

Chemical Analysis Report

WQAP-2022-03-09-03

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-2022-01-24-06**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 30-MAR-2022 09:21

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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 Chelton - between Forrest Rd and Glencoe Rd

Collection Date/Time: 03/08/2022 14:03

Field ID: HABCE0104_LakeChelton

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2311352	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P410780	
		Cylindrospermopsin	0.10	U	ug/L	P410780	
		Desmethyl microcystin LR	0.25	U	ug/L	P410780	
		Microcystin HilR**	0.25	U	ug/L	P410780	
		Microcystin HtyR**	0.25	U	ug/L	P410780	
		Microcystin LA	0.70		ug/L	P410780	
		Microcystin LF	0.10	U	ug/L	P410780	
		Microcystin LR	0.25	U	ug/L	P410780	
		Microcystin LW	0.25	U	ug/L	P410780	
		Microcystin LY	0.10	U	ug/L	P410780	
		Microcystin RR	0.10	U	ug/L	P410780	
		Microcystin WR	0.50	U	ug/L	P410780	
		Microcystin YR	0.25	U	ug/L	P410780	
		Nodularin-R**	0.10	U	ug/L	P410780	
2311355	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P410949	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.88		mg N/L	P411042	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P411045	
	EPA 365.1 Rev. 2.0	Total-P	0.064		mg P/L	P411141	
2311358	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P410881	

Sample Location: Lake Formosa - SW Park

Collection Date/Time: 03/08/2022 14:37

Field ID: HABCE0107_LakeFormosa1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2311353	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P410780	
		Cylindrospermopsin	0.10	U	ug/L	P410780	
		Desmethyl microcystin LR	0.25	U	ug/L	P410780	
		Microcystin HilR**	0.25	U	ug/L	P410780	
		Microcystin HtyR**	0.25	U	ug/L	P410780	
		Microcystin LA	0.10	U	ug/L	P410780	
		Microcystin LF	0.10	U	ug/L	P410780	
		Microcystin LR	0.25	U	ug/L	P410780	
		Microcystin LW	0.25	U	ug/L	P410780	
		Microcystin LY	0.10	U	ug/L	P410780	
		Microcystin RR	0.10	U	ug/L	P410780	
		Microcystin WR	0.50	U	ug/L	P410780	
		Microcystin YR	0.25	U	ug/L	P410780	
		Nodularin-R**	0.10	U	ug/L	P410780	
2311356	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P410950	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.53		mg N/L	P411042	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.035		mg N/L	P411045	
	EPA 365.1 Rev. 2.0	Total-P	0.047		mg P/L	P411141	
2311359	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P410881	

Sample Location: Lake Estelle - NE lobe

Collection Date/Time: 03/08/2022 15:30

Field ID: HABCE0103_LakeEstelle1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2311354	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P410780	
		Cylindrospermopsin	0.10	U	ug/L	P410780	
		Desmethyl microcystin LR	0.25	U	ug/L	P410780	
		Microcystin HIR**	0.25	U	ug/L	P410780	
		Microcystin HtyR**	0.25	U	ug/L	P410780	
		Microcystin LA	0.10	U	ug/L	P410780	
		Microcystin LF	0.10	U	ug/L	P410780	
		Microcystin LR	0.25	U	ug/L	P410780	
		Microcystin LW	0.25	U	ug/L	P410780	
		Microcystin LY	0.10	U	ug/L	P410780	
		Microcystin RR	0.10	U	ug/L	P410780	
		Microcystin WR	0.50	U	ug/L	P410780	
		Microcystin YR	0.25	U	ug/L	P410780	
		Nodularin-R**	0.10	U	ug/L	P410780	
2311357	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P410950	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.52		mg N/L	P411042	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P411045	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P411141	
2311360	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P410881	

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P410949

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P410950

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P411042

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P411045

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411141

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P410881

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

Reference Method: EPA 8321B
Batch ID: P410780

Component	Result	Code	Units
Anatoxin-a	0.25	U	ug/L
Cylindrospermopsin	0.10	U	ug/L
Desmethyl microcystin LR	0.25	U	ug/L
Microcystin H1LR	0.25	U	ug/L
Microcystin HtyR	0.25	U	ug/L
Microcystin LA	0.10	U	ug/L
Microcystin LF	0.10	U	ug/L
Microcystin LR	0.25	U	ug/L
Microcystin LW	0.25	U	ug/L
Microcystin LY	0.10	U	ug/L
Microcystin RR	0.10	U	ug/L
Microcystin WR	0.50	U	ug/L
Microcystin YR	0.25	U	ug/L
Nodularin-R	0.10	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P410949

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P410950

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P411042

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	90.1		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P411045

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411141

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P410881

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.0		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P410780

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	104		P	40 - 150
Cylindrospermopsin	96.8		P	40 - 150
Desmethyl microcystin LR	89.9		P	40 - 150
Microcystin H1IR	96.8		P	40 - 150
Microcystin HtyR	84.1		P	40 - 150
Microcystin LA	96.9		P	40 - 150
Microcystin LF	85.3		P	40 - 150
Microcystin LR	89.7		P	40 - 150
Microcystin LW	72.5		P	40 - 150
Microcystin LY	79.5		P	40 - 150
Microcystin RR	95.8		P	40 - 150
Microcystin WR	90.8		P	40 - 150
Microcystin YR	84.6		P	40 - 150
Nodularin-R	88.3		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P410949

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2311142	Ammonia-N	98.0	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P410950

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2311356	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P411042

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2311298	Kjeldahl Nitrogen	97.2	90.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P411045

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2311338	NO2NO3-N	98.0	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411141

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2311338	Total-P	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P410881

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2311359	O-Phosphate-P	99.3	101	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P410780

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2310572	Anatoxin-a	121	127	P/P	40 - 150
2310572	Cylindrospermopsin	107	107	P/P	40 - 150
2310572	Desmethyl microcystin LR	102	111	P/P	40 - 150
2310572	Microcystin HilR	98.0	102	P/P	40 - 150
2310572	Microcystin HtyR	96.8	101	P/P	40 - 150
2310572	Microcystin LA	92.4	103	P/P	40 - 150
2310572	Microcystin LF	79.8	85.0	P/P	40 - 150
2310572	Microcystin LR	94.0	101	P/P	40 - 150
2310572	Microcystin LW	87.4	86.4	P/P	40 - 150
2310572	Microcystin LY	80.3	92.2	P/P	40 - 150
2310572	Microcystin RR	107	113	P/P	40 - 150
2310572	Microcystin WR	96.4	99.8	P/P	40 - 150
2310572	Microcystin YR	93.4	94.2	P/P	40 - 150
2310572	Nodularin-R	103	109	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P410949

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2311142	Ammonia-N	2.22	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P410950

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2311356	Ammonia-N	0.950	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P411042

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2311298	Kjeldahl Nitrogen	3.69	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P411045

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2311338	NO2NO3-N	0.512	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P411141

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2311338	Total-P	1.26	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P410881

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2311359	O-Phosphate-P	1.40	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P410780

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2310572	Anatoxin-a	4.40	Spike	P	0 - 30
2310572	Cylindrospermopsin	0.553	Spike	P	0 - 30
2310572	Desmethyl microcystin LR	8.90	Spike	P	0 - 30
2310572	Microcystin HiLR	3.64	Spike	P	0 - 30
2310572	Microcystin HtyR	3.95	Spike	P	0 - 30
2310572	Microcystin LA	10.6	Spike	P	0 - 30
2310572	Microcystin LF	6.32	Spike	P	0 - 30
2310572	Microcystin LR	7.53	Spike	P	0 - 30
2310572	Microcystin LW	1.12	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P410780

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2310572	Microcystin LY	13.9	Spike	P	0 - 30
2310572	Microcystin RR	5.58	Spike	P	0 - 30
2310572	Microcystin WR	3.54	Spike	P	0 - 30
2310572	Microcystin YR	0.778	Spike	P	0 - 30
2310572	Nodularin-R	5.58	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2311352

Field Sample ID: HABCE0104_LakeChelton

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	75.8	P	30 - 160

Lab Sample ID: 2311353

Field Sample ID: HABCE0107_LakeFormosa1

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	76.2	P	30 - 160

Lab Sample ID: 2311354

Field Sample ID: HABCE0103_LakeEstelle1

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	73.5	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A110841

Included Lab Sample IDs: 2311358, 2311359, 2311360

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.6	99.8	P/P	90 - 110
O-Phosphate-P	99.8	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A110865

Included Lab Sample IDs: 2311355, 2311356, 2311357

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.4	98.5	P/P	90 - 110
Ammonia-N	98.5	98.4	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A110871

Included Lab Sample IDs: 2311352, 2311353, 2311354

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	108	114	P/P	50 - 160
Cylindrospermopsin	97.4	98.2	P/P	60 - 160
Desmethyl microcystin LR	88.4	86.3	P/P	60 - 160
Microcystin HIR	97.3	81.9	P/P	60 - 160
Microcystin HtyR	86.0	86.5	P/P	60 - 160
Microcystin LA	90.6	96.3	P/P	50 - 160
Microcystin LF	86.2	82.0	P/P	60 - 160
Microcystin LR	83.5	84.1	P/P	60 - 160
Microcystin LW	85.6	80.6	P/P	60 - 160
Microcystin LY	83.7	82.1	P/P	60 - 160
Microcystin RR	101	97.5	P/P	60 - 160
Microcystin WR	93.7	87.5	P/P	60 - 160
Microcystin YR	81.1	74.8	P/P	60 - 160
Nodularin-R	85.7	93.7	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A110916

Included Lab Sample IDs: 2311355, 2311356, 2311357

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A111027

Included Lab Sample IDs: 2311355

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.1	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A111064

Included Lab Sample IDs: 2311355

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.8	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A111066

Included Lab Sample IDs: 2311356, 2311357

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A111085

Included Lab Sample IDs: 2311356, 2311357

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.6	103	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	Precision SMP	MS
EPA 350.1 Rev. 2.0	Ammonia-N	97.8	98.0	100			2.22
	Ammonia-N	97.4	101	102			0.950
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	90.1	97.2	90.8			3.69
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5	98.0	97.5			0.512
EPA 365.1 Rev. 2.0	Total-P	101	104	103			1.26
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.0	99.3	101			1.40
EPA 8321B	Anatoxin-a	104	121	127			4.40
	Cylindrospermopsin	96.8	107	107			0.553
	Desmethyl microcystin LR	89.9	102	111			8.90
	Microcystin HiLR	96.8	98.0	102			3.64
	Microcystin HtyR	84.1	96.8	101			3.95
	Microcystin LA	96.9	92.4	103			10.6
	Microcystin LF	85.3	79.8	85.0			6.32
	Microcystin LR	89.7	94.0	101			7.53
	Microcystin LW	72.5	87.4	86.4			1.12
	Microcystin LY	79.5	80.3	92.2			13.9
	Microcystin RR	95.8	107	113			5.58
	Microcystin WR	90.8	96.4	99.8			3.54
	Microcystin YR	84.6	93.4	94.2			0.778
	Nodularin-R	88.3	103	109			5.58

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2311355, 2311356, 2311357
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2311355, 2311356, 2311357
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2311355, 2311356, 2311357
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2311355, 2311356, 2311357
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2311358, 2311359, 2311360
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2311352, 2311353, 2311354

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	03/09/2022			03/10/2022 11:22	Judith K. Clark	2311355
	03/09/2022			03/10/2022 11:34	Judith K. Clark	2311356
	03/09/2022			03/10/2022 11:38	Judith K. Clark	2311357
EPA 351.2 Rev. 2.0	03/09/2022	03/15/2022 17:10	Samantha L Bates	03/21/2022 12:50	Samantha L Bates	2311355
	03/09/2022	03/15/2022 17:10	Samantha L Bates	03/22/2022 13:12	Alexandra J Mattheus	2311356
	03/09/2022	03/15/2022 17:10	Samantha L Bates	03/22/2022 13:14	Alexandra J Mattheus	2311357
EPA 353.2 Rev. 2.0	03/09/2022			03/14/2022 10:51	Beverly Y. Sanders	2311355
	03/09/2022			03/14/2022 10:52	Beverly Y. Sanders	2311356
	03/09/2022			03/14/2022 10:53	Beverly Y. Sanders	2311357
EPA 365.1 Rev. 2.0	03/09/2022	03/17/2022 15:15	Simonne.V. Calhoun	03/18/2022 13:13	Sarah A Nixon	2311355
	03/09/2022	03/17/2022 15:15	Simonne.V. Calhoun	03/21/2022 14:17	James L Waggeberby	2311356
	03/09/2022	03/17/2022 15:15	Simonne.V. Calhoun	03/21/2022 14:18	James L Waggeberby	2311357
EPA 365.1 Rev. 2.0 dissolved	03/09/2022			03/09/2022 14:51	James L Waggeberby	2311359
	03/09/2022			03/09/2022 14:57	James L Waggeberby	2311358
	03/09/2022			03/09/2022 15:03	James L Waggeberby	2311360
EPA 8321B	03/09/2022	03/10/2022 08:00	Manjita Shrestha	03/10/2022 14:29	Manjita Shrestha	2311352
	03/09/2022	03/10/2022 08:00	Manjita Shrestha	03/10/2022 14:45	Manjita Shrestha	2311353
	03/09/2022	03/10/2022 08:00	Manjita Shrestha	03/10/2022 15:02	Manjita Shrestha	2311354