Chemical Analysis Report

WQAP-2021-02-12-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Algal Bloom Response - CEROC**
Request ID: **RQ-2021-02-01-68**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

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Date Certified: 04-MAR-2021 13:27

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Nutrients and Pesticides.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Lake Minnehaha 75m S of Lakeshore Dr **Collection Date/Time: 02/11/2021 12:38**

Field ID: HABCE0069_LakeMinnehaha1 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2225103	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P393707	
		Cylindrospermopsin	0.25	U	ug/L	P393707	
		Desmethyl microcystin LR	0.25	U	ug/L	P393707	
		Microcystin HilR**	0.25	U	ug/L	P393707	
		Microcystin HtyR**	0.25	U	ug/L	P393707	
		Microcystin LA	0.25	U	ug/L	P393707	
		Microcystin LF	0.25	U	ug/L	P393707	
		Microcystin LR	0.25	U	ug/L	P393707	
		Microcystin LW	0.25	U	ug/L	P393707	
		Microcystin LY	0.25	U	ug/L	P393707	
		Microcystin RR	0.25	U	ug/L	P393707	
		Microcystin WR	0.50	U	ug/L	P393707	
		Microcystin YR	0.25	U	ug/L	P393707	
2225106	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P394038	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.99		mg N/L	P393951	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P393757	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P393871	
2225109	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P393730	

Sample Location: Lake Minnehaha 130m SE of 561 **Collection Date/Time: 02/11/2021 13:03**

Field ID: HABCE0070_LakeMinnehaha2 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2225104	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P393707	
		Cylindrospermopsin	0.25	U	ug/L	P393707	
		Desmethyl microcystin LR	0.25	U	ug/L	P393707	
		Microcystin HilR**	0.25	U	ug/L	P393707	
		Microcystin HtyR**	0.25	U	ug/L	P393707	
		Microcystin LA	0.25	U	ug/L	P393707	
		Microcystin LF	0.25	U	ug/L	P393707	
		Microcystin LR	0.25	U	ug/L	P393707	
		Microcystin LW	0.25	U	ug/L	P393707	
		Microcystin LY	0.25	U	ug/L	P393707	
		Microcystin RR	0.25	U	ug/L	P393707	
		Microcystin WR	0.50	U	ug/L	P393707	
		Microcystin YR	0.25	U	ug/L	P393707	
2225107	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P394188	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P393951	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.052		mg N/L	P393757	
	EPA 365.1 Rev. 2.0	Total-P	0.041		mg P/L	P393871	
2225110	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P393730	

Sample Location: Lake Sloat near Park **Collection Date/Time: 02/11/2021 12:08**

Field ID: HABCE0068_Lake Sloat Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2225105	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P393707	
		Cylindrospermopsin	0.25	U	ug/L	P393707	
		Desmethyl microcystin LR	0.25	U	ug/L	P393707	
		Microcystin HilR**	0.25	U	ug/L	P393707	
		Microcystin HtyR**	0.25	U	ug/L	P393707	
		Microcystin LA	0.25	U	ug/L	P393707	
		Microcystin LF	0.25	U	ug/L	P393707	
		Microcystin LR	0.25	U	ug/L	P393707	
		Microcystin LW	0.25	U	ug/L	P393707	
		Microcystin LY	0.25	U	ug/L	P393707	
		Microcystin RR	0.25	U	ug/L	P393707	
		Microcystin WR	0.50	U	ug/L	P393707	
		Microcystin YR	0.25	U	ug/L	P393707	
2225108	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P394038	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P393951	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P393757	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P393872	
2225111	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P393730	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394038

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394188

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393951

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393757

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393871

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393872

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393730

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: EPA 8321B
Batch ID: P393707

Component	Result	Code	Units
Anatoxin-a	0.25	U	ug/L
Cylindrospermopsin	0.25	U	ug/L
Desmethyl microcystin LR	0.25	U	ug/L
Microcystin HilR	0.25	U	ug/L
Microcystin HtyR	0.25	U	ug/L
Microcystin LA	0.25	U	ug/L
Microcystin LF	0.25	U	ug/L
Microcystin LR	0.25	U	ug/L
Microcystin LW	0.25	U	ug/L
Microcystin LY	0.25	U	ug/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 8321B
Batch ID: P393707

Component	Result	Code	Units
Microcystin RR	0.25	U	ug/L
Microcystin WR	0.50	U	ug/L
Microcystin YR	0.25	U	ug/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394038

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394188

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393951

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	101		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393757

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393871

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	105		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393872

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	107		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393730

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.9		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P393707

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	110		P	40 - 150
Cylindrospermopsin	96.9		P	40 - 150
Desmethyl microcystin LR	91.0		P	40 - 150
Microcystin HilR	95.2		P	40 - 150
Microcystin HtyR	90.2		P	40 - 150
Microcystin LA	98.3		P	40 - 150
Microcystin LF	96.7		P	40 - 150
Microcystin LR	94.5		P	40 - 150
Microcystin LW	94.8		P	40 - 150
Microcystin LY	94.4		P	40 - 150

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P393707

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Microcystin RR	100		P	40 - 150
Microcystin WR	102		P	40 - 150
Microcystin YR	88.5		P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394038

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225108	Ammonia-N	95.6	97.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394188

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225107	Ammonia-N	98.6	96.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393951

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225146	Kjeldahl Nitrogen	97.7	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393757

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225007	NO2NO3-N	99.2	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393871

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225007	Total-P	107	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393872

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225148	Total-P	109	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393730

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225111	O-Phosphate-P	97.4	98.2	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P393707

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225037	Anatoxin-a	98.4	103	P/P	40 - 150
2225037	Cylindrospermopsin	86.7	93.8	P/P	40 - 150
2225037	Desmethyl microcystin LR	78.5	89.5	P/P	40 - 150
2225037	Microcystin HilR	82.4	86.7	P/P	40 - 150
2225037	Microcystin HtyR	80.9	74.8	P/P	40 - 150
2225037	Microcystin LA	84.9	92.7	P/P	40 - 150
2225037	Microcystin LF	77.2	82.8	P/P	40 - 150
2225037	Microcystin LR	78.4	87.8	P/P	40 - 150
2225037	Microcystin LW	77.5	81.7	P/P	40 - 150
2225037	Microcystin LY	79.9	86.7	P/P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P393707

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2225037	Microcystin RR	81.6	95.4	P/P	40 - 150
2225037	Microcystin WR	83.0	89.7	P/P	40 - 150
2225037	Microcystin YR	73.1	83.0	P/P	40 - 150

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394038

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225108	Ammonia-N	1.86	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225107	Ammonia-N	1.98	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225146	Kjeldahl Nitrogen	0.919	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393757

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225007	NO2NO3-N	0.494	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393871

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225007	Total-P	0.690	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393872

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225148	Total-P	1.11	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393730

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225111	O-Phosphate-P	0.818	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P393707

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225037	Anatoxin-a	4.31	Spike	P	0 - 30
2225037	Cylindrospermopsin	7.80	Spike	P	0 - 30

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P393707

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2225037	Desmethyl microcystin LR	13.1	Spike	P	0 - 30
2225037	Microcystin HilR	5.15	Spike	P	0 - 30
2225037	Microcystin HtyR	7.91	Spike	P	0 - 30
2225037	Microcystin LA	8.80	Spike	P	0 - 30
2225037	Microcystin LF	7.06	Spike	P	0 - 30
2225037	Microcystin LR	10.2	Spike	P	0 - 30
2225037	Microcystin LW	5.26	Spike	P	0 - 30
2225037	Microcystin LY	8.16	Spike	P	0 - 30
2225037	Microcystin RR	15.5	Spike	P	0 - 30
2225037	Microcystin WR	7.75	Spike	P	0 - 30
2225037	Microcystin YR	12.6	Spike	P	0 - 30

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report
Surrogates

Lab Sample ID: 2225103
Field Sample ID: HABCE0069_LakeMinnehaha1

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	97.3	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	74.2	P	30 - 160

Lab Sample ID: 2225104
Field Sample ID: HABCE0070_LakeMinnehaha2

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	94.9	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	72.4	P	30 - 160

Lab Sample ID: 2225105
Field Sample ID: HABCE0068_Lake Sloat

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	81.9	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	70.4	P	30 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A103565
Included Lab Sample IDs: 2225109, 2225110, 2225111

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.4	99.4	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A103567
Included Lab Sample IDs: 2225103, 2225104, 2225105

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	95.8	97.9	P/P	50 - 160
Cylindrospermopsin	103	102	P/P	60 - 160
Desmethyl microcystin LR	95.4	97.4	P/P	60 - 160
Microcystin HilR	92.8	98.5	P/P	60 - 160
Microcystin HtyR	97.1	96.9	P/P	60 - 160
Microcystin LA	104	104	P/P	50 - 160
Microcystin LF	94.3	104	P/P	50 - 160
Microcystin LR	87.4	94.8	P/P	60 - 160
Microcystin LW	88.1	98.3	P/P	60 - 160
Microcystin LY	92.9	100	P/P	60 - 160
Microcystin RR	101	98.3	P/P	60 - 160
Microcystin WR	97.5	102	P/P	60 - 160
Microcystin YR	94.6	90.3	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A103580
Included Lab Sample IDs: 2225106, 2225107, 2225108

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A103634
Included Lab Sample IDs: 2225106, 2225107, 2225108

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A103694
Included Lab Sample IDs: 2225106, 2225107, 2225108

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.9	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A103698
Included Lab Sample IDs: 2225106, 2225108

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.4	99.6	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A103751
Included Lab Sample IDs: 2225107

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.4	98.9	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 350.1 Rev. 2.0	Ammonia-N	99.4	95.6	97.6			1.86
	Ammonia-N	98.2	98.6	96.4			1.98
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	97.7	99.5			0.919
EPA 353.2 Rev. 2.0	NO2NO3-N	102	99.2	98.7			0.494
EPA 365.1 Rev. 2.0	Total-P	105	107	106			0.690
	Total-P	107	109	108			1.11
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.9	97.4	98.2			0.818
EPA 8321B	Anatoxin-a	110	98.4	103			4.31
	Cylindrospermopsin	96.9	86.7	93.8			7.80
	Desmethyl microcystin LR	91.0	78.5	89.5			13.1
	Microcystin HilR	95.2	82.4	86.7			5.15
	Microcystin HtyR	90.2	80.9	74.8			7.91
	Microcystin LA	98.3	84.9	92.7			8.80
	Microcystin LF	96.7	77.2	82.8			7.06
	Microcystin LR	94.5	78.4	87.8			10.2
	Microcystin LW	94.8	77.5	81.7			5.26
	Microcystin LY	94.4	79.9	86.7			8.16
	Microcystin RR	100	81.6	95.4			15.5
	Microcystin WR	102	83.0	89.7			7.75
	Microcystin YR	88.5	73.1	83.0			12.6

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2225106, 2225107, 2225108
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2225106, 2225107, 2225108
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2225106, 2225107, 2225108
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2225106, 2225107, 2225108
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2225109, 2225110, 2225111
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2225103, 2225104, 2225105

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 350.1 Rev. 2.0	02/12/2021			02/20/2021 13:06	Ping Hua	2225108
	02/12/2021			02/20/2021 13:11	Ping Hua	2225106
	02/12/2021			02/24/2021 17:46	Ping Hua	2225107
EPA 351.2 Rev. 2.0	02/12/2021	02/18/2021 12:27	Yen Ta	02/19/2021 11:40	Virginia P. Brown	2225106
	02/12/2021	02/18/2021 12:27	Yen Ta	02/19/2021 11:42	Virginia P. Brown	2225107
	02/12/2021	02/18/2021 12:27	Yen Ta	02/19/2021 11:44	Virginia P. Brown	2225108
EPA 353.2 Rev. 2.0	02/12/2021			02/15/2021 10:42	Beverly Y. Sanders	2225106
	02/12/2021			02/15/2021 10:44	Beverly Y. Sanders	2225107
	02/12/2021			02/15/2021 10:45	Beverly Y. Sanders	2225108
EPA 365.1 Rev. 2.0	02/12/2021	02/16/2021 18:52	Madeline Gruver	02/17/2021 13:55	Shengyu Wang	2225106
	02/12/2021	02/16/2021 18:52	Madeline Gruver	02/17/2021 13:56	Shengyu Wang	2225107
	02/12/2021	02/16/2021 18:52	Madeline Gruver	02/17/2021 13:58	Shengyu Wang	2225108
EPA 365.1 Rev. 2.0 dissolved	02/12/2021			02/12/2021 16:11	Julia Storbeck	2225111
	02/12/2021			02/12/2021 16:16	Julia Storbeck	2225109, 2225110
EPA 8321B	02/12/2021	02/12/2021 12:58	Juyoung Kim	02/12/2021 17:42	Pramila Ghimire	2225103
	02/12/2021	02/12/2021 12:58	Juyoung Kim	02/12/2021 17:59	Pramila Ghimire	2225104
	02/12/2021	02/12/2021 12:58	Juyoung Kim	02/12/2021 18:15	Pramila Ghimire	2225105