

Monday, August 23, 2021

Nick Roggenbuck
City of Harbor Beach WWTP
766 State St
Harbor Beach, MI 48441

Workorder: 371507
Project Name: Biosolids

Nick Roggenbuck,
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 734.469.5622.

Sincerely,



Kelsey Q Katynski
Accounts Coordinator

GLOSSARY

Abbreviation	Meaning	Explanation
ID	Identification	Preceded by "Lab", it describes the unique 10-digit sample number assigned by the laboratory. Preceded 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
3715070001	Biosolids	Grab	SO	08/07/2021 08:00	08/08/2021 10:57	NR
3715070002	Field Blank		SO	08/07/2021 08:00	08/08/2021 10:57	NR
3715070003	Trip Blank		SO	08/07/2021 08:00	08/08/2021 10:57	NR

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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)

Surrogate Results Narrative

3715070001 - Biosolids - M2-4:2 FTS

Surrogate recovery is below the lower control limit, possibly due to matrix interferences.

3715070001 - Biosolids - M2PFTeDA

Surrogate recovery is below the lower control limit, possibly due to matrix interferences.

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ANALYTICAL RESULTS

Lab ID: 3715070001
Sample ID: Biosolids
Description: Grab

Date Collected: 08/07/2021 08:00
Date Received: 08/08/2021 10:57

Matrix: Solid
Collector: NR

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Individual Parameters by SM 2540 D										
Solids, Total Suspended (TSS)	14000		mg/L	100		100			08/09/2021 09:15	CTJ
Individual Parameters by SM 2540 G										
Percent Total Solids	1.6		% m/m	0.10		1			08/09/2021 09:30	CTJ
Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.										
11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			08/16/2021 23:50	JKP
4:2 FTSA	130		ng/Kg-dry	100	58	1			08/16/2021 23:50	JKP
6:2 FTSA	1700		ng/Kg-dry	150	130	1			08/16/2021 23:50	JKP
8:2 FTSA	860		ng/Kg-dry	100	50	1			08/16/2021 23:50	JKP
9CI-PF3ONS	1200		ng/Kg-dry	100	59	1			08/16/2021 23:50	JKP
ADONA	420		ng/Kg-dry	100	68	1			08/16/2021 23:50	JKP
HFPO-DA	6100		ng/Kg-dry	150	130	1			08/16/2021 23:50	JKP
NEtFOSAA	2400		ng/Kg-dry	100	57	1			08/16/2021 23:50	JKP
NMeFOSAA	3400		ng/Kg-dry	200	190	1			08/16/2021 23:50	JKP
PFBA	4300		ng/Kg-dry	25	20	1			08/16/2021 23:50	JKP
PFBS	4600		ng/Kg-dry	10	9.2	1			08/16/2021 23:50	JKP
PFDA	3000		ng/Kg-dry	15	14	1			08/16/2021 23:50	JKP
PFDS	240		ng/Kg-dry	15	15	1			08/16/2021 23:50	JKP
PFDaA	860		ng/Kg-dry	20	17	1			08/16/2021 23:50	JKP
PFHpA	650		ng/Kg-dry	20	16	1			08/16/2021 23:50	JKP
PFHpS	<15		ng/Kg-dry	15	12	1			08/16/2021 23:50	JKP
PFHxA	1500		ng/Kg-dry	10	7.5	1			08/16/2021 23:50	JKP
PFHxS	270		ng/Kg-dry	10	5.8	1			08/16/2021 23:50	JKP
PFNA	2000		ng/Kg-dry	10	5.2	1			08/16/2021 23:50	JKP
PFNS	<30		ng/Kg-dry	30	29	1			08/16/2021 23:50	JKP
PFOA	2200		ng/Kg-dry	10	9.3	1			08/16/2021 23:50	JKP
PFOS	12000		ng/Kg-dry	20	20	1			08/16/2021 23:50	JKP
PFOSA	630		ng/Kg-dry	15	10	1			08/16/2021 23:50	JKP
PFPeA	4800		ng/Kg-dry	15	12	1			08/16/2021 23:50	JKP
PFPeS	<15		ng/Kg-dry	15	15	1			08/16/2021 23:50	JKP
PFTeDA	470		ng/Kg-dry	25	23	1			08/16/2021 23:50	JKP
PFTTrDA	370		ng/Kg-dry	20	10	1			08/16/2021 23:50	JKP
PFUnDA	1100		ng/Kg-dry	10	8.7	1			08/16/2021 23:50	JKP
PFecHS	<15		ng/Kg-dry	15	9.6	1			08/16/2021 23:50	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	490000	400000	81	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	49000	50000	102	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	49000	54000	110	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	49000	31000	64	70 - 130	*
M2-6:2 FTS (S)	ng/Kg-dry	49000	40000	81	70 - 130	

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ANALYTICAL RESULTS

M2-8:2 FTS (S)	ng/Kg-dry	49000	38000	77	70 - 130
M2PFDoA (S)	ng/Kg-dry	49000	42000	85	70 - 130
M2PFTeDA (S)	ng/Kg-dry	49000	24000	48	70 - 130
M3PFBS (S)	ng/Kg-dry	49000	36000	73	70 - 130
M3PFHxS (S)	ng/Kg-dry	49000	39000	79	70 - 130
M4PFBA (S)	ng/Kg-dry	49000	42000	85	70 - 130
M4PFHpA (S)	ng/Kg-dry	49000	35000	70	70 - 130
M5PFHxA (S)	ng/Kg-dry	49000	38000	77	70 - 130
M5PFPeA (S)	ng/Kg-dry	49000	45000	92	70 - 130
M6PFDA (S)	ng/Kg-dry	49000	47000	95	70 - 130
M7PFUnDA (S)	ng/Kg-dry	49000	46000	94	70 - 130
M8PFOA (S)	ng/Kg-dry	49000	39000	79	70 - 130
M8PFOS (S)	ng/Kg-dry	49000	38000	78	70 - 130
M8PFOSA (S)	ng/Kg-dry	49000	41000	84	70 - 130
M9PFNA (S)	ng/Kg-dry	49000	42000	86	70 - 130

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Sample Preparation by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0087	grams	1	08/16/2021 09:12	JKP
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ANALYTICAL RESULTS

Lab ID: 3715070002	Date Collected: 08/07/2021 08:00	Matrix: Solid
Sample ID: Field Blank	Date Received: 08/08/2021 10:57	Collector: NR
Description:		

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
Per- & Polyfluoroalkyls (PFAS) by ASTM D7968 Mod.										
11CI-PF3OUdS	<100		ng/Kg-dry	100	65	1			08/17/2021 01:55	JKP
4:2 FTSA	<100		ng/Kg-dry	100	58	1			08/17/2021 01:55	JKP
6:2 FTSA	<150		ng/Kg-dry	150	130	1			08/17/2021 01:55	JKP
8:2 FTSA	<100		ng/Kg-dry	100	50	1			08/17/2021 01:55	JKP
9CI-PF3ONS	<100		ng/Kg-dry	100	59	1			08/17/2021 01:55	JKP
ADONA	<100		ng/Kg-dry	100	68	1			08/17/2021 01:55	JKP
HFPO-DA	<150		ng/Kg-dry	150	130	1			08/17/2021 01:55	JKP
NEtFOSAA	<100		ng/Kg-dry	100	57	1			08/17/2021 01:55	JKP
NMeFOSAA	<200		ng/Kg-dry	200	190	1			08/17/2021 01:55	JKP
PFBA	<25		ng/Kg-dry	25	20	1			08/17/2021 01:55	JKP
PFBS	<10		ng/Kg-dry	10	9.2	1			08/17/2021 01:55	JKP
PFDA	<15		ng/Kg-dry	15	14	1			08/17/2021 01:55	JKP
PFDS	<15		ng/Kg-dry	15	15	1			08/17/2021 01:55	JKP
PFDaA	<20		ng/Kg-dry	20	17	1			08/17/2021 01:55	JKP
PFHpA	<20		ng/Kg-dry	20	16	1			08/17/2021 01:55	JKP
PFHpS	<15		ng/Kg-dry	15	12	1			08/17/2021 01:55	JKP
PFHxA	<10		ng/Kg-dry	10	7.5	1			08/17/2021 01:55	JKP
PFHxS	<10		ng/Kg-dry	10	5.8	1			08/17/2021 01:55	JKP
PFNA	<10		ng/Kg-dry	10	5.2	1			08/17/2021 01:55	JKP
PFNS	<30		ng/Kg-dry	30	29	1			08/17/2021 01:55	JKP
PFOA	<10		ng/Kg-dry	10	9.3	1			08/17/2021 01:55	JKP
PFOS	<20		ng/Kg-dry	20	20	1			08/17/2021 01:55	JKP
PFOSA	<15		ng/Kg-dry	15	10	1			08/17/2021 01:55	JKP
PFPeA	<15		ng/Kg-dry	15	12	1			08/17/2021 01:55	JKP
PFPeS	<15		ng/Kg-dry	15	15	1			08/17/2021 01:55	JKP
PFTeDA	<25		ng/Kg-dry	25	23	1			08/17/2021 01:55	JKP
PFTTrDA	<20		ng/Kg-dry	20	10	1			08/17/2021 01:55	JKP
PFUnDA	<10		ng/Kg-dry	10	8.7	1			08/17/2021 01:55	JKP
PFecHS	<15		ng/Kg-dry	15	9.6	1			08/17/2021 01:55	JKP

Surrogate	Unit	Spiked Amount	Spike Result	Spike % Recovery	Control Limits	Qual
13C-HFPO-DA (S)	ng/Kg-dry	8000	7200	90	70 - 130	
d3-NMeFOSAA (S)	ng/Kg-dry	800	890	111	70 - 130	
d5-NEtFOSAA (S)	ng/Kg-dry	800	1000	126	70 - 130	
M2-4:2 FTS (S)	ng/Kg-dry	800	590	74	70 - 130	
M2-6:2 FTS (S)	ng/Kg-dry	800	750	93	70 - 130	
M2-8:2 FTS (S)	ng/Kg-dry	800	680	85	70 - 130	
M2PFDaA (S)	ng/Kg-dry	800	860	107	70 - 130	
M2PFTeDA (S)	ng/Kg-dry	800	860	108	70 - 130	
M3PFBS (S)	ng/Kg-dry	800	720	90	70 - 130	
M3PFHxS (S)	ng/Kg-dry	800	740	93	70 - 130	

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ANALYTICAL RESULTS

M4PFBA (S)	ng/Kg-dry	800	790	99	70 - 130
M4PFHpA (S)	ng/Kg-dry	800	720	90	70 - 130
M5PFHxA (S)	ng/Kg-dry	800	750	94	70 - 130
M5PFPeA (S)	ng/Kg-dry	800	820	103	70 - 130
M6PFDA (S)	ng/Kg-dry	800	870	109	70 - 130
M7PFUnDA (S)	ng/Kg-dry	800	840	105	70 - 130
M8PFOA (S)	ng/Kg-dry	800	760	95	70 - 130
M8PFOS (S)	ng/Kg-dry	800	720	89	70 - 130
M8PFOSA (S)	ng/Kg-dry	800	800	100	70 - 130
M9PFNA (S)	ng/Kg-dry	800	810	101	70 - 130

Sample Preparation by ASTM D7968 Mod.

Tumble Extraction for PFAS	2.0004	grams	1	08/16/2021 09:12	JKP
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ANALYTICAL RESULTS

Lab ID: 3715070003
Sample ID: Trip Blank
Description:

Date Collected: 08/07/2021 08:00
Date Received: 08/08/2021 10:57

Matrix: Solid
Collector: NR

Parameter	Result	Qual	Unit	RL	MDL	DF	Min	Max	Analyzed	By
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No results available.

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