PARAGON LABORATORIES

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Friday, July 23, 2021

Dennis McCabe
Village of Cass City
PO Box 123
Cass City, MI 48726

Workorder: 370629

Dennis McCabe,
Paragon Laboratories, Inc. received the samples associated with the workorder listed above for the analyses presented in the following report. The analyses pertain only to the aliquot of sample received.

This material is confidential and is intended solely for the person to whom it is addressed. If this is received in error, please contact the number below.

Please note that any unused portion of the sample(s) will be discarded 40 days after sample receipt, unless requested otherwise.

We appreciate the opportunity to assist you. If you have any questions concerning this report, please contact me at 734-469-5625.

Sincerely,

Margaret Snyder

Margaret Snyder
Senior Account Coordinator

GLOSSARY

Abbreviation	Meaning	Explanation
ID	Identification	Preceeded by "Lab", it describes the unique 10-digit sample number assigned by the laboratory. Preceeded by "Sample", it describes the client-specified sample identifier.
Qual	Qualifier	Column that populates with an asterisk (*) when a related narrative comment appears in the Workorder Summary.
RL	Reporting Limit	The value at or above which a result is routinely reported.
MDL	Method Detection Limit	The minimum measured concentration that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results.
DF	Dilution Factor	The dilution applied to the sample during analysis to arrive at the final reported analyte result.
Min	Minimum	The minimum value that a result can be to meet the applicable specification, regulatory, permit, or client-specified limit.
Max	Maximum	The maximum value that a result can be to meet the applicable specification, regulatory, permit, or client-specified limit.
(S)	Surrogate	A compound that is added to the sample to mimic one or more compounds of interest. Its recovery is used to evaluate the efficiency of recovering the compound(s) of interest.
<	Less Than	Symbol that indicates that a result is less than the value following it.
>	Greater Than	Symbol that indicates that a result is greater than the value following it.

SAMPLE SUMMARY

Lab ID	Sample ID	Sample Description	Matrix	Date Collected	Date Received	Collector
3706290001	Cass City Biosolids	Grab	SL	07/07/2021 09:45	07/08/2021 12:20	NR
3706290002	Cass CIty - Field Blank	Grab	S	07/07/2021 09:45	07/08/2021 12:20	NR
3706290003	Cass City - Trip Blank		S	07/07/2021 00:00	07/08/2021 12:20	NR

WORKORDER SUMMARY

Accreditations

Paragon Laboratories, Inc. is certified by the Michigan Department of Environment, Great Lakes, and Energy to analyze Drinking Water. (EGLE Lab No. 9901 Expires 2/25/2023)

Workorder Narrative

General Comment:

No suspected contamination during sampling process, therefore the trip blank was not analyzed.

Surrogate Results Narrative

3706290001 - Cass City Biosolids - M2PFDoA
Surrogate recovery is below the lower control limit, possibly due to matrix interferences.
3706290001 - Cass City Biosolids - M2PFTeDA
Surrogate recovery is below the lower control limit, possibly due to matrix interferences.
3706290001 - Cass City Biosolids - M3PFBS
Surrogate recovery is below the lower control limit, possibly due to matrix interferences.
3706290001 - Cass City Biosolids - M4PFHpA
Surrogate recovery is below the lower control limit, possibly due to matrix interferences.
3706290001 - Cass City Biosolids - M5PFHxA
Surrogate recovery is below the lower control limit, possibly due to matrix interferences.
3706290001 - Cass City Biosolids - M6PFDA
Surrogate recovery is below the lower control limit, possibly due to matrix interferences.
3706290001 - Cass City Biosolids - M7PFUnDA
Surrogate recovery is below the lower control limit, possibly due to matrix interferences.
3706290001 - Cass City Biosolids - d3-NMeFOSAA
Surrogate recovery is below the lower control limit, possibly due to matrix interferences.
3706290001 - Cass City Biosolids - M8PFOSA
Surrogate recovery is below the lower control limit, possibly due to matrix interferences.
3706290001 - Cass City Biosolids - 13C-HFPO-DA
Surrogate recovery is below the lower control limit, possibly due to matrix interferences.

ANALYTICAL RESULTS

Lab ID:	3706290001	Date Collected:	07/07/2021 09:45	Matrix:	Sludge
Sample ID:	Cass City Biosolids	Date Received:	07/08/2021 12:20	Collector:	NR
Description:	Grab				

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Individual Parameters by SM 2540 G										
Percent Total Solids	5.9		% m/m	0.10		1			07/12/2021 11:51	CTJ
Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.										
11Cl-PF3OUdS	190		ng/Kg-dry	100	65	1			07/14/2021 17:49	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/14/2021 17:49	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/14/2021 17:49	JKP
8:2 FTSA	580		ng/Kg-dry	100	50	1			07/14/2021 17:49	JKP
9Cl-PF3ONS	150		ng/Kg-dry	100	59	1			07/14/2021 17:49	JKP
ADONA	100		ng/Kg-dry	100	68	1			07/14/2021 17:49	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/14/2021 17:49	JKP
NEtFOSAA	3700		ng/Kg-dry	100	57	1			07/14/2021 17:49	JKP
NMeFOSAA	8000		ng/Kg-dry	200	190	1			07/14/2021 17:49	JKP
PFBA	230		ng/Kg-dry	25	20	1			07/14/2021 17:49	JKP
PFBS	12000		ng/Kg-dry	10	9.2	1			07/14/2021 17:49	JKP
PFDA	990		ng/Kg-dry	15	14	1			07/14/2021 17:49	JKP
PFDS	1100		ng/Kg-dry	15	15	1			07/14/2021 17:49	JKP
PFDoA	320		ng/Kg-dry	20	17	1			07/14/2021 17:49	JKP
PFHpA	66		ng/Kg-dry	20	16	1			07/14/2021 17:49	JKP
PFHpS	<15		ng/Kg-dry	15	12	1			07/14/2021 17:49	JKP
PFHxA	1100		ng/Kg-dry	10	7.5	1			07/14/2021 17:49	JKP
PFHxS	630		ng/Kg-dry	10	5.8	1			07/14/2021 17:49	JKP
PFNA	200		ng/Kg-dry	10	5.2	1			07/14/2021 17:49	JKP
PFNS	<30		ng/Kg-dry	30	29	1			07/14/2021 17:49	JKP
PFOA	410		ng/Kg-dry	10	9.3	1			07/14/2021 17:49	JKP
PFOS	5500		ng/Kg-dry	20	20	1			07/14/2021 17:49	JKP
PFOSA	270		ng/Kg-dry	15	10	1			07/14/2021 17:49	JKP
PFPeA	340		ng/Kg-dry	15	12	1			07/14/2021 17:49	JKP
PFPeS	<15		ng/Kg-dry	15	15	1			07/14/2021 17:49	JKP
PFTeDA	130		ng/Kg-dry	25	23	1			07/14/2021 17:49	JKP
PFTrDA	110		ng/Kg-dry	20	10	1			07/14/2021 17:49	JKP
PFUnDA	310		ng/Kg-dry	10	8.7	1			07/14/2021 17:49	JKP
PFecHS	<15		ng/Kg-dry	15	9.6	1			07/14/2021 17:49	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	130000	81000	60	70 - 130	*
d3-NMeFOSAA (S)	ng/Kg-dry	13000	9000	66	70 - 130	*
d5-NEtFOSAA (S)	ng/Kg-dry	13000	10000	74	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	13000	12000	88	70 - 130	
M2-6:2 FTS (S)	ng/Kg-dry	13000	16000	115	70 - 130	
M2-8:2 FTS (S)	ng/Kg-dry	13000	15000	112	70 - 130	
M2PFDoA (S)	ng/Kg-dry	13000	3600	27	70 - 130	*

M2PFTeDA (S)	ng/Kg-dry	13000	2600	19	70 - 130			*
M3PFBS (S)	ng/Kg-dry	13000	8800	66	70 - 130			*
M3PFHxS (S)	ng/Kg-dry	13000	9500	71	70 - 130			
M4PFBA (S)	ng/Kg-dry	13000	11000	84	70 - 130			
M4PFHpA (S)	ng/Kg-dry	13000	9000	66	70 - 130			*
M5PFHxA (S)	ng/Kg-dry	13000	8100	60	70 - 130			*
M5PFPeA (S)	ng/Kg-dry	13000	12000	91	70 - 130			
M6PFDA (S)	ng/Kg-dry	13000	8700	65	70 - 130			*
M7PFUnDA (S)	ng/Kg-dry	13000	6500	48	70 - 130			*
M8PFOA (S)	ng/Kg-dry	13000	10000	76	70 - 130			
M8PFOS (S)	ng/Kg-dry	13000	11000	80	70 - 130			
M8PFOSA (S)	ng/Kg-dry	13000	3500	26	70 - 130			*
M9PFNA (S)	ng/Kg-dry	13000	12000	86	70 - 130			
Sample Preparation by ASTM D7968 Mod.								
Tumble Extraction for PFAS	2.0014	grams			1	07/12/2021 10:35	JKP	

ANALYTICAL RESULTS

Lab ID:	3706290002	Date Collected:	07/07/2021 09:45	Matrix:	Soil
Sample ID:	Cass CIty - Field Blank	Date Received:	07/08/2021 12:20	Collector:	NR
Description:	Grab				

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.										
11Cl-PF3OUdS	<100		ng/Kg-dry	100	65	1			07/14/2021 18:51	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			07/14/2021 18:51	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			07/14/2021 18:51	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			07/14/2021 18:51	JKP
9Cl-PF3ONS	<100		ng/Kg-dry	100	59	1			07/14/2021 18:51	JKP
ADONA	<100		ng/Kg-dry	100	68	1			07/14/2021 18:51	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			07/14/2021 18:51	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			07/14/2021 18:51	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			07/14/2021 18:51	JKP
PFBA	<25		ng/Kg-dry	25	20	1			07/14/2021 18:51	JKP
PFBS	<10		ng/Kg-dry	10	9.2	1			07/14/2021 18:51	JKP
PFDA	<15		ng/Kg-dry	15	14	1			07/14/2021 18:51	JKP
PFDS	<15		ng/Kg-dry	15	15	1			07/14/2021 18:51	JKP
PFDoA	<20		ng/Kg-dry	20	17	1			07/14/2021 18:51	JKP
PFHpA	<20		ng/Kg-dry	20	16	1			07/14/2021 18:51	JKP
PFHpS	<15		ng/Kg-dry	15	12	1			07/14/2021 18:51	JKP
PFHxA	<10		ng/Kg-dry	10	7.5	1			07/14/2021 18:51	JKP
PFHxS	<10		ng/Kg-dry	10	5.8	1			07/14/2021 18:51	JKP
PFNA	<10		ng/Kg-dry	10	5.2	1			07/14/2021 18:51	JKP
PFNS	<30		ng/Kg-dry	30	29	1			07/14/2021 18:51	JKP
PFOA	<10		ng/Kg-dry	10	9.3	1			07/14/2021 18:51	JKP
PFOS	<20		ng/Kg-dry	20	20	1			07/14/2021 18:51	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			07/14/2021 18:51	JKP
PFPeA	<15		ng/Kg-dry	15	12	1			07/14/2021 18:51	JKP
PFPeS	<15		ng/Kg-dry	15	15	1			07/14/2021 18:51	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			07/14/2021 18:51	JKP
PFTrDA	<20		ng/Kg-dry	20	10	1			07/14/2021 18:51	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			07/14/2021 18:51	JKP
PFecHS	<15		ng/Kg-dry	15	9.6	1			07/14/2021 18:51	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8000	7500	93	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	800	820	102	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	800	840	105	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	800	700	87	70 - 130	
M2-6:2 FTS (S)	ng/Kg-dry	800	790	99	70 - 130	
M2-8:2 FTS (S)	ng/Kg-dry	800	840	106	70 - 130	
M2PFDoA (S)	ng/Kg-dry	800	800	100	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	800	790	99	70 - 130	
M3PFBS (S)	ng/Kg-dry	800	680	85	70 - 130	
M3PFHxS (S)	ng/Kg-dry	800	740	93	70 - 130	

M4PFBA (S)	ng/Kg-dry	800	770	96	70 - 130			
M4PFHpA (S)	ng/Kg-dry	800	740	92	70 - 130			
M5PFHxA (S)	ng/Kg-dry	800	800	100	70 - 130			
M5PFPeA (S)	ng/Kg-dry	800	790	99	70 - 130			
M6PFDA (S)	ng/Kg-dry	800	840	105	70 - 130			
M7PFUnDA (S)	ng/Kg-dry	800	800	99	70 - 130			
M8PFOA (S)	ng/Kg-dry	800	770	96	70 - 130			
M8PFOS (S)	ng/Kg-dry	800	770	97	70 - 130			
M8PFOSA (S)	ng/Kg-dry	800	790	99	70 - 130			
M9PFNA (S)	ng/Kg-dry	800	820	102	70 - 130			
Sample Preparation by ASTM D7968 Mod.								
Tumble Extraction for PFAS	2.0033	grams			1	07/12/2021 10:35	JKP	

ANALYTICAL RESULTS

Lab ID:	3706290003	Date Collected:	07/07/2021 00:00	Matrix:	Soil
Sample ID:	Cass City - Trip Blank	Date Received:	07/08/2021 12:20	Collector:	NR
Description:					

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By

No results available.