/24 1609	06/15/24 0213	RVV
Vanadium, total	<0.0200	0.0200	mg/L	4		06/13/24 1609	06/15/24 0213	RVV
Zinc, total	<0.0200	0.0200	mg/L	4		06/13/24 1609	06/15/24 0213	RVV
EPA 7470A								
Mercury, total	<0.00050	0.00050	mg/L	1		06/14/24 1533	06/17/24 1250	JAR

Batch Log Summary

Method	Batch	Laboratory ID	Client / Source ID
EPA 8081	1HF0697	1HF0697-BLK1	
		1HF0697-BS1	
		1HF0697-BSD1	
		1HF0855-01	MW-38

Method	Batch	Laboratory ID	Client / Source ID
EPA 8082	1HF0698	1HF0698-BLK1	
		1HF0698-BS1	
		1HF0698-BSD1	
		1HF0855-01	MW-38

Method	Batch	Laboratory ID	Client / Source ID
EPA 8141	1HF0699	1HF0699-BLK1	
		1HF0855-01	MW-38
		1HF0699-BS1	
		1HF0699-BSD1	

Method	Batch	Laboratory ID	Client / Source ID
EPA 376.2	1HF0701	1HF0701-BLK1	
		1HF0855-01	MW-38
		1HF0701-MSD1	1HF0855-01
		1HF0701-MS1	1HF0855-01
		1HF0701-BS1	

Method	Batch	Laboratory ID	Client / Source ID
EPA 6020A	1HF0720	1HF0720-BLK1	
		1HF0720-BS1	
		1HF0855-01	MW-38
		1HF0720-MS1	1HF0855-01
		1HF0720-MSD1	1HF0855-01
		1HF0720-PS1	1HF0855-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 7470A	1HF0786	1HF0786-BLK1	
		1HF0786-BS1	
		1HF0855-01	MW-38
		1HF0786-MS1	1HF0855-01
		1HF0786-MSD1	1HF0855-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 8015C	1HF0795	1HF0795-BS1	

EPA 8015C	1HF0795	1HF0795-BLK1	
		1HF0855-01	MW-38
		1HF0795-MS1	1HF0855-01
		1HF0795-MSD1	1HF0855-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 9010B	1HF0804	1HF0855-01	MW-38
		1HF0804-MSD1	1HF0537-01
		1HF0804-MS1	1HF0537-01
		1HF0804-BS1	
		1HF0804-BLK1	

Method	Batch	Laboratory ID	Client / Source ID
EPA 8151A	1HF0835	1HF0835-BLK1	
		1HF0855-01	MW-38
		1HF0835-BS1	
		1HF0835-BSD1	
		1HF0835-MRL1	

Method	Batch	Laboratory ID	Client / Source ID
EPA 8270C	1HF0840	1HF0840-BS1	
		1HF0840-BS1	
		1HF0840-BLK1	
		1HF0855-01	MW-38
		1HF0840-BS2	

Method	Batch	Laboratory ID	Client / Source ID
EPA 8260B	1HF0842	1HF0842-BS1	
		1HF0842-BSD1	
		1HF0842-BLK1	
		1HF0855-01	MW-38
		1HF0842-MS1	1HF0855-01
		1HF0842-MSD1	1HF0855-01

Method	Batch	Laboratory ID	Client / Source ID
EPA 8260B	1HF0955	1HF0855-01	MW-38
		1HF0955-MS1	1HF0963-07
		1HF0955-MSD1	1HF0963-07
		1HF0955-BS1	

Batch Quality Control Summary: Microbac Laboratories, Inc., Newton

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0842 - EPA 5030B - EPA 8260B										

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0842 - EPA 5030B - EPA 8260B										
Blank (1HF0842-BLK1)				Prepared: 06/14/24 00:00 Analyzed: 06/14/24 09:27						
Dichlorodifluoromethane	<1.0	1.0	ug/L							
Chloromethane	<1.0	1.0	ug/L							
Vinyl Chloride	<1.0	1.0	ug/L							
Bromomethane	<1.0	1.0	ug/L							
Chloroethane	<1.0	1.0	ug/L							
Trichlorofluoromethane	<1.0	1.0	ug/L							
Acrolein	<10.0	10.0	ug/L							
1,1-Dichloroethylene	<1.0	1.0	ug/L							
Acetone	13.48	10.0	ug/L							QB-01
Methyl Iodide	<2.0	2.0	ug/L							
Carbon Disulfide	<1.0	1.0	ug/L							
Acetonitrile	<10.0	10.0	ug/L							
Methylene Chloride	<5.0	5.0	ug/L							
Acrylonitrile	<5.0	5.0	ug/L							
trans-1,2-Dichloroethylene	<1.0	1.0	ug/L							
1,1-Dichloroethane	<1.0	1.0	ug/L							
Vinyl Acetate	<5.0	5.0	ug/L							
2,2-Dichloropropane	<1.0	1.0	ug/L							
cis-1,2-Dichloroethylene	<1.0	1.0	ug/L							
2-Butanone (MEK)	<5.0	5.0	ug/L							
Bromochloromethane	<1.0	1.0	ug/L							
Chloroform	<1.0	1.0	ug/L							
1,1,1-Trichloroethane	<1.0	1.0	ug/L							
1,1-Dichloropropene	<1.0	1.0	ug/L							
Carbon Tetrachloride	<1.0	1.0	ug/L							
Benzene	<1.0	1.0	ug/L							
1,2-Dichloroethane	<1.0	1.0	ug/L							
Trichloroethylene	<1.0	1.0	ug/L							
1,2-Dichloropropane	<1.0	1.0	ug/L							
Dibromomethane	<1.0	1.0	ug/L							
Bromodichloromethane	<1.0	1.0	ug/L							
cis-1,3-Dichloropropene	<1.0	1.0	ug/L							
4-Methyl-2-pentanone (MIBK)	<5.0	5.0	ug/L							
Toluene	<1.0	1.0	ug/L							
trans-1,3-Dichloropropene	<1.0	1.0	ug/L							
Ethyl Methacrylate	<10.0	10.0	ug/L							
1,1,2-Trichloroethane	<1.0	1.0	ug/L							
Tetrachloroethylene	<1.0	1.0	ug/L							
1,3-Dichloropropane	<1.0	1.0	ug/L							
2-Hexanone (MBK)	<5.0	5.0	ug/L							
Dibromochloromethane	<1.0	1.0	ug/L							
1,2-Dibromoethane	<1.0	1.0	ug/L							
Chlorobenzene	<1.0	1.0	ug/L							

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0842 - EPA 5030B - EPA 8260B										
Blank (1HF0842-BLK1)				Prepared: 06/14/24 00:00 Analyzed: 06/14/24 09:27						
1,1,1,2-Tetrachloroethane	<1.0	1.0	ug/L							
Ethylbenzene	<1.0	1.0	ug/L							
Xylenes, total	<2.0	2.0	ug/L							
Styrene	<1.0	1.0	ug/L							
Bromoform	<1.0	1.0	ug/L							
1,2,3-Trichloropropane	<1.0	1.0	ug/L							
trans-1,4-Dichloro-2-butene	<5.0	5.0	ug/L							
1,1,2,2-Tetrachloroethane	<1.0	1.0	ug/L							
1,3-Dichlorobenzene	<1.0	1.0	ug/L							
1,4-Dichlorobenzene	<1.0	1.0	ug/L							
1,2-Dichlorobenzene	<1.0	1.0	ug/L							
1,2-Dibromo-3-chloropropane	<1.0	1.0	ug/L							
1,2,4-Trichlorobenzene	<1.0	1.0	ug/L							
Surrogate: Dibromofluoromethane	*43.2*		ug/L	*50.2*		*86.2*	*80-126*			
Surrogate: 1,2-Dichloroethane-d4	*45.1*		ug/L	*50.1*		*90.0*	*63-138*			
Surrogate: 1,2-Dichloroethane-d4	*45.1*		ug/L	*50.1*		*90.0*	*63-138*			
Surrogate: Toluene-d8	*49.1*		ug/L	*50.4*		*97.4*	*87-116*			
Surrogate: Toluene-d8	*49.1*		ug/L	*50.4*		*97.4*	*87-116*			
Surrogate: 4-Bromofluorobenzene	*49.1*		ug/L	*50.1*		*98.0*	*85-111*			
Surrogate: 4-Bromofluorobenzene	*49.1*		ug/L	*50.1*		*98.0*	*85-111*			
LCS (1HF0842-BS1)				Prepared: 06/14/24 00:00 Analyzed: 06/14/24 08:20						
Dichlorodifluoromethane	34.04	1.0	ug/L	31.6		108	44-139			
Chloromethane	33.05	1.0	ug/L	30.6		108	56-152			
Vinyl Chloride	30.83	1.0	ug/L	30.2		102	62-151			
Bromomethane	29.87	1.0	ug/L	28.8		104	61-162			
Chloroethane	31.54	1.0	ug/L	31.6		99.7	69-138			
Trichlorofluoromethane	28.42	1.0	ug/L	32.6		87.2	70-143			
Acrolein	71.35	10.0	ug/L	100		71.2	27-144			
1,1-Dichloroethylene	43.94	1.0	ug/L	50.0		87.9	76-140			
Acetone	97.31	10.0	ug/L	101		96.2	51-156			
Methyl Iodide	89.78	2.0	ug/L	102		88.1	81-166			
Carbon Disulfide	94.49	1.0	ug/L	103		92.0	76-147			
Acetonitrile	100.5	10.0	ug/L	103		97.9	46-156			
Methylene Chloride	41.89	5.0	ug/L	50.0		83.8	67-139			
Acrylonitrile	82.24	5.0	ug/L	100		81.8	67-144			
trans-1,2-Dichloroethylene	46.51	1.0	ug/L	50.0		93.0	72-135			
1,1-Dichloroethane	45.56	1.0	ug/L	50.0		91.1	72-129			
Vinyl Acetate	109.4	5.0	ug/L	100		109	24-144			
2,2-Dichloropropane	46.19	1.0	ug/L	50.0		92.4	64-131			
cis-1,2-Dichloroethylene	55.19	1.0	ug/L	50.0		110	81-137			
2-Butanone (MEK)	97.61	5.0	ug/L	102		95.9	47-149			
Bromochloromethane	45.76	1.0	ug/L	50.0		91.5	75-138			
Chloroform	43.43	1.0	ug/L	50.0		86.9	78-131			

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0842 - EPA 5030B - EPA 8260B										
LCS (1HF0842-BS1)				Prepared: 06/14/24 00:00 Analyzed: 06/14/24 08:20						
1,1,1-Trichloroethane	42.63	1.0	ug/L	50.0		85.3	67-121			
1,1-Dichloropropene	43.75	1.0	ug/L	50.0		87.5	80-131			
Carbon Tetrachloride	47.43	1.0	ug/L	50.0		94.9	71-131			
Benzene	50.49	1.0	ug/L	50.0		101	77-130			
1,2-Dichloroethane	49.17	1.0	ug/L	50.0		98.3	76-126			
Trichloroethylene	49.62	1.0	ug/L	50.0		99.2	80-124			
1,2-Dichloropropane	52.43	1.0	ug/L	50.0		105	81-125			
Dibromomethane	50.32	1.0	ug/L	50.0		101	84-134			
Bromodichloromethane	49.90	1.0	ug/L	50.0		99.8	78-121			
cis-1,3-Dichloropropene	49.98	1.0	ug/L	50.0		100	78-120			
4-Methyl-2-pentanone (MIBK)	109.0	5.0	ug/L	100		109	67-143			
Toluene	48.91	1.0	ug/L	50.0		97.8	77-130			
trans-1,3-Dichloropropene	50.19	1.0	ug/L	50.0		100	77-123			
Ethyl Methacrylate	108.4	10.0	ug/L	102		106	52-148			
1,1,2-Trichloroethane	50.56	1.0	ug/L	50.0		101	78-124			
Tetrachloroethylene	50.17	1.0	ug/L	50.0		100	73-124			
1,3-Dichloropropane	58.86	1.0	ug/L	50.0		118	78-131			
2-Hexanone (MBK)	112.3	5.0	ug/L	99.3		113	57-145			
Dibromochloromethane	52.27	1.0	ug/L	50.0		105	78-126			
1,2-Dibromoethane	52.10	1.0	ug/L	50.0		104	69-126			
Chlorobenzene	50.68	1.0	ug/L	50.0		101	76-120			
1,1,1,2-Tetrachloroethane	51.69	1.0	ug/L	50.0		103	81-122			
Ethylbenzene	52.52	1.0	ug/L	50.0		105	74-121			
Xylenes, total	159.0	2.0	ug/L	150		106	75-122			
Styrene	54.90	1.0	ug/L	50.0		110	76-119			
Bromoform	50.23	1.0	ug/L	50.0		100	74-127			
1,2,3-Trichloropropane	50.78	1.0	ug/L	50.0		102	73-125			
trans-1,4-Dichloro-2-butene	92.19	5.0	ug/L	103		89.7	55-135			
1,1,2,2-Tetrachloroethane	53.51	1.0	ug/L	50.0		107	58-133			
1,3-Dichlorobenzene	51.12	1.0	ug/L	50.0		102	70-125			
1,4-Dichlorobenzene	49.65	1.0	ug/L	50.0		99.3	69-128			
1,2-Dichlorobenzene	51.74	1.0	ug/L	50.0		103	70-125			
1,2-Dibromo-3-chloropropane	50.25	1.0	ug/L	50.0		100	54-147			
1,2,4-Trichlorobenzene	55.13	1.0	ug/L	50.0		110	55-149			
Surrogate: Dibromofluoromethane	*42.7*		ug/L	*50.2*		*85.0*	*80-126*			
Surrogate: 1,2-Dichloroethane-d4	*42.9*		ug/L	*50.1*		*85.6*	*63-138*			
Surrogate: 1,2-Dichloroethane-d4	*42.9*		ug/L	*50.1*		*85.6*	*63-138*			
Surrogate: Toluene-d8	*49.2*		ug/L	*50.4*		*97.6*	*87-116*			
Surrogate: Toluene-d8	*49.2*		ug/L	*50.4*		*97.6*	*87-116*			
Surrogate: 4-Bromofluorobenzene	*50.3*		ug/L	*50.1*		*100*	*85-111*			
Surrogate: 4-Bromofluorobenzene	*50.3*		ug/L	*50.1*		*100*	*85-111*			
LCS Dup (1HF0842-BSD1)				Prepared: 06/14/24 00:00 Analyzed: 06/14/24 08:42						
Dichlorodifluoromethane	33.27	1.0	ug/L	31.6		105	44-139	2.29	30	

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0842 - EPA 5030B - EPA 8260B										
LCS Dup (1HF0842-BSD1)				Prepared: 06/14/24 00:00 Analyzed: 06/14/24 08:42						
Chloromethane	32.69	1.0	ug/L	30.6		107	56-152	1.10	30	
Vinyl Chloride	30.29	1.0	ug/L	30.2		100	62-151	1.77	28	
Bromomethane	30.21	1.0	ug/L	28.8		105	61-162	1.13	28	
Chloroethane	30.99	1.0	ug/L	31.6		98.0	69-138	1.76	29	
Trichlorofluoromethane	28.14	1.0	ug/L	32.6		86.3	70-143	0.990	27	
Acrolein	73.54	10.0	ug/L	100		73.4	27-144	3.02	30	
1,1-Dichloroethylene	43.22	1.0	ug/L	50.0		86.4	76-140	1.65	30	
Acetone	99.70	10.0	ug/L	101		98.5	51-156	2.43	30	
Methyl Iodide	90.37	2.0	ug/L	102		88.7	81-166	0.655	29	
Carbon Disulfide	92.98	1.0	ug/L	103		90.5	76-147	1.61	27	
Acetonitrile	97.41	10.0	ug/L	103		94.9	46-156	3.14	30	
Methylene Chloride	42.91	5.0	ug/L	50.0		85.8	67-139	2.41	26	
Acrylonitrile	84.95	5.0	ug/L	100		84.5	67-144	3.24	24	
trans-1,2-Dichloroethylene	46.17	1.0	ug/L	50.0		92.3	72-135	0.734	28	
1,1-Dichloroethane	45.84	1.0	ug/L	50.0		91.7	72-129	0.613	26	
Vinyl Acetate	109.8	5.0	ug/L	100		110	24-144	0.374	30	
2,2-Dichloropropane	44.96	1.0	ug/L	50.0		89.9	64-131	2.70	26	
cis-1,2-Dichloroethylene	55.75	1.0	ug/L	50.0		112	81-137	1.01	27	
2-Butanone (MEK)	97.16	5.0	ug/L	102		95.4	47-149	0.462	30	
Bromochloromethane	47.09	1.0	ug/L	50.0		94.2	75-138	2.86	24	
Chloroform	43.85	1.0	ug/L	50.0		87.7	78-131	0.962	27	
1,1,1-Trichloroethane	42.31	1.0	ug/L	50.0		84.6	67-121	0.753	28	
1,1-Dichloropropene	42.99	1.0	ug/L	50.0		86.0	80-131	1.75	30	
Carbon Tetrachloride	47.05	1.0	ug/L	50.0		94.1	71-131	0.804	28	
Benzene	50.92	1.0	ug/L	50.0		102	77-130	0.848	25	
1,2-Dichloroethane	50.68	1.0	ug/L	50.0		101	76-126	3.02	24	
Trichloroethylene	49.89	1.0	ug/L	50.0		99.8	80-124	0.543	27	
1,2-Dichloropropane	53.89	1.0	ug/L	50.0		108	81-125	2.75	25	
Dibromomethane	51.75	1.0	ug/L	50.0		104	84-134	2.80	23	
Bromodichloromethane	51.33	1.0	ug/L	50.0		103	78-121	2.83	25	
cis-1,3-Dichloropropene	51.33	1.0	ug/L	50.0		103	78-120	2.67	26	
4-Methyl-2-pentanone (MIBK)	112.6	5.0	ug/L	100		113	67-143	3.25	26	
Toluene	48.99	1.0	ug/L	50.0		98.0	77-130	0.163	27	
trans-1,3-Dichloropropene	52.05	1.0	ug/L	50.0		104	77-123	3.64	28	
Ethyl Methacrylate	113.0	10.0	ug/L	102		110	52-148	4.21	30	
1,1,2-Trichloroethane	52.42	1.0	ug/L	50.0		105	78-124	3.61	24	
Tetrachloroethylene	49.89	1.0	ug/L	50.0		99.8	73-124	0.560	26	
1,3-Dichloropropane	60.59	1.0	ug/L	50.0		121	78-131	2.90	24	
2-Hexanone (MBK)	116.1	5.0	ug/L	99.3		117	57-145	3.37	30	
Dibromochloromethane	54.23	1.0	ug/L	50.0		108	78-126	3.68	23	
1,2-Dibromoethane	54.20	1.0	ug/L	50.0		108	69-126	3.95	22	
Chlorobenzene	51.33	1.0	ug/L	50.0		103	76-120	1.27	25	
1,1,1,2-Tetrachloroethane	52.77	1.0	ug/L	50.0		106	81-122	2.07	23	

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0842 - EPA 5030B - EPA 8260B										
LCS Dup (1HF0842-BSD1)				Prepared: 06/14/24 00:00 Analyzed: 06/14/24 08:42						
Ethylbenzene	53.00	1.0	ug/L	50.0		106	74-121	0.910	27	
Xylenes, total	160.5	2.0	ug/L	150		107	75-122	0.964	26	
Styrene	56.13	1.0	ug/L	50.0		112	76-119	2.22	26	
Bromoform	51.98	1.0	ug/L	50.0		104	74-127	3.42	22	
1,2,3-Trichloropropane	52.50	1.0	ug/L	50.0		105	73-125	3.33	20	
trans-1,4-Dichloro-2-butene	94.46	5.0	ug/L	103		91.9	55-135	2.43	26	
1,1,2,2-Tetrachloroethane	55.23	1.0	ug/L	50.0		110	58-133	3.16	28	
1,3-Dichlorobenzene	52.71	1.0	ug/L	50.0		106	70-125	3.06	27	
1,4-Dichlorobenzene	50.75	1.0	ug/L	50.0		102	69-128	2.19	29	
1,2-Dichlorobenzene	53.54	1.0	ug/L	50.0		107	70-125	3.42	25	
1,2-Dibromo-3-chloropropane	52.14	1.0	ug/L	50.0		104	54-147	3.69	29	
1,2,4-Trichlorobenzene	56.99	1.0	ug/L	50.0		114	55-149	3.32	30	
Surrogate: Dibromofluoromethane	*42.6*		ug/L	*50.2*		*85.0*	*80-126*			
Surrogate: 1,2-Dichloroethane-d4	*42.7*		ug/L	*50.1*		*85.2*	*63-138*			
Surrogate: 1,2-Dichloroethane-d4	*42.7*		ug/L	*50.1*		*85.2*	*63-138*			
Surrogate: Toluene-d8	*49.1*		ug/L	*50.4*		*97.4*	*87-116*			
Surrogate: Toluene-d8	*49.1*		ug/L	*50.4*		*97.4*	*87-116*			
Surrogate: 4-Bromofluorobenzene	*50.6*		ug/L	*50.1*		*101*	*85-111*			
Surrogate: 4-Bromofluorobenzene	*50.6*		ug/L	*50.1*		*101*	*85-111*			
Matrix Spike (1HF0842-MS1)	**Source: 1HF0855-01**			Prepared: 06/14/24 00:00 Analyzed: 06/14/24 20:49						
Dichlorodifluoromethane	311.8	10.0	ug/L	316	ND	98.7	47-137			
Chloromethane	334.8	10.0	ug/L	306	ND	109	49-154			
Vinyl Chloride	312.4	10.0	ug/L	302	ND	103	61-152			
Bromomethane	311.7	10.0	ug/L	288	ND	108	47-168			
Chloroethane	328.3	10.0	ug/L	316	ND	104	61-148			
Trichlorofluoromethane	286.5	10.0	ug/L	326	ND	87.9	73-147			
Acrolein	767.6	100	ug/L	1000	ND	76.6	20-164			
1,1-Dichloroethylene	450.3	10.0	ug/L	500	ND	90.1	68-153			
Acetone	1144	100	ug/L	1010	ND	113	45-175			
Methyl Iodide	958.0	20.0	ug/L	1020	ND	94.0	79-167			
Carbon Disulfide	971.8	10.0	ug/L	1030	ND	94.6	72-156			
Acetonitrile	996.5	100	ug/L	1030	ND	97.0	38-166			
Methylene Chloride	442.1	50.0	ug/L	500	ND	88.4	64-143			
Acrylonitrile	856.2	50.0	ug/L	1000	ND	85.2	58-151			
trans-1,2-Dichloroethylene	483.9	10.0	ug/L	500	ND	96.8	65-145			
1,1-Dichloroethane	477.6	10.0	ug/L	500	ND	95.5	68-136			
Vinyl Acetate	1222	50.0	ug/L	1000	ND	122	58-143			
2,2-Dichloropropane	393.7	10.0	ug/L	500	ND	78.7	50-118			
cis-1,2-Dichloroethylene	566.7	10.0	ug/L	500	ND	113	67-153			
2-Butanone (MEK)	958.3	50.0	ug/L	1020	ND	94.1	52-159			
Bromochloromethane	485.2	10.0	ug/L	500	ND	97.0	61-151			
Chloroform	452.1	10.0	ug/L	500	ND	90.4	77-132			
1,1,1-Trichloroethane	438.7	10.0	ug/L	500	ND	87.7	71-118			

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0842 - EPA 5030B - EPA 8260B										
Matrix Spike (1HF0842-MS1)	**Source: 1HF0855-01**		Prepared: 06/14/24 00:00 Analyzed: 06/14/24 20:49							
1,1-Dichloropropene	449.8	10.0	ug/L	500	ND	90.0	82-128			
Carbon Tetrachloride	482.4	10.0	ug/L	500	ND	96.5	71-133			
Benzene	516.5	10.0	ug/L	500	ND	103	81-125			
1,2-Dichloroethane	505.7	10.0	ug/L	500	ND	101	75-125			
Trichloroethylene	506.3	10.0	ug/L	500	ND	101	83-120			
1,2-Dichloropropane	534.2	10.0	ug/L	500	ND	107	80-124			
Dibromomethane	515.7	10.0	ug/L	500	ND	103	84-131			
Bromodichloromethane	513.6	10.0	ug/L	500	ND	103	79-118			
cis-1,3-Dichloropropene	488.9	10.0	ug/L	500	ND	97.8	75-116			
4-Methyl-2-pentanone (MIBK)	1094	50.0	ug/L	1000	ND	109	65-149			
Toluene	497.5	10.0	ug/L	500	ND	99.5	82-123			
trans-1,3-Dichloropropene	494.8	10.0	ug/L	500	ND	99.0	75-117			
Ethyl Methacrylate	1120	100	ug/L	1020	ND	109	73-135			
1,1,2-Trichloroethane	518.5	10.0	ug/L	500	ND	104	77-122			
Tetrachloroethylene	494.0	10.0	ug/L	500	ND	98.8	74-120			
1,3-Dichloropropane	597.8	10.0	ug/L	500	ND	120	80-127			
2-Hexanone (MBK)	1125	50.0	ug/L	993	ND	113	57-150			
Dibromochloromethane	521.2	10.0	ug/L	500	ND	104	80-120			
1,2-Dibromoethane	526.0	10.0	ug/L	500	ND	105	67-125			
Chlorobenzene	509.1	10.0	ug/L	500	ND	102	81-113			
1,1,1,2-Tetrachloroethane	519.7	10.0	ug/L	500	ND	104	80-119			
Ethylbenzene	527.5	10.0	ug/L	500	ND	106	78-114			
Xylenes, total	1594	20.0	ug/L	1500	ND	106	77-116			
Styrene	554.0	10.0	ug/L	500	ND	111	78-114			
Bromoform	500.4	10.0	ug/L	500	ND	100	69-125			
1,2,3-Trichloropropane	507.8	10.0	ug/L	500	ND	102	72-125			
trans-1,4-Dichloro-2-butene	858.9	50.0	ug/L	1030	ND	83.6	48-131			
1,1,2,2-Tetrachloroethane	538.9	10.0	ug/L	500	ND	108	51-138			
1,3-Dichlorobenzene	516.6	10.0	ug/L	500	ND	103	70-122			
1,4-Dichlorobenzene	495.8	10.0	ug/L	500	ND	99.2	70-124			
1,2-Dichlorobenzene	523.4	10.0	ug/L	500	ND	105	68-123			
1,2-Dibromo-3-chloropropane	489.9	10.0	ug/L	500	ND	98.0	46-149			
1,2,4-Trichlorobenzene	553.7	10.0	ug/L	500	ND	111	60-137			
Surrogate: Dibromofluoromethane	*443*		ug/L	*502*		*88.2*	*80-126*			
Surrogate: 1,2-Dichloroethane-d4	*447*		ug/L	*501*		*89.3*	*63-138*			
Surrogate: 1,2-Dichloroethane-d4	*447*		ug/L	*501*		*89.3*	*63-138*			
Surrogate: Toluene-d8	*496*		ug/L	*504*		*98.5*	*87-116*			
Surrogate: Toluene-d8	*496*		ug/L	*504*		*98.5*	*87-116*			
Surrogate: 4-Bromofluorobenzene	*501*		ug/L	*501*		*100*	*85-111*			
Surrogate: 4-Bromofluorobenzene	*501*		ug/L	*501*		*100*	*85-111*			
Matrix Spike Dup (1HF0842-MSD1)	**Source: 1HF0855-01**		Prepared: 06/14/24 00:00 Analyzed: 06/14/24 21:12							
Dichlorodifluoromethane	319.7	10.0	ug/L	316	ND	101	47-137	2.50	20	
Chloromethane	320.5	10.0	ug/L	306	ND	105	49-154	4.36	25	

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0842 - EPA 5030B - EPA 8260B										
Matrix Spike Dup (1HF0842-MSD1)	**Source: 1HF0855-01**	Prepared: 06/14/24 00:00 Analyzed: 06/14/24 21:12								
Vinyl Chloride	294.7	10.0	ug/L	302	ND	97.5	61-152	5.83	24	
Bromomethane	297.8	10.0	ug/L	288	ND	103	47-168	4.56	30	
Chloroethane	311.3	10.0	ug/L	316	ND	98.4	61-148	5.32	29	
Trichlorofluoromethane	280.2	10.0	ug/L	326	ND	85.9	73-147	2.22	24	
Acrolein	741.5	100	ug/L	1000	ND	74.0	20-164	3.46	24	
1,1-Dichloroethylene	428.8	10.0	ug/L	500	ND	85.8	68-153	4.89	21	
Acetone	1127	100	ug/L	1010	ND	111	45-175	1.46	23	
Methyl Iodide	914.3	20.0	ug/L	1020	ND	89.8	79-167	4.67	14	
Carbon Disulfide	922.8	10.0	ug/L	1030	ND	89.9	72-156	5.17	19	
Acetonitrile	984.4	100	ug/L	1030	ND	95.9	38-166	1.22	20	
Methylene Chloride	418.1	50.0	ug/L	500	ND	83.6	64-143	5.58	19	
Acrylonitrile	840.5	50.0	ug/L	1000	ND	83.6	58-151	1.85	15	
trans-1,2-Dichloroethylene	459.4	10.0	ug/L	500	ND	91.9	65-145	5.19	18	
1,1-Dichloroethane	455.2	10.0	ug/L	500	ND	91.0	68-136	4.80	17	
Vinyl Acetate	1122	50.0	ug/L	1000	ND	112	58-143	8.46	14	
2,2-Dichloropropane	370.9	10.0	ug/L	500	ND	74.2	50-118	5.96	17	
cis-1,2-Dichloroethylene	541.7	10.0	ug/L	500	ND	108	67-153	4.51	22	
2-Butanone (MEK)	968.8	50.0	ug/L	1020	ND	95.2	52-159	1.09	28	
Bromochloromethane	466.2	10.0	ug/L	500	ND	93.2	61-151	3.99	27	
Chloroform	433.0	10.0	ug/L	500	ND	86.6	77-132	4.32	17	
1,1,1-Trichloroethane	421.9	10.0	ug/L	500	ND	84.4	71-118	3.90	15	
1,1-Dichloropropene	426.9	10.0	ug/L	500	ND	85.4	82-128	5.22	16	
Carbon Tetrachloride	466.5	10.0	ug/L	500	ND	93.3	71-133	3.35	14	
Benzene	489.4	10.0	ug/L	500	ND	97.9	81-125	5.39	12	
1,2-Dichloroethane	477.5	10.0	ug/L	500	ND	95.5	75-125	5.74	13	
Trichloroethylene	480.6	10.0	ug/L	500	ND	96.1	83-120	5.21	11	
1,2-Dichloropropane	514.4	10.0	ug/L	500	ND	103	80-124	3.78	11	
Dibromomethane	493.2	10.0	ug/L	500	ND	98.6	84-131	4.46	13	
Bromodichloromethane	481.4	10.0	ug/L	500	ND	96.3	79-118	6.47	11	
cis-1,3-Dichloropropene	465.3	10.0	ug/L	500	ND	93.1	75-116	4.95	11	
4-Methyl-2-pentanone (MIBK)	1062	50.0	ug/L	1000	ND	106	65-149	2.93	14	
Toluene	473.1	10.0	ug/L	500	ND	94.6	82-123	5.03	12	
trans-1,3-Dichloropropene	471.7	10.0	ug/L	500	ND	94.3	75-117	4.78	11	
Ethyl Methacrylate	1073	100	ug/L	1020	ND	105	73-135	4.28	10	
1,1,2-Trichloroethane	497.0	10.0	ug/L	500	ND	99.4	77-122	4.23	11	
Tetrachloroethylene	473.0	10.0	ug/L	500	ND	94.6	74-120	4.34	17	
1,3-Dichloropropane	571.7	10.0	ug/L	500	ND	114	80-127	4.46	13	
2-Hexanone (MBK)	1091	50.0	ug/L	993	ND	110	57-150	3.11	17	
Dibromochloromethane	504.1	10.0	ug/L	500	ND	101	80-120	3.34	12	
1,2-Dibromoethane	507.2	10.0	ug/L	500	ND	101	67-125	3.64	12	
Chlorobenzene	485.8	10.0	ug/L	500	ND	97.2	81-113	4.68	14	
1,1,1,2-Tetrachloroethane	496.2	10.0	ug/L	500	ND	99.2	80-119	4.63	15	
Ethylbenzene	503.1	10.0	ug/L	500	ND	101	78-114	4.74	14	

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0842 - EPA 5030B - EPA 8260B										
Matrix Spike Dup (1HF0842-MSD1)	**Source: 1HF0855-01**		Prepared: 06/14/24 00:00 Analyzed: 06/14/24 21:12							
Xylenes, total	1520	20.0	ug/L	1500	ND	101	77-116	4.69	13	
Styrene	524.3	10.0	ug/L	500	ND	105	78-114	5.51	12	
Bromoform	482.2	10.0	ug/L	500	ND	96.4	69-125	3.70	14	
1,2,3-Trichloropropane	495.6	10.0	ug/L	500	ND	99.1	72-125	2.43	18	
trans-1,4-Dichloro-2-butene	830.0	50.0	ug/L	1030	ND	80.7	48-131	3.42	17	
1,1,2,2-Tetrachloroethane	520.4	10.0	ug/L	500	ND	104	51-138	3.49	30	
1,3-Dichlorobenzene	489.3	10.0	ug/L	500	ND	97.9	70-122	5.43	30	
1,4-Dichlorobenzene	475.0	10.0	ug/L	500	ND	95.0	70-124	4.29	28	
1,2-Dichlorobenzene	499.1	10.0	ug/L	500	ND	99.8	68-123	4.75	29	
1,2-Dibromo-3-chloropropane	478.1	10.0	ug/L	500	ND	95.6	46-149	2.44	30	
1,2,4-Trichlorobenzene	525.3	10.0	ug/L	500	ND	105	60-137	5.26	30	
Surrogate: Dibromofluoromethane	*442*		ug/L	*502*		*88.0*	*80-126*			
Surrogate: 1,2-Dichloroethane-d4	*447*		ug/L	*501*		*89.2*	*63-138*			
Surrogate: 1,2-Dichloroethane-d4	*447*		ug/L	*501*		*89.2*	*63-138*			
Surrogate: Toluene-d8	*495*		ug/L	*504*		*98.2*	*87-116*			
Surrogate: Toluene-d8	*495*		ug/L	*504*		*98.2*	*87-116*			
Surrogate: 4-Bromofluorobenzene	*504*		ug/L	*501*		*100*	*85-111*			
Surrogate: 4-Bromofluorobenzene	*504*		ug/L	*501*		*100*	*85-111*			
Batch 1HF0955 - EPA 5030B - EPA 8260B										
LCS (1HF0955-BS1)			Prepared: 06/17/24 00:00 Analyzed: 06/17/24 18:40							
Allyl chloride	42.57	1.0	ug/L	50.4		84.5	76-134			
Chloroprene	38.22	1.0	ug/L	50.4		75.9	74-141			
Methacrylonitrile	37.80	1.0	ug/L	50.4		75.0	73-143			
Methyl Methacrylate	50.86	1.0	ug/L	50.1		101	72-123			
Propionitrile	42.24	10.0	ug/L	50.1		84.3	50-151			
Surrogate: Dibromofluoromethane	*42.8*		ug/L	*50.2*		*85.4*	*80-126*			
Surrogate: 1,2-Dichloroethane-d4	*44.5*		ug/L	*50.1*		*88.8*	*63-138*			
Surrogate: Toluene-d8	*54.6*		ug/L	*50.4*		*108*	*87-116*			
Surrogate: 4-Bromofluorobenzene	*50.0*		ug/L	*50.1*		*99.6*	*85-111*			
Matrix Spike (1HF0955-MS1)	**Source: 1HF0963-07**		Prepared: 06/17/24 00:00 Analyzed: 06/17/24 17:47							
Allyl chloride	516.4	10.0	ug/L	504	ND	103	60-140			
Chloroprene	495.7	10.0	ug/L	504	ND	98.4	60-140			
Methacrylonitrile	542.2	10.0	ug/L	504	ND	108	60-140			
Methyl Methacrylate	502.6	10.0	ug/L	501	ND	100	60-140			
Propionitrile	559.1	100	ug/L	501	ND	112	60-140			
Surrogate: Dibromofluoromethane	*572*		ug/L	*502*		*114*	*80-126*			
Surrogate: 1,2-Dichloroethane-d4	*619*		ug/L	*501*		*124*	*63-138*			
Surrogate: Toluene-d8	*511*		ug/L	*504*		*101*	*87-116*			
Surrogate: 4-Bromofluorobenzene	*506*		ug/L	*501*		*101*	*85-111*			
Matrix Spike Dup (1HF0955-MSD1)	**Source: 1HF0963-07**		Prepared: 06/17/24 00:00 Analyzed: 06/17/24 18:13							

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0955 - EPA 5030B - EPA 8260B										
Matrix Spike Dup (1HF0955-MSD1)	**Source: 1HF0963-07**		Prepared: 06/17/24 00:00 Analyzed: 06/17/24 18:13							
Allyl chloride	477.7	10.0	ug/L	504	ND	94.8	60-140	7.79	30	
Chloroprene	458.3	10.0	ug/L	504	ND	91.0	60-140	7.84	30	
Methacrylonitrile	531.4	10.0	ug/L	504	ND	105	60-140	2.01	30	
Methyl Methacrylate	520.4	10.0	ug/L	501	ND	104	60-140	3.48	30	
Propionitrile	543.7	100	ug/L	501	ND	108	60-140	2.79	30	
Surrogate: Dibromofluoromethane	*581*		ug/L	*502*		*116*	*80-126*			
Surrogate: 1,2-Dichloroethane-d4	*640*		ug/L	*501*		*128*	*63-138*			
Surrogate: Toluene-d8	*509*		ug/L	*504*		*101*	*87-116*			
Surrogate: 4-Bromofluorobenzene	*501*		ug/L	*501*		*100*	*85-111*			

Determination of General Solvents	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0795 - Semi-Vol GC - EPA 8015C										
Blank (1HF0795-BLK1)			Prepared: 06/16/24 13:44 Analyzed: 06/16/24 19:52							
Isobutanol	<1.0	1.0	mg/L							
LCS (1HF0795-BS1)			Prepared: 06/16/24 13:44 Analyzed: 06/16/24 17:18							
Isobutanol	26.11	1.0	mg/L	26.0		100	40-135			
Matrix Spike (1HF0795-MS1)	**Source: 1HF0855-01**		Prepared: 06/16/24 13:44 Analyzed: 06/17/24 01:37							
Isobutanol	24.88	1.0	mg/L	26.0	ND	95.7	63-135			
Matrix Spike Dup (1HF0795-MSD1)	**Source: 1HF0855-01**		Prepared: 06/16/24 13:44 Analyzed: 06/17/24 02:15							
Isobutanol	22.96	1.0	mg/L	26.0	ND	88.3	63-135	8.01	30	

Determination of Base/Neutral/Acid Extractable Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0840 - 3520C BNA Cont Liq - EPA 8270C										
Blank (1HF0840-BLK1)			Prepared: 06/17/24 10:29 Analyzed: 07/05/24 15:29							
N-Nitrosodimethylamine	<8	8	ug/L							
Methyl Methanesulfonate	<8	8	ug/L							
N-Nitrosodiethylamine	<8	8	ug/L							
N-Nitrosomethylethylamine	<8	8	ug/L							
Ethyl Methanesulfonate	<8	8	ug/L							
Phenol	<8	8	ug/L							
Bis(2-Chloroethyl) Ether	<8	8	ug/L							
2-Chlorophenol	<8	8	ug/L							
Benzyl Alcohol	<8	8	ug/L							
2-Methylphenol (o-Cresol)	<8	8	ug/L							
Bis[2-Chloroisopropyl]ether	<8	8	ug/L							
n-Nitroso-di-n-propylamine	<8	8	ug/L							

Determination of Base/Neutral/Acid Extractable Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0840 - 3520C BNA Cont Liq - EPA 8270C										
Blank (1HF0840-BLK1)				Prepared: 06/17/24 10:29 Analyzed: 07/05/24 15:29						
N-Nitrosopyrrolidine	<8	8	ug/L							
Acetophenone	<8	8	ug/L							
o-Toluidine	<8	8	ug/L							
(3 & 4)-Methylphenol	<8	8	ug/L							
Hexachloroethane	<8	8	ug/L							
Nitrobenzene	<8	8	ug/L							
N-Nitrosopiperidine	<8	8	ug/L							
Isophorone	<8	8	ug/L							
2-Nitrophenol	<8	8	ug/L							
2,4-Dimethylphenol	<8	8	ug/L							
Bis (2-Chloroethoxy) Methane	<8	8	ug/L							
2,4-Dichlorophenol	<8	8	ug/L							
Naphthalene	<8	8	ug/L							
4-Chloroaniline	<8	8	ug/L							
2,6-Dichlorophenol	<8	8	ug/L							
Hexachloropropene	<8	8	ug/L							
Hexachlorobutadiene	<8	8	ug/L							
N-Nitrosodi-n-butylamine	<8	8	ug/L							
1,4-Phenylenediamine	<8	8	ug/L							
4-Chloro-3-methylphenol	<8	8	ug/L							
2-Methylnaphthalene	<8	8	ug/L							
Isosafrole	<8	8	ug/L							
1,2,4,5-Tetrachlorobenzene	<8	8	ug/L							
Hexachlorocyclopentadiene	<8	8	ug/L							
2,4,6-Trichlorophenol	<8	8	ug/L							
2,4,5-Trichlorophenol	<8	8	ug/L							
Safrole	<8	8	ug/L							
2-Chloronaphthalene	<8	8	ug/L							
2-Nitroaniline	<8	8	ug/L							
1,4-Naphthoquinone	<8	8	ug/L							
Dimethylphthalate	<8	8	ug/L							
1,3-Dinitrobenzene	<8	8	ug/L							
1,2-Dinitrobenzene	<8	8	ug/L							
2,6-Dinitrotoluene	<8	8	ug/L							
Acenaphthylene	<8	8	ug/L							
3-Nitroaniline	<8	8	ug/L							
Acenaphthene	<8	8	ug/L							
2,4-Dinitrophenol	<8	8	ug/L							
4-Nitrophenol	<8	8	ug/L							
Dibenzofuran	<8	8	ug/L							
2,4-Dinitrotoluene	<8	8	ug/L							
2,3,4,6-Tetrachlorophenol	<8	8	ug/L							

Determination of Base/Neutral/Acid Extractable Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0840 - 3520C BNA Cont Liq - EPA 8270C										
Blank (1HF0840-BLK1)				Prepared: 06/17/24 10:29 Analyzed: 07/05/24 15:29						
Pentachlorobenzene	<8	8	ug/L							
1-Naphthylamine	<8	8	ug/L							
2-Naphthylamine	<8	8	ug/L							
Diethyl Phthalate	<8	8	ug/L							
Fluorene	<8	8	ug/L							
4-Chlorophenyl Phenyl Ether	<8	8	ug/L							
4-Nitroaniline	<8	8	ug/L							
5-Nitro-o-toluidine	<8	8	ug/L							
4,6-Dinitro-2-methylphenol	<8	8	ug/L							
N-Nitrosodiphenylamine	<8	8	ug/L							
Diphenylamine	<8	8	ug/L							
Azobenzene	<8	8	ug/L							
Diallate	<8	8	ug/L							
1,3,5-Trinitrobenzene	<8	8	ug/L							
Phenacetin	<8	8	ug/L							
4-Bromophenyl Phenyl Ether	<8	8	ug/L							
4-Aminobiphenyl	<8	8	ug/L							
Pentachlorophenol	<8	8	ug/L							
Pronamide	<8	8	ug/L							
Pentachloronitrobenzene (PCNB)	<8	8	ug/L							
Phenanthrene	<8	8	ug/L							
Anthracene	<8	8	ug/L							
Di-n-butyl Phthalate	<8	8	ug/L							
Methapyrilene	<8	8	ug/L							
Fluoranthene	<8	8	ug/L							
Isodrin	<8	8	ug/L							
Chlorobenzilate	<8	8	ug/L							
Pyrene	<8	8	ug/L							
p-(Dimethylamino)azobenzene	<8	8	ug/L							
3,3-Dimethylbenzidine	<8	8	ug/L							
Butyl Benzyl Phthalate	<8	8	ug/L							
Benzo(a)anthracene	<8	8	ug/L							
Chrysene	<8	8	ug/L							
Bis(2-Ethylhexyl) Phthalate	<6	6	ug/L							
Kepone	<8	8	ug/L							
3,3´-Dichlorobenzidine	<8	8	ug/L							
2-Acetylaminofluorene	<8	8	ug/L							
Di-n-octyl Phthalate	<8	8	ug/L							
Benzo(b)Fluoranthene	<8	8	ug/L							
7,12-Dimethylbenz [a] anthracene	<8	8	ug/L							
Benzo(k)Fluoranthene	<8	8	ug/L							
Benzo(a)Pyrene	<8	8	ug/L							

Determination of Base/Neutral/Acid Extractable Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0840 - 3520C BNA Cont Liq - EPA 8270C										
Blank (1HF0840-BLK1)				Prepared: 06/17/24 10:29 Analyzed: 07/05/24 15:29						
3-Methylcholanthrene	<8	8	ug/L							
Dibenzo(a,h)anthracene	<8	8	ug/L							
Indeno(1,2,3-cd)Pyrene	<8	8	ug/L							
Benzo(g,h,i)perylene	<8	8	ug/L							
Surrogate: 2-Fluorophenol	*28.6*		ug/L	*30.9*		*92.3*	*24-136*			
Surrogate: Phenol-d6	*30.3*		ug/L	*29.4*		*103*	*15-140*			
Surrogate: Nitrobenzene-d5	*35.0*		ug/L	*30.8*		*114*	*29-130*			
Surrogate: 2-Fluorobiphenyl	*27.1*		ug/L	*29.3*		*92.5*	*23-113*			
Surrogate: 2,4,6-Tribromophenol	*35.0*		ug/L	*30.1*		*116*	*15-139*			
Surrogate: Terphenyl-dl4	*41.1*		ug/L	*30.9*		*133*	*27-141*			
LCS (1HF0840-BS1)				Prepared: 06/17/24 10:29 Analyzed: 07/05/24 16:43						
N-Nitrosodimethylamine	21.8	8	ug/L	21.4		102	36-138			
Methyl Methanesulfonate	19.5	8	ug/L	25.0		78.1	22-114			
N-Nitrosodiethylamine	45.7	8	ug/L	50.0		91.5	52-114			
N-Nitrosomethylethylamine	45.2	8	ug/L	50.0		90.5	36-120			
Ethyl Methanesulfonate	20.0	8	ug/L	25.0		80.2	46-110			
Phenol	22.7	8	ug/L	21.4		106	50-112			
Bis(2-Chloroethyl) Ether	20.1	8	ug/L	21.4		94.1	39-151			
2-Chlorophenol	22.3	8	ug/L	21.4		104	56-116			
Benzyl Alcohol	22.3	8	ug/L	21.4		104	13-158			
2-Methylphenol (o-Cresol)	23.9	8	ug/L	21.4		112	53-131			
Bis[2-Chloroisopropyl]ether	22.4	8	ug/L	21.4		105	50-121			
n-Nitroso-di-n-propylamine	22.8	8	ug/L	21.4		107	50-138			
N-Nitrosopyrrolidine	44.6	8	ug/L	50.0		89.2	31-118			
Acetophenone	21.5	8	ug/L	25.0		86.0	45-104			
o-Toluidine	14.6	8	ug/L	50.0		29.3	10-163			
(3 & 4)-Methylphenol	24.7	8	ug/L	21.4		115	30-164			
Hexachloroethane	14.8	8	ug/L	21.4		69.1	10-110			
Nitrobenzene	23.2	8	ug/L	21.4		109	47-134			
N-Nitrosopiperidine	46.2	8	ug/L	50.0		92.5	51-122			
Isophorone	23.5	8	ug/L	21.4		110	54-128			
2-Nitrophenol	24.0	8	ug/L	21.4		112	54-117			
2,4-Dimethylphenol	23.8	8	ug/L	21.4		111	52-118			
Bis (2-Chloroethoxy) Methane	22.3	8	ug/L	21.4		104	13-132			
2,4-Dichlorophenol	25.9	8	ug/L	21.4		121	58-114			QS-02
Naphthalene	20.5	8	ug/L	21.4		95.8	37-116			
4-Chloroaniline	<8	8	ug/L	21.4		27.9	10-198			
2,6-Dichlorophenol	23.0	8	ug/L	25.0		92.0	52-129			
Hexachloropropene	9.5	8	ug/L	25.0		38.1	14-110			
Hexachlorobutadiene	15.6	8	ug/L	21.4		73.0	14-110			
N-Nitrosodi-n-butylamine	37.6	8	ug/L	50.0		75.2	40-135			
4-Chloro-3-methylphenol	27.8	8	ug/L	21.4		130	57-136			

Determination of Base/Neutral/Acid Extractable Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0840 - 3520C BNA Cont Liq - EPA 8270C										
LCS (1HF0840-BS1)				Prepared: 06/17/24 10:29 Analyzed: 07/05/24 16:43						
2-Methylnaphthalene	20.7	8	ug/L	21.4		96.6	44-111			
Isosafrole	22.6	8	ug/L	25.0		90.4	49-107			
1,2,4,5-Tetrachlorobenzene	16.6	8	ug/L	25.0		66.5	42-110			
Hexachlorocyclopentadiene	14.5	8	ug/L	21.4		67.8	11-110			
2,4,6-Trichlorophenol	30.9	8	ug/L	21.4		145	55-120			QS-02
2,4,5-Trichlorophenol	32.0	8	ug/L	21.4		150	55-121			QS-02
Safrole	23.6	8	ug/L	25.0		94.5	40-118			
2-Chloronaphthalene	22.3	8	ug/L	21.4		104	47-127			
2-Nitroaniline	30.4	8	ug/L	21.4		142	36-143			
1,4-Naphthoquinone	29.2	8	ug/L	25.0		117	43-152			
Dimethylphthalate	30.6	8	ug/L	21.4		143	59-128			QS-02
1,3-Dinitrobenzene	35.6	8	ug/L	21.4		167	63-125			QS-02
1,2-Dinitrobenzene	32.8	8	ug/L	21.4		153	63-123			QS-02
2,6-Dinitrotoluene	31.1	8	ug/L	21.4		145	60-127			QS-02
Acenaphthylene	26.1	8	ug/L	21.4		122	49-113			QS-02
3-Nitroaniline	20.4	8	ug/L	21.4		95.4	10-162			
Acenaphthene	26.9	8	ug/L	21.4		126	50-119			QS-02
2,4-Dinitrophenol	34.9	8	ug/L	21.4		163	27-157			QS-02
4-Nitrophenol	27.2	8	ug/L	21.4		127	49-154			
Dibenzofuran	27.6	8	ug/L	21.4		129	56-121			QS-02
2,4-Dinitrotoluene	33.2	8	ug/L	21.4		155	53-138			QS-02
2,3,4,6-Tetrachlorophenol	35.0	8	ug/L	21.4		164	47-132			QS-02
Pentachlorobenzene	25.6	8	ug/L	25.0		102	41-125			
1-Naphthylamine	37.6	8	ug/L	50.0		75.1	10-152			
2-Naphthylamine	23.1	8	ug/L	50.0		46.1	19-128			
Diethyl Phthalate	32.1	8	ug/L	21.4		150	53-138			QS-02
Fluorene	29.2	8	ug/L	21.4		136	54-125			QS-02
4-Chlorophenyl Phenyl Ether	28.5	8	ug/L	21.4		133	51-122			QS-02
4-Nitroaniline	26.0	8	ug/L	21.4		121	10-136			
5-Nitro-o-toluidine	54.6	8	ug/L	50.0		109	10-145			
4,6-Dinitro-2-methylphenol	32.7	8	ug/L	21.4		153	49-137			QS-02
Diphenylamine	29.9	8	ug/L	21.4		140	35-151			
Azobenzene	30.8	8	ug/L	21.4		144	16-156			
Diallate	33.3	8	ug/L	25.0		133	54-132			QS-02
1,3,5-Trinitrobenzene	32.0	8	ug/L	25.0		128	57-173			
Phenacetin	32.6	8	ug/L	25.0		130	55-121			QS-02
4-Bromophenyl Phenyl Ether	32.4	8	ug/L	21.4		151	53-122			QS-02
4-Aminobiphenyl	16.0	8	ug/L	50.0		32.0	10-178			
Pentachlorophenol	32.5	8	ug/L	21.4		152	18-152			
Pronamide	27.6	8	ug/L	25.0		110	42-122			
Pentachloronitrobenzene (PCNB)	33.4	8	ug/L	25.0		133	50-128			QS-02
Phenanthrene	30.6	8	ug/L	21.4		143	59-131			QS-02

Determination of Base/Neutral/Acid Extractable Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0840 - 3520C BNA Cont Liq - EPA 8270C										
LCS (1HF0840-BS1)			Prepared: 06/17/24 10:29 Analyzed: 07/05/24 16:43							
Anthracene	30.9	8	ug/L	21.4		144	59-127			QS-02
Di-n-butyl Phthalate	32.6	8	ug/L	21.4		152	64-148			QS-02
Fluoranthene	31.5	8	ug/L	21.4		147	62-132			QS-02
Isodrin	14.0	8	ug/L	25.0		55.8	46-130			
Chlorobenzilate	27.9	8	ug/L	25.0		111	48-150			
Pyrene	31.2	8	ug/L	21.4		146	58-135			QS-02
p-(Dimethylamino)azobenzene	51.6	8	ug/L	50.0		103	28-146			
Butyl Benzyl Phthalate	31.2	8	ug/L	21.4		146	52-150			
Benzo(a)anthracene	31.7	8	ug/L	21.4		148	58-131			QS-02
Chrysene	32.2	8	ug/L	21.4		150	59-131			QS-02
Bis(2-Ethylhexyl) Phthalate	34.6	6	ug/L	21.4		162	33-184			
2-Acetylaminofluorene	68.0	8	ug/L	50.0		136	47-166			
Di-n-octyl Phthalate	30.2	8	ug/L	21.4		141	48-162			
Benzo(b)Fluoranthene	32.1	8	ug/L	21.4		150	50-146			QS-02
7,12-Dimethylbenz [a] anthracene	25.3	8	ug/L	25.0		101	22-155			
Benzo(k)Fluoranthene	32.0	8	ug/L	21.4		149	54-144			QS-02
Benzo(a)Pyrene	32.0	8	ug/L	21.4		150	39-148			QS-02
3-Methylcholanthrene	27.0	8	ug/L	25.0		108	34-118			
Dibenzo(a,h)anthracene	37.4	8	ug/L	21.4		175	46-153			QS-02
Indeno(1,2,3-cd)Pyrene	37.7	8	ug/L	21.4		176	48-152			QS-02
Benzo(g,h,i)perylene	38.7	8	ug/L	21.4		181	47-161			QS-02
Surrogate: 2-Fluorophenol	*24.6*		ug/L	*30.9*		*79.7*	*24-136*			
Surrogate: Phenol-d6	*27.3*		ug/L	*29.4*		*93.0*	*15-140*			
Surrogate: Nitrobenzene-d5	*31.8*		ug/L	*30.8*		*103*	*38-115*			
Surrogate: 2-Fluorobiphenyl	*28.2*		ug/L	*29.3*		*96.1*	*33-110*			
Surrogate: 2,4,6-Tribromophenol	*42.1*		ug/L	*30.1*		*140*	*15-139*			*S-GC*
Surrogate: Terphenyl-dl4	*40.7*		ug/L	*30.9*		*132*	*30-142*			
LCS (1HF0840-BS2)			Prepared: 06/17/24 10:29 Analyzed: 07/05/24 16:18							
N-Nitrosodimethylamine	58.0	8	ug/L	50.0		116	36-138			
Methyl Methanesulfonate	21.5	8	ug/L	25.0		86.2	22-114			
N-Nitrosodiethylamine	48.1	8	ug/L	50.0		96.2	52-114			
N-Nitrosomethylethylamine	49.5	8	ug/L	50.0		99.1	36-120			
Ethyl Methanesulfonate	21.9	8	ug/L	25.0		87.5	46-110			
Phenol	48.1	8	ug/L	50.0		96.1	50-112			
Bis(2-Chloroethyl) Ether	38.1	8	ug/L	50.0		76.2	39-151			
2-Chlorophenol	47.2	8	ug/L	50.0		94.3	56-116			
Benzyl Alcohol	51.4	8	ug/L	50.0		103	13-158			
2-Methylphenol (o-Cresol)	48.1	8	ug/L	50.0		96.2	53-131			
Bis[2-Chloroisopropyl]ether	47.3	8	ug/L	50.0		94.5	50-121			
n-Nitroso-di-n-propylamine	50.5	8	ug/L	50.0		101	50-138			
N-Nitrosopyrrolidine	49.8	8	ug/L	50.0		99.7	31-118			
Acetophenone	23.9	8	ug/L	25.0		95.5	45-104			

Determination of Base/Neutral/Acid Extractable Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0840 - 3520C BNA Cont Liq - EPA 8270C										
LCS (1HF0840-BS2)				Prepared: 06/17/24 10:29 Analyzed: 07/05/24 16:18						
o-Toluidine	36.0	8	ug/L	50.0		72.1	10-163			
(3 & 4)-Methylphenol	52.1	8	ug/L	50.0		104	30-164			
Hexachloroethane	29.3	8	ug/L	50.0		58.5	10-110			
Nitrobenzene	47.3	8	ug/L	50.0		94.6	47-134			
N-Nitrosopiperidine	46.0	8	ug/L	50.0		92.0	51-122			
Isophorone	48.9	8	ug/L	50.0		97.8	54-128			
2-Nitrophenol	50.7	8	ug/L	50.0		101	54-117			
2,4-Dimethylphenol	48.4	8	ug/L	50.0		96.8	52-118			
Bis (2-Chloroethoxy) Methane	46.0	8	ug/L	50.0		91.9	13-132			
2,4-Dichlorophenol	49.8	8	ug/L	50.0		99.7	58-114			
Naphthalene	43.3	8	ug/L	50.0		86.6	37-116			
4-Chloroaniline	39.5	8	ug/L	50.0		79.1	10-198			
2,6-Dichlorophenol	23.6	8	ug/L	25.0		94.4	52-129			
Hexachloropropene	10.6	8	ug/L	25.0		42.3	14-110			
Hexachlorobutadiene	34.0	8	ug/L	50.0		68.1	14-110			
N-Nitrosodi-n-butylamine	40.0	8	ug/L	50.0		79.9	40-135			
4-Chloro-3-methylphenol	53.1	8	ug/L	50.0		106	57-136			
2-Methylnaphthalene	44.2	8	ug/L	50.0		88.3	44-111			
Isosafrole	26.2	8	ug/L	25.0		105	49-107			
1,2,4,5-Tetrachlorobenzene	18.6	8	ug/L	25.0		74.4	42-110			
Hexachlorocyclopentadiene	28.0	8	ug/L	50.0		56.0	11-110			
2,4,6-Trichlorophenol	64.5	8	ug/L	50.0		129	55-120			QS-02
2,4,5-Trichlorophenol	62.1	8	ug/L	50.0		124	55-121			QS-02
Safrole	26.0	8	ug/L	25.0		104	40-118			
2-Chloronaphthalene	51.7	8	ug/L	50.0		103	47-127			
2-Nitroaniline	63.8	8	ug/L	50.0		128	36-143			
1,4-Naphthoquinone	33.0	8	ug/L	25.0		132	43-152			
Dimethylphthalate	63.8	8	ug/L	50.0		128	59-128			
1,3-Dinitrobenzene	74.8	8	ug/L	50.0		150	63-125			QS-02
1,2-Dinitrobenzene	68.6	8	ug/L	50.0		137	63-123			QS-02
2,6-Dinitrotoluene	65.1	8	ug/L	50.0		130	60-127			QS-02
Acenaphthylene	56.1	8	ug/L	50.0		112	49-113			
3-Nitroaniline	63.1	8	ug/L	50.0		126	10-162			
Acenaphthene	60.8	8	ug/L	50.0		122	50-119			QS-02
2,4-Dinitrophenol	68.5	8	ug/L	50.0		137	27-157			
4-Nitrophenol	50.0	8	ug/L	50.0		100	49-154			
Dibenzofuran	59.0	8	ug/L	50.0		118	56-121			
2,4-Dinitrotoluene	64.8	8	ug/L	50.0		130	53-138			
2,3,4,6-Tetrachlorophenol	70.6	8	ug/L	50.0		141	47-132			QS-02
Pentachlorobenzene	27.3	8	ug/L	25.0		109	41-125			
1-Naphthylamine	45.6	8	ug/L	50.0		91.3	10-152			
2-Naphthylamine	29.3	8	ug/L	50.0		58.6	19-128			

Determination of Base/Neutral/Acid Extractable Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0840 - 3520C BNA Cont Liq - EPA 8270C										
LCS (1HF0840-BS2)			Prepared: 06/17/24 10:29 Analyzed: 07/05/24 16:18							
Diethyl Phthalate	63.7	8	ug/L	50.0		127	53-138			
Fluorene	59.0	8	ug/L	50.0		118	54-125			
4-Chlorophenyl Phenyl Ether	59.7	8	ug/L	50.0		119	51-122			
4-Nitroaniline	59.9	8	ug/L	50.0		120	10-136			
5-Nitro-o-toluidine	63.2	8	ug/L	50.0		126	10-145			
4,6-Dinitro-2-methylphenol	68.4	8	ug/L	50.0		137	49-137			
Diphenylamine	70.8	8	ug/L	50.0		142	35-151			
Azobenzene	68.2	8	ug/L	50.0		136	16-156			
Diallate	32.5	8	ug/L	25.0		130	54-132			
1,3,5-Trinitrobenzene	33.1	8	ug/L	25.0		132	57-173			
Phenacetin	33.0	8	ug/L	25.0		132	55-121			QS-02
4-Bromophenyl Phenyl Ether	69.2	8	ug/L	50.0		138	53-122			QS-02
4-Aminobiphenyl	21.2	8	ug/L	50.0		42.4	10-178			
Pentachlorophenol	57.0	8	ug/L	50.0		114	18-152			
Pronamide	29.6	8	ug/L	25.0		119	42-122			
Pentachloronitrobenzene (PCNB)	36.2	8	ug/L	25.0		145	50-128			QS-02
Phenanthrene	65.5	8	ug/L	50.0		131	59-131			QS-02
Anthracene	65.5	8	ug/L	50.0		131	59-127			QS-02
Di-n-butyl Phthalate	69.5	8	ug/L	50.0		139	64-148			
Fluoranthene	68.6	8	ug/L	50.0		137	62-132			QS-02
Isodrin	21.0	8	ug/L	25.0		84.2	46-130			
Chlorobenzilate	30.6	8	ug/L	25.0		122	48-150			
Pyrene	66.6	8	ug/L	50.0		133	58-135			
p-(Dimethylamino)azobenzene	57.9	8	ug/L	50.0		116	28-146			
Butyl Benzyl Phthalate	64.9	8	ug/L	50.0		130	52-150			
Benzo(a)anthracene	64.0	8	ug/L	50.0		128	58-131			
Chrysene	65.8	8	ug/L	50.0		132	59-131			QS-02
Bis(2-Ethylhexyl) Phthalate	72.4	6	ug/L	50.0		145	33-184			
2-Acetylaminofluorene	66.6	8	ug/L	50.0		133	47-166			
Di-n-octyl Phthalate	64.7	8	ug/L	50.0		129	48-162			
Benzo(b)Fluoranthene	66.0	8	ug/L	50.0		132	50-146			
7,12-Dimethylbenz [a] anthracene	26.2	8	ug/L	25.0		105	22-155			
Benzo(k)Fluoranthene	64.6	8	ug/L	50.0		129	54-144			
Benzo(a)Pyrene	66.8	8	ug/L	50.0		134	39-148			
3-Methylcholanthrene	30.7	8	ug/L	25.0		123	34-118			QS-02
Dibenzo(a,h)anthracene	76.4	8	ug/L	50.0		153	46-153			QS-02
Indeno(1,2,3-cd)Pyrene	75.3	8	ug/L	50.0		151	48-152			QS-02
Benzo(g,h,i)perylene	76.2	8	ug/L	50.0		152	47-161			QS-02
Surrogate: 2-Fluorophenol	*25.0*		ug/L	*30.9*		*80.9*	*24-136*			
Surrogate: Phenol-d6	*29.3*		ug/L	*29.4*		*99.7*	*15-140*			
Surrogate: Nitrobenzene-d5	*28.5*		ug/L	*30.8*		*92.5*	*38-115*			
Surrogate: 2-Fluorobiphenyl	*30.3*		ug/L	*29.3*		*103*	*33-110*			

Determination of Base/Neutral/Acid Extractable Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0840 - 3520C BNA Cont Liq - EPA 8270C										
LCS (1HF0840-BS2)			Prepared: 06/17/24 10:29 Analyzed: 07/05/24 16:18							
Surrogate: 2,4,6-Tribromophenol	*39.7*		ug/L	*30.1*		*132*	*15-139*			
Surrogate: Terphenyl-dl4	*41.0*		ug/L	*30.9*		*133*	*30-142*			

Determination of Organophosphorus Insecticides	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0699 - 3510C NP/OC Sep Fnl - EPA 8141										
Blank (1HF0699-BLK1)			Prepared: 06/13/24 13:56 Analyzed: 06/21/24 10:26							
O,O,O-Triethyl phosphorothioate	<0.4	0.4	ug/L							
Thionazin	<0.4	0.4	ug/L							
Phorate	<0.4	0.4	ug/L							
Dimethoate	<0.4	0.4	ug/L							
Disulfoton	<0.4	0.4	ug/L							
Methyl Parathion	<0.4	0.4	ug/L							
Parathion	<0.4	0.4	ug/L							
Famphur	<0.4	0.4	ug/L							
Surrogate: 2-Nitro-m-xylene	*5.49*		ug/L	*8.34*		*65.8*	*38-122*			
LCS (1HF0699-BS1)			Prepared: 06/13/24 13:56 Analyzed: 06/21/24 13:49							
O,O,O-Triethyl phosphorothioate	3.86	0.4	ug/L	4.02		95.8	42-115			
Thionazin	4.06	0.4	ug/L	4.03		101	28-118			
Phorate	4.12	0.4	ug/L	4.03		102	18-159			
Dimethoate	3.88	0.4	ug/L	4.03		96.2	43-155			
Disulfoton	3.38	0.4	ug/L	4.03		83.9	37-126			
Methyl Parathion	3.79	0.4	ug/L	4.04		93.8	28-145			
Parathion	3.50	0.4	ug/L	4.00		87.5	52-121			
Famphur	3.46	0.4	ug/L	4.02		85.9	44-144			
Surrogate: 2-Nitro-m-xylene	*6.76*		ug/L	*8.34*		*81.0*	*38-122*			
LCS Dup (1HF0699-BSD1)			Prepared: 06/13/24 13:56 Analyzed: 06/21/24 18:32							
O,O,O-Triethyl phosphorothioate	3.96	0.4	ug/L	4.02		98.3	42-115	2.56	30	
Thionazin	4.41	0.4	ug/L	4.03		109	28-118	8.14	30	
Phorate	3.70	0.4	ug/L	4.03		91.7	18-159	10.9	30	
Dimethoate	4.36	0.4	ug/L	4.03		108	43-155	11.9	22	
Disulfoton	4.04	0.4	ug/L	4.03		100	37-126	17.9	30	
Methyl Parathion	4.44	0.4	ug/L	4.04		110	28-145	15.8	28	
Parathion	4.05	0.4	ug/L	4.00		101	52-121	14.6	26	
Famphur	4.12	0.4	ug/L	4.02		103	44-144	17.7	28	
Surrogate: 2-Nitro-m-xylene	*7.26*		ug/L	*8.34*		*87.1*	*38-122*			

Determination of Chlorinated Phenoxy Herbicides	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0835 - EPA 8151A - EPA 8151A										
Blank (1HF0835-BLK1)			Prepared: 06/17/24 10:20 Analyzed: 06/25/24 19:15							
2,4-D	<2.0	2.0	ug/L							
2,4,5-TP (Silvex)	<0.5	0.5	ug/L							
2,4,5-T	<0.5	0.5	ug/L							
Dinoseb	<0.5	0.5	ug/L							
Surrogate: 2,5-Dichlorobenzoic Acid	*2.36*		ug/L	*2.02*		*117*	*31-116*			*S-07*
LCS (1HF0835-BS1)			Prepared: 06/17/24 10:20 Analyzed: 06/25/24 20:21							
2,4-D	<2.0	2.0	ug/L	1.15		76.5	16-161			
2,4,5-TP (Silvex)	<0.5	0.5	ug/L	0.575		85.2	35-141			
2,4,5-T	0.66	0.5	ug/L	0.575		116	54-149			
Dinoseb	0.85	0.5	ug/L	1.15		73.9	10-133			
Surrogate: 2,5-Dichlorobenzoic Acid	*2.08*		ug/L	*2.02*		*103*	*31-116*			
LCS Dup (1HF0835-BSD1)			Prepared: 06/17/24 10:20 Analyzed: 06/25/24 20:54							
2,4-D	<2.0	2.0	ug/L	1.15		88.3	16-161	14.2	30	
2,4,5-TP (Silvex)	0.56	0.5	ug/L	0.575		98.3	35-141	14.2	30	
2,4,5-T	0.72	0.5	ug/L	0.575		126	54-149	8.63	30	
Dinoseb	0.91	0.5	ug/L	1.15		79.1	10-133	6.82	30	
Surrogate: 2,5-Dichlorobenzoic Acid	*2.26*		ug/L	*2.02*		*112*	*31-116*			

Determination of Organochlorine Insecticides & Metabolites	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0697 - 3510C NP/OC Sep Fnl - EPA 8081										
Blank (1HF0697-BLK1)			Prepared: 06/13/24 14:00 Analyzed: 06/19/24 14:33							
Alpha-BHC	<0.05	0.05	ug/L							
Gamma-BHC [Lindane]	<0.05	0.05	ug/L							
Beta-BHC	<0.05	0.05	ug/L							
Heptachlor	<0.05	0.05	ug/L							
Delta-BHC	<0.05	0.05	ug/L							
Aldrin	<0.05	0.05	ug/L							
Heptachlor Epoxide	<0.05	0.05	ug/L							
Endosulfan I	<0.05	0.05	ug/L							
4,4`-DDE	<0.05	0.05	ug/L							
Dieldrin	<0.05	0.05	ug/L							
Endrin	<0.05	0.05	ug/L							
4,4`-DDD	<0.05	0.05	ug/L							
Endosulfan II	<0.05	0.05	ug/L							
4,4`-DDT	<0.05	0.05	ug/L							
Endrin Aldehyde	<0.05	0.05	ug/L							
Endosulfan Sulfate	<0.05	0.05	ug/L							

Determination of Organochlorine Insecticides & Metabolites	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0697 - 3510C NP/OC Sep Fnl - EPA 8081										
Blank (1HF0697-BLK1)				Prepared: 06/13/24 14:00 Analyzed: 06/19/24 14:33						
Methoxychlor	<0.05	0.05	ug/L							
Chlordane	<0.10	0.10	ug/L							
Toxaphene	<0.20	0.20	ug/L							
Hexachlorobenzene	<0.05	0.05	ug/L							
Surrogate: Tetrachloro-m-xylene	*0.417*		ug/L	*0.600*		*69.4*	*10-121*			
LCS (1HF0697-BS1)				Prepared: 06/13/24 14:00 Analyzed: 06/19/24 15:03						
Alpha-BHC	0.195	0.05	ug/L	0.250		77.9	33-123			
Gamma-BHC [Lindane]	0.191	0.05	ug/L	0.250		76.2	34-120			
Beta-BHC	0.195	0.05	ug/L	0.250		78.1	33-125			
Heptachlor	0.194	0.05	ug/L	0.250		77.5	32-117			
Delta-BHC	0.212	0.05	ug/L	0.250		84.9	24-140			
Aldrin	0.166	0.05	ug/L	0.250		66.3	29-122			
Heptachlor Epoxide	0.170	0.05	ug/L	0.250		68.2	37-137			
Endosulfan I	0.185	0.05	ug/L	0.250		73.8	27-141			
4,4`-DDE	0.197	0.05	ug/L	0.250		78.7	38-147			
Dieldrin	0.181	0.05	ug/L	0.250		72.5	32-137			
Endrin	0.200	0.05	ug/L	0.250		80.0	25-142			
4,4`-DDD	0.204	0.05	ug/L	0.250		81.5	43-146			
Endosulfan II	0.209	0.05	ug/L	0.250		83.8	36-140			
4,4`-DDT	0.211	0.05	ug/L	0.250		84.6	39-140			
Endrin Aldehyde	0.213	0.05	ug/L	0.250		85.3	17-150			
Endosulfan Sulfate	0.205	0.05	ug/L	0.250		81.9	41-135			
Methoxychlor	0.214	0.05	ug/L	0.250		85.7	40-148			
Surrogate: Tetrachloro-m-xylene	*0.416*		ug/L	*0.600*		*69.3*	*10-121*			
LCS Dup (1HF0697-BSD1)				Prepared: 06/13/24 14:00 Analyzed: 06/19/24 15:18						
Alpha-BHC	0.204	0.05	ug/L	0.250		81.5	33-123	4.52	30	
Gamma-BHC [Lindane]	0.201	0.05	ug/L	0.250		80.4	34-120	5.29	30	
Beta-BHC	0.202	0.05	ug/L	0.250		80.8	33-125	3.38	30	
Heptachlor	0.207	0.05	ug/L	0.250		83.0	32-117	6.83	30	
Delta-BHC	0.225	0.05	ug/L	0.250		90.1	24-140	6.02	30	
Aldrin	0.177	0.05	ug/L	0.250		70.9	29-122	6.73	30	
Heptachlor Epoxide	0.178	0.05	ug/L	0.250		71.4	37-137	4.64	30	
Endosulfan I	0.195	0.05	ug/L	0.250		77.9	27-141	5.33	30	
4,4`-DDE	0.205	0.05	ug/L	0.250		81.9	38-147	3.96	30	
Dieldrin	0.190	0.05	ug/L	0.250		76.2	32-137	4.97	30	
Endrin	0.212	0.05	ug/L	0.250		84.8	25-142	5.92	30	
4,4`-DDD	0.214	0.05	ug/L	0.250		85.4	43-146	4.72	30	
Endosulfan II	0.217	0.05	ug/L	0.250		87.0	36-140	3.75	30	
4,4`-DDT	0.228	0.05	ug/L	0.250		91.1	39-140	7.41	30	
Endrin Aldehyde	0.223	0.05	ug/L	0.250		89.4	17-150	4.65	30	

Determination of Organochlorine Insecticides & Metabolites	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0697 - 3510C NP/OC Sep Fnl - EPA 8081										
LCS Dup (1HF0697-BSD1)			Prepared: 06/13/24 14:00 Analyzed: 06/19/24 15:18							
Endosulfan Sulfate	0.213	0.05	ug/L	0.250		85.1	41-135	3.87	30	
Methoxychlor	0.230	0.05	ug/L	0.250		91.8	40-148	6.95	30	
Surrogate: Tetrachloro-m-xylene	*0.428*		ug/L	*0.600*		*71.4*	*10-121*			

Determination of Polychlorinated Biphenyls (PCB)	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0698 - 3510C NP/OC Sep Fnl - EPA 8082										
Blank (1HF0698-BLK1)			Prepared: 06/13/24 13:59 Analyzed: 06/19/24 14:33							
Arochlor 1016	<0.20	0.20	ug/L							
Arochlor 1221	<0.20	0.20	ug/L							
Arochlor 1232	<0.20	0.20	ug/L							
Arochlor 1242	<0.20	0.20	ug/L							
Arochlor 1248	<0.20	0.20	ug/L							
Arochlor 1254	<0.20	0.20	ug/L							
Arochlor 1260	<0.20	0.20	ug/L							
Surrogate: Tetrachloro-m-xylene	*0.395*		ug/L	*0.600*		*65.8*	*38-121*			
Surrogate: Decachlorobiphenyl	*0.548*		ug/L	*0.600*		*91.3*	*25-119*			
LCS (1HF0698-BS1)			Prepared: 06/13/24 13:59 Analyzed: 06/19/24 15:33							
Arochlor 1016	1.967	0.20	ug/L	2.60		75.6	25-126			
Arochlor 1260	2.365	0.20	ug/L	2.60		91.0	29-142			
Surrogate: Tetrachloro-m-xylene	*0.415*		ug/L	*0.600*		*69.1*	*38-121*			
Surrogate: Decachlorobiphenyl	*0.553*		ug/L	*0.600*		*92.2*	*25-119*			
LCS Dup (1HF0698-BSD1)			Prepared: 06/13/24 13:59 Analyzed: 06/19/24 15:47							
Arochlor 1016	1.989	0.20	ug/L	2.60		76.5	25-126	1.14	30	
Arochlor 1260	2.444	0.20	ug/L	2.60		94.0	29-142	3.30	30	
Surrogate: Tetrachloro-m-xylene	*0.421*		ug/L	*0.600*		*70.1*	*38-121*			
Surrogate: Decachlorobiphenyl	*0.567*		ug/L	*0.600*		*94.6*	*25-119*			

Determination of Conventional Chemistry Parameters	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0701 - Wet Chem Preparation - EPA 376.2										
Blank (1HF0701-BLK1)			Prepared: 06/13/24 14:27 Analyzed: 06/13/24 17:00							
Sulfide, total	<0.10	0.10	mg/L							
LCS (1HF0701-BS1)			Prepared: 06/13/24 14:27 Analyzed: 06/13/24 17:00							

Determination of Conventional Chemistry Parameters	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0701 - Wet Chem Preparation - EPA 376.2										
LCS (1HF0701-BS1)				Prepared: 06/13/24 14:27 Analyzed: 06/13/24 17:00						
Sulfide, total	0.193	0.10	mg/L	0.31		61.2	59-110			
Matrix Spike (1HF0701-MS1)	**Source: 1HF0855-01**			Prepared: 06/13/24 14:27 Analyzed: 06/13/24 17:00						
Sulfide, total	<0.15	0.15	mg/L	0.47	ND	21.0	50-150			QM-12
Matrix Spike Dup (1HF0701-MSD1)	**Source: 1HF0855-01**			Prepared: 06/13/24 14:27 Analyzed: 06/13/24 17:00						
Sulfide, total	<0.15	0.15	mg/L	0.47	ND	19.4	50-150	7.51	30	QM-12
Batch 1HF0804 - Wet Chem Preparation - EPA 9010B										
Blank (1HF0804-BLK1)				Prepared: 06/17/24 08:10 Analyzed: 06/18/24 17:30						
Cyanide, total	<0.005	0.005	mg/L							
LCS (1HF0804-BS1)				Prepared: 06/17/24 08:10 Analyzed: 06/18/24 17:30						
Cyanide, total	0.0273	0.005	mg/L	0.0300		91.1	66-136			
Matrix Spike (1HF0804-MS1)	**Source: 1HF0537-01**			Prepared: 06/17/24 08:10 Analyzed: 06/18/24 17:30						
Cyanide, total	0.0259	0.005	mg/L	0.0300	ND	86.3	59-153			
Matrix Spike Dup (1HF0804-MSD1)	**Source: 1HF0537-01**			Prepared: 06/17/24 08:10 Analyzed: 06/18/24 17:30						
Cyanide, total	0.0259	0.005	mg/L	0.0300	ND	86.3	59-153	0.00	30	

Determination of Total Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0720 - EPA 3005A Total Recoverable Metals - EPA 6020A										
Blank (1HF0720-BLK1)				Prepared: 06/13/24 16:09 Analyzed: 06/15/24 01:55						
Antimony, total	<0.0020	0.0020	mg/L							
Arsenic, total	<0.0040	0.0040	mg/L							
Barium, total	<0.0040	0.0040	mg/L							
Beryllium, total	<0.0040	0.0040	mg/L							
Cadmium, total	<0.0008	0.0008	mg/L							
Chromium, total	<0.0080	0.0080	mg/L							
Cobalt, total	<0.0004	0.0004	mg/L							
Copper, total	<0.0040	0.0040	mg/L							
Lead, total	<0.0040	0.0040	mg/L							
Nickel, total	<0.0040	0.0040	mg/L							
Selenium, total	<0.0040	0.0040	mg/L							
Silver, total	<0.0040	0.0040	mg/L							
Thallium, total	<0.0020	0.0020	mg/L							
Tin, total	<0.0200	0.0200	mg/L							
Vanadium, total	<0.0200	0.0200	mg/L							
Zinc, total	<0.0200	0.0200	mg/L							
LCS (1HF0720-BS1)				Prepared: 06/13/24 16:09 Analyzed: 06/15/24 02:01						
Antimony, total	0.0950	0.0020	mg/L	0.100		95.0	80-120			
Arsenic, total	0.0953	0.0040	mg/L	0.100		95.3	80-120			

Determination of Total Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0720 - EPA 3005A Total Recoverable Metals - EPA 6020A										
LCS (1HF0720-BS1)				Prepared: 06/13/24 16:09 Analyzed: 06/15/24 02:01						
Barium, total	0.101	0.0040	mg/L	0.100		101	80-120			
Beryllium, total	0.0971	0.0040	mg/L	0.100		97.1	80-120			
Cadmium, total	0.0970	0.0008	mg/L	0.100		97.0	80-120			
Chromium, total	0.0944	0.0080	mg/L	0.100		94.4	80-120			
Cobalt, total	0.0973	0.0004	mg/L	0.100		97.3	80-120			
Copper, total	0.0958	0.0040	mg/L	0.100		95.8	80-120			
Lead, total	0.100	0.0040	mg/L	0.100		100	80-120			
Nickel, total	0.0965	0.0040	mg/L	0.100		96.5	80-120			
Selenium, total	0.1003	0.0040	mg/L	0.100		100	80-120			
Silver, total	0.0989	0.0040	mg/L	0.100		98.9	80-120			
Thallium, total	0.0978	0.0020	mg/L	0.100		97.8	80-120			
Tin, total	0.0969	0.0200	mg/L	0.100		96.9	80-120			
Vanadium, total	0.0982	0.0200	mg/L	0.100		98.2	80-120			
Zinc, total	0.0995	0.0200	mg/L	0.100		99.5	80-120			
Matrix Spike (1HF0720-MS1)	**Source: 1HF0855-01**			Prepared: 06/13/24 16:09 Analyzed: 06/15/24 02:19						
Antimony, total	0.0962	0.0020	mg/L	0.100	0.0005	96.2	75-125			
Arsenic, total	0.104	0.0040	mg/L	0.100	0.0052	98.8	75-125			
Barium, total	0.121	0.0040	mg/L	0.100	0.0175	104	75-125			
Beryllium, total	0.0915	0.0040	mg/L	0.100	ND	91.5	75-125			
Cadmium, total	0.0915	0.0008	mg/L	0.100	0.0003	91.3	75-125			
Chromium, total	0.0912	0.0080	mg/L	0.100	ND	91.2	75-125			
Cobalt, total	0.0995	0.0004	mg/L	0.100	0.0013	98.2	75-125			
Copper, total	0.0900	0.0040	mg/L	0.100	0.0022	87.8	75-125			
Lead, total	0.0928	0.0040	mg/L	0.100	ND	92.8	75-125			
Nickel, total	0.0986	0.0040	mg/L	0.100	0.0043	94.3	75-125			
Selenium, total	0.0984	0.0040	mg/L	0.100	ND	98.4	75-125			
Silver, total	0.0946	0.0040	mg/L	0.100	ND	94.6	75-125			
Thallium, total	0.0939	0.0020	mg/L	0.100	0.0002	93.7	75-125			
Tin, total	0.0975	0.0200	mg/L	0.100	ND	97.5	75-125			
Vanadium, total	0.101	0.0200	mg/L	0.100	ND	101	75-125			
Zinc, total	0.0991	0.0200	mg/L	0.100	ND	99.1	75-125			
Matrix Spike Dup (1HF0720-MSD1)	**Source: 1HF0855-01**			Prepared: 06/13/24 16:09 Analyzed: 06/15/24 02:26						
Antimony, total	0.0987	0.0020	mg/L	0.100	0.0005	98.7	75-125	2.57	20	
Arsenic, total	0.106	0.0040	mg/L	0.100	0.0052	101	75-125	2.07	20	
Barium, total	0.122	0.0040	mg/L	0.100	0.0175	105	75-125	0.787	20	
Beryllium, total	0.0926	0.0040	mg/L	0.100	ND	92.6	75-125	1.18	20	
Cadmium, total	0.0924	0.0008	mg/L	0.100	0.0003	92.2	75-125	0.960	20	
Chromium, total	0.0928	0.0080	mg/L	0.100	ND	92.8	75-125	1.76	20	
Cobalt, total	0.100	0.0004	mg/L	0.100	0.0013	99.1	75-125	0.938	20	
Copper, total	0.0902	0.0040	mg/L	0.100	0.0022	88.0	75-125	0.266	20	
Lead, total	0.0951	0.0040	mg/L	0.100	ND	95.1	75-125	2.50	20	
Nickel, total	0.0993	0.0040	mg/L	0.100	0.0043	95.0	75-125	0.629	20	
Selenium, total	0.0991	0.0040	mg/L	0.100	ND	99.1	75-125	0.784	20	

Determination of Total Metals	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1HF0720 - EPA 3005A Total Recoverable Metals - EPA 6020A										
Matrix Spike Dup (1HF0720-MSD1)	**Source: 1HF0855-01**		Prepared: 06/13/24 16:09 Analyzed: 06/15/24 02:26							
Silver, total	0.0965	0.0040	mg/L	0.100	ND	96.5	75-125	1.95	20	
Thallium, total	0.0960	0.0020	mg/L	0.100	0.0002	95.9	75-125	2.25	20	
Tin, total	0.0992	0.0200	mg/L	0.100	ND	99.2	75-125	1.73	20	
Vanadium, total	0.104	0.0200	mg/L	0.100	ND	104	75-125	2.78	20	
Zinc, total	0.0991	0.0200	mg/L	0.100	ND	99.1	75-125	0.0174	20	
Post Spike (1HF0720-PS1)	**Source: 1HF0855-01**		Prepared: 06/13/24 16:09 Analyzed: 06/15/24 02:32							
Antimony, total	0.0787		mg/L	0.0800	0.0004	97.9	80-120			
Arsenic, total	0.0847		mg/L	0.0800	0.0051	99.5	80-120			
Barium, total	0.0967		mg/L	0.0800	0.0171	99.5	80-120			
Beryllium, total	0.0731		mg/L	0.0800	0.00007	91.4	80-120			
Cadmium, total	0.0731		mg/L	0.0800	0.0003	91.1	80-120			
Chromium, total	0.0733		mg/L	0.0800	0.0004	91.1	80-120			
Cobalt, total	0.0810		mg/L	0.0800	0.0013	99.7	80-120			
Copper, total	0.0747		mg/L	0.0800	0.0022	90.7	80-120			
Lead, total	0.0751		mg/L	0.0800	0.00008	93.7	80-120			
Nickel, total	0.0803		mg/L	0.0800	0.0042	95.1	80-120			
Selenium, total	0.0767		mg/L	0.0800	0.0007	94.9	80-120			
Silver, total	0.0766		mg/L	0.0800	0.0003	95.4	80-120			
Thallium, total	0.0762		mg/L	0.0800	0.0002	95.1	80-120			
Tin, total	0.0797		mg/L	0.0800	0.0003	99.3	75-125			
Vanadium, total	0.0839		mg/L	0.0800	0.0056	97.9	80-120			
Zinc, total	0.0796		mg/L	0.0800	0.0105	86.3	80-120			
Batch 1HF0786 - EPA 7470A Hg Water - EPA 7470A										
Blank (1HF0786-BLK1)			Prepared: 06/14/24 15:33 Analyzed: 06/17/24 12:46							
Mercury, total	<0.00050	0.00050	mg/L							
LCS (1HF0786-BS1)			Prepared: 06/14/24 15:33 Analyzed: 06/17/24 12:48							
Mercury, total	0.00260	0.00050	mg/L	0.00250		104	80-120			
Matrix Spike (1HF0786-MS1)	**Source: 1HF0855-01**		Prepared: 06/14/24 15:33 Analyzed: 06/17/24 12:53							
Mercury, total	0.00209	0.00050	mg/L	0.00250	ND	83.5	75-125			
Matrix Spike Dup (1HF0786-MSD1)	**Source: 1HF0855-01**		Prepared: 06/14/24 15:33 Analyzed: 06/17/24 12:55							
Mercury, total	0.00200	0.00050	mg/L	0.00250	ND	80.2	75-125	3.98	20	

Definitions

I-02:	This result was analyzed outside of the EPA recommended holding time.
O-05:	This sample was extracted outside of the EPA recommended holding time.
QB-01:	The method blank contains analyte at a concentration above the MRL; however, concentration is less than 10% of the sample result, which is negligible according to method criteria.
QM-12:	The spike recovery was outside acceptance limits for the MS and/or MSD.
QS-02:	The spike recovery for this QC sample exceeded established acceptance limits. However, all samples were below the reporting and/or regulatory limit so the data is acceptable.
RL:	Reporting Limit
RPD:	Relative Percent Difference
S-07:	The surrogate recovery for this sample is outside of established control limits.
S-GC:	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 0.0°C

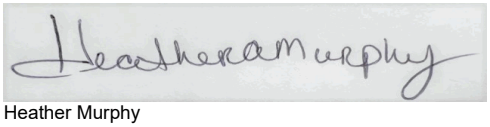
Cooler Inspection Checklist

Custody Seals	No	Containers Intact	Yes
COC/Labels Agree	Yes	Preservation Confirmed	No
Received On Ice	Yes		

Report Comments

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included. ***The services were provided under and subject to Microbac's standard terms and conditions which can be located and reviewed at <https://www.microbac.com/standard-terms-conditions>.***

Reviewed and Approved By:



Heather Murphy
Customer Relationship Specialist
heather.murphy@microbac.com
07/09/24 08:18

Keystone LABORATORIES, INC.

600 E. 17th
Newton, IA
Phone: 641-
Fax: 641-

St Paul
s City, KS 66105
: 913-321-7856
913-831-6778

205 E VanBuren St
Centerville, IA 52544
Phone: 641-437-7023
Fax: 641-437-7040

1HF0855

HLW Engineering
PM: Heather Murphy

PAGE 1 OF 1

PRINT OR TYPE INFORMATION BELOW

SAMPLER: Todd Whipple
SITE NAME: Clarke Co SLF
ADDRESS:
CITY/ST/ZIP: Osceola, IA
PHONE:

REPORT TO:

NAME: Todd Whipple
COMPANY NAME: HLW Group
ADDRESS: P.O Box 314
CITY/ST/ZIP: Story City, IA 50248
PHONE: 515 733 4144 4146
FAX:

BILL TO:

NAME: Mr. Dean Robins, Chairman
COMPANY NAME: Clarke Co SLF
ADDRESS: Courthouse - 100 South Main St
CITY/ST/ZIP: Osceola, IA 50213
PHONE:

Keystone Quote No: (If Applicable)

CLIENT SAMPLE NUMBER	DATE	TIME	SAMPLE LOCATION	NO. OF CONTAINERS	MATRIX	GRAB/COMPOSITE	ANALYSES REQUIRED: SLF Appendix II	LAB USE ONLY: SAMPLE CONDITION/COMMENTS	LABORATORY SAMPLE NUMBER
MW-38	6/3/24	8:40	MW-38	17	W	G	1	~~1HF08~~	01

LABORATORY WORK ORDER NO.: 1HF0855

SAMPLE TEMPERATURE UPON RECEIPT: 0.0 on ice °C

Relinquished by: (Signature) — Date 6/3/24 — Time
Relinquished by: (Signature) — Date — Time

Received by: (Signature) — Date — Time
Received for Lab by: (Signature) — Date 6-5-24 — Time 9:42

Turn-Around: ☐ Standard ☐ Rush — Contact Lab Prior to Submission

Remarks:

Original - Lab Copy • Yellow - Sampler Copy

FORM: CCR 7-97

Table 5

Summary Statistics and Prediction Limits

Constituent	Units	Detect	N	Mean	SD	alpha	Factor	Pred Limit	Type		Conf
Antimony, total	ug/L	1	40					4.0000	nonpar		0.99
Arsenic, total	ug/L	1	40					6.3000	nonpar		0.99
Barium, total	ug/L	40	40	3.0847	0.3502	0.0100	2.4559	51.6704	lognor		
Beryllium, total	ug/L	0	40					4.0000	nonpar	***	0.99
Cadmium, total	ug/L	4	40					3.8000	nonpar		0.99
Chromium, total	ug/L	0	40					8.0000	nonpar	***	0.99
Cobalt, total	ug/L	29	39	6.2410	5.7545	0.0100	2.4594	20.3935	normal		
Copper, total	ug/L	3	40					8.9000	nonpar		0.99
Lead, total	ug/L	0	40					4.0000	nonpar	***	0.99
Nickel, total	ug/L	24	40	18.8150	18.4686	0.0100	2.4559	64.1713	normal		
Selenium, total	ug/L	4	40					9.7000	nonpar		0.99
Silver, total	ug/L	0	40					4.0000	nonpar	***	0.99
Thallium, total	ug/L	1	40					4.0000	nonpar	***	0.99
Vanadium, total	ug/L	0	40					20.0000	nonpar	***	0.99
Zinc, total	ug/L	8	40					24.9000	nonpar		0.99

Conf = confidence level for passing initial test or one verification resample at all downgradient wells for a single constituent (nonparametric test only).
* - Insufficient Data.
** - Calculated limit raised to Manual Reporting Limit.
*** - Nonparametric limit based on ND value.
For transformed data, mean and SD in transformed units and prediction limit in original units.
All sample sizes and statistics are based on outlier free data.
For nonparametric limits, median reporting limits are substituted for extreme reporting limit values.