

Chemical Analysis Report

WQAP-2023-02-10-01

Florida DEP Laboratory
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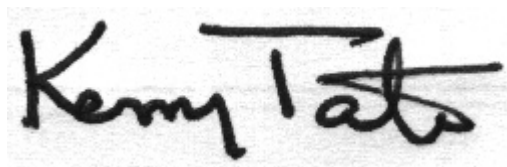
Event Description: **Algal Bloom Response - CEROC**
Request ID: **RQ-2023-02-13-43**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

Send Reports to:
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 02-MAR-2023 11:34

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line extending from the end of the 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 Louise-Club Dock

Collection Date/Time: 02/09/2023 11:25

Field ID: HABCE0174_LakeLouise

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2386647	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P425648	
		Cylindrospermopsin	0.10	U	ug/L	P425647	
		Desmethyl microcystin LR	0.25	U	ug/L	P425647	
		Microcystin HILR	0.25	U	ug/L	P425647	
		Microcystin HtyR	0.25	U	ug/L	P425647	
		Microcystin LA	0.10	U	ug/L	P425647	
		Microcystin LF	0.10	U	ug/L	P425647	
		Microcystin LR	0.25	U	ug/L	P425647	
		Microcystin LW	0.25	U	ug/L	P425647	
		Microcystin LY	0.10	U	ug/L	P425647	
		Microcystin RR	0.10	U	ug/L	P425647	
		Microcystin WR	0.50	U	ug/L	P425647	
		Neosaxitoxin	0.50	U	ug/L	P425648	
		Microcystin YR	0.25	U	ug/L	P425647	
		Saxitoxin	0.50	U	ug/L	P425648	
		Nodularin-R	0.10	U	ug/L	P425647	
2386651	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P425772	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P425911	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P425859	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P425763	
2386655	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P425669	

Sample Location: Lake Sue-NW Shore

Collection Date/Time: 02/09/2023 13:25

Field ID: HABCE0166_LakeSue3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2386648	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P425648	
		Cylindrospermopsin	0.10	U	ug/L	P425647	
		Desmethyl microcystin LR	0.25	U	ug/L	P425647	
		Microcystin H1R	0.25	U	ug/L	P425647	
		Microcystin HtyR	0.25	U	ug/L	P425647	
		Microcystin LA	0.66		ug/L	P425647	
		Microcystin LF	0.10	U	ug/L	P425647	
		Microcystin LR	0.25	U	ug/L	P425647	
		Microcystin LW	0.25	U	ug/L	P425647	
		Microcystin LY	0.10	U	ug/L	P425647	
		Microcystin RR	0.10	U	ug/L	P425647	
		Microcystin WR	0.50	U	ug/L	P425647	
		Neosaxitoxin	0.50	U	ug/L	P425648	
		Microcystin YR	0.25	U	ug/L	P425647	
		Saxitoxin	0.50	U	ug/L	P425648	
		Nodularin-R	0.10	U	ug/L	P425647	
2386652	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P425772	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P425911	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P425859	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P425763	
2386656	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P425669	

Sample Location: Sunset Lake-W Shore

Collection Date/Time: 02/09/2023 12:14

Field ID: HABCE0165_SunsetLake

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2386649	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P425648	
		Cylindrospermopsin	0.10	U	ug/L	P425647	
		Desmethyl microcystin LR	0.25	U	ug/L	P425647	
		Microcystin HILR	0.25	U	ug/L	P425647	
		Microcystin HtyR	0.25	U	ug/L	P425647	
		Microcystin LA	0.67		ug/L	P425647	
		Microcystin LF	0.10	U	ug/L	P425647	
		Microcystin LR	3.8		ug/L	P425647	
		Microcystin LW	0.25	U	ug/L	P425647	
		Microcystin LY	0.24	I	ug/L	P425647	
		Microcystin RR	0.10	U	ug/L	P425647	
		Microcystin WR	0.50	U	ug/L	P425647	
		Neosaxitoxin	0.50	U	ug/L	P425648	
		Microcystin YR	0.25	U	ug/L	P425647	
		Saxitoxin	0.50	U	ug/L	P425648	
		Nodularin-R	0.10	U	ug/L	P425647	
2386653	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P425772	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.5		mg N/L	P425912	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P425859	
	EPA 365.1 Rev. 2.0	Total-P	0.074		mg P/L	P425763	
2386657	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P425669	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries and relative percent difference are unavailable because of high analyte concentration in the QC sample.

Sample Location: Big Sand Lake from Dock

Collection Date/Time: 02/09/2023 10:33

Field ID: HABCE0155_BigSandLake

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2386650	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P425648	
		Cylindrospermopsin	0.10	U	ug/L	P425647	
		Desmethyl microcystin LR	0.25	U	ug/L	P425647	
		Microcystin HILR	0.25	U	ug/L	P425647	
		Microcystin HtyR	0.25	U	ug/L	P425647	
		Microcystin LA	0.10	U	ug/L	P425647	
		Microcystin LF	0.10	U	ug/L	P425647	
		Microcystin LR	0.25	U	ug/L	P425647	
		Microcystin LW	0.25	U	ug/L	P425647	
		Microcystin LY	0.10	U	ug/L	P425647	
		Microcystin RR	0.10	U	ug/L	P425647	
		Microcystin WR	0.50	U	ug/L	P425647	
		Neosaxitoxin	0.50	U	ug/L	P425648	
		Microcystin YR	0.25	U	ug/L	P425647	
		Saxitoxin	0.50	U	ug/L	P425648	
		Nodularin-R	0.10	U	ug/L	P425647	
2386654	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P425772	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50		mg N/L	P425912	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.019		mg N/L	P425859	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P425763	
2386658	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P425669	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries and relative percent difference are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P425772

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P425911

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P425912

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P425859

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425763

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P425669

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

Reference Method: EPA 8321B
Batch ID: P425647

Component	Result	Code	Units
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

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P425648

Component	Result	Code	Units
Anatoxin-a	0.25	U	ug/L
Neosaxitoxin	0.50	U	ug/L
Saxitoxin	0.50	U	ug/L

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P425772

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P425911

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P425912

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	104		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P425859

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P425763

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P425669

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

Reference Method: EPA 8321B

Batch ID: P425647

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	90.4		P	40 - 150
Desmethyl microcystin LR	94.7		P	40 - 150
Microcystin HILR	82.3		P	40 - 150
Microcystin HtyR	88.8		P	40 - 150
Microcystin LA	99.3		P	40 - 150
Microcystin LF	97.2		P	40 - 150
Microcystin LR	88.1		P	40 - 150
Microcystin LW	95.4		P	40 - 150
Microcystin LY	91.5		P	40 - 150
Microcystin RR	80.7		P	40 - 150
Microcystin WR	84.6		P	40 - 150
Microcystin YR	83.5		P	40 - 150
Nodularin-R	83.1		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P425648

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	71.0		P	40 - 150
Neosaxitoxin	71.6		P	40 - 150
Saxitoxin	63.6		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P425772

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2384223	Ammonia-N	100	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P425911

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2386572	Kjeldahl Nitrogen	98.2	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P425859

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2386611	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425763

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2386651	Total-P	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P425669

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2386655	O-Phosphate-P	97.0	98.6	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P425647

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2386603	Cylindrospermopsin	90.0	99.4	P/P	40 - 150
2386603	Desmethyl microcystin LR	106	103	P/P	40 - 150
2386603	Microcystin HiLR	99.0	104	P/P	40 - 150
2386603	Microcystin HtyR	99.0	110	P/P	40 - 150
2386603	Microcystin LA	100	112	P/P	40 - 150
2386603	Microcystin LF	108	101	P/P	40 - 150
2386603	Microcystin LR	107	110	P/P	40 - 150
2386603	Microcystin LW	89.4	90.7	P/P	40 - 150
2386603	Microcystin LY	90.7	105	P/P	40 - 150
2386603	Microcystin RR	81.5	86.9	P/P	40 - 150
2386603	Microcystin WR	96.1	103	P/P	40 - 150
2386603	Microcystin YR	98.5	108	P/P	40 - 150
2386603	Nodularin-R	93.8	105	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P425648

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2386603	Anatoxin-a	77.7	77.7	P/P	40 - 150
2386603	Neosaxitoxin	65.9	64.2	P/P	40 - 150
2386603	Saxitoxin	61.6	61.9	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P425772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2384223	Ammonia-N	0.158	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P425911

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2386572	Kjeldahl Nitrogen	1.97	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P425859

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2386611	NO2NO3-N	0.391	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425763

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2386651	Total-P	0.647	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P425669

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2386655	O-Phosphate-P	1.64	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P425647

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2386603	Cylindrospermopsin	9.96	Spike	P	0 - 30
2386603	Desmethyl microcystin LR	2.26	Spike	P	0 - 30
2386603	Microcystin H1LR	4.92	Spike	P	0 - 30
2386603	Microcystin HtyR	10.1	Spike	P	0 - 30
2386603	Microcystin LA	11.4	Spike	P	0 - 30
2386603	Microcystin LF	6.98	Spike	P	0 - 30
2386603	Microcystin LR	2.73	Spike	P	0 - 30
2386603	Microcystin LW	1.37	Spike	P	0 - 30
2386603	Microcystin LY	14.1	Spike	P	0 - 30
2386603	Microcystin RR	6.35	Spike	P	0 - 30
2386603	Microcystin WR	6.55	Spike	P	0 - 30
2386603	Microcystin YR	8.90	Spike	P	0 - 30
2386603	Nodularin-R	11.5	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P425648

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2386603	Anatoxin-a	0.0387	Spike	P	0 - 30
2386603	Neosaxitoxin	2.63	Spike	P	0 - 30
2386603	Saxitoxin	0.497	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2386647

Field Sample ID: HABCE0174_LakeLouise

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	59.2	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	54.3	P	30 - 160

Lab Sample ID: 2386648

Field Sample ID: HABCE0166_LakeSue3

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	68.9	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	57.1	P	30 - 160

Lab Sample ID: 2386649

Field Sample ID: HABCE0165_SunsetLake

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	126	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	57.6	P	30 - 160

Lab Sample ID: 2386650

Field Sample ID: HABCE0155_BigSandLake

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	67.6	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	57.3	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A117385

Included Lab Sample IDs: 2386655, 2386656, 2386657, 2386658

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.5	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A117429

Included Lab Sample IDs: 2386651, 2386652, 2386653, 2386654

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.4	97.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A117454

Included Lab Sample IDs: 2386651, 2386652, 2386653, 2386654

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A117466

Included Lab Sample IDs: 2386653

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A117469

Included Lab Sample IDs: 2386651, 2386652, 2386654

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	98.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A117470

Included Lab Sample IDs: 2386647, 2386648, 2386649, 2386650

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	70.7	65.4	P/P	50 - 160
Neosaxitoxin	72.3	67.1	P/P	50 - 160
Saxitoxin	63.2	62.3	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A117478

Included Lab Sample IDs: 2386647, 2386648, 2386649, 2386650

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	93.7	102	P/P	50 - 160
Desmethyl microcystin LR	99.5	105	P/P	50 - 160
Microcystin HILR	89.8	93.9	P/P	50 - 160
Microcystin HtyR	91.2	97.7	P/P	50 - 160
Microcystin LA	97.6	104	P/P	50 - 160
Microcystin LF	113	112	P/P	50 - 160
Microcystin LR	99.7	101	P/P	50 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A117478

Included Lab Sample IDs: 2386647, 2386648, 2386649, 2386650

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Microcystin LW	91.1	115	P/P	50 - 160
Microcystin LY	95.6	109	P/P	50 - 160
Microcystin RR	88.0	89.9	P/P	50 - 160
Microcystin WR	95.3	94.2	P/P	50 - 160
Microcystin YR	92.2	93.2	P/P	50 - 160
Nodularin-R	92.2	89.0	P/P	50 - 160

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A117625

Included Lab Sample IDs: 2386651, 2386652, 2386653, 2386654

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	97.5	P/P	90 - 110
Kjeldahl Nitrogen	100	102	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	MS
EPA 350.1 Rev. 2.0	Ammonia-N	98.8	100	100		0.158
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	98.2	100		1.97
	Kjeldahl Nitrogen	104				
EPA 353.2 Rev. 2.0	NO2NO3-N	100	102	101		0.391
EPA 365.1 Rev. 2.0	Total-P	100	100	101		0.647
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.0	97.0	98.6		1.64
EPA 8321B	Anatoxin-a	71.0	77.7	77.7		0.0387
	Cylindrospermopsin	90.4	90.0	99.4		9.96
	Desmethyl microcystin LR	94.7	106	103		2.26
	Microcystin HiLR	82.3	99.0	104		4.92
	Microcystin HtyR	88.8	99.0	110		10.1
	Microcystin LA	99.3	100	112		11.4
	Microcystin LF	97.2	108	101		6.98
	Microcystin LR	88.1	107	110		2.73
	Microcystin LW	95.4	89.4	90.7		1.37
	Microcystin LY	91.5	90.7	105		14.1
	Microcystin RR	80.7	81.5	86.9		6.35
	Microcystin WR	84.6	96.1	103		6.55
	Microcystin YR	83.5	98.5	108		8.90
	Neosaxitoxin	71.6	65.9	64.2		2.63
	Nodularin-R	83.1	93.8	105		11.5
	Saxitoxin	63.6	61.6	61.9		0.497

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2386651, 2386652, 2386653, 2386654
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2386651, 2386652, 2386653, 2386654
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2386651, 2386652, 2386653, 2386654
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2386651, 2386652, 2386653, 2386654
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2386655, 2386656, 2386657, 2386658
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2386647, 2386648, 2386649, 2386650
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2386647, 2386648, 2386649, 2386650

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	02/10/2023			02/14/2023 10:47	Khloe J Berg	2386651
	02/10/2023			02/14/2023 10:48	Khloe J Berg	2386652
	02/10/2023			02/14/2023 10:50	Khloe J Berg	2386653
	02/10/2023			02/14/2023 10:51	Khloe J Berg	2386654
EPA 351.2 Rev. 2.0	02/10/2023	02/16/2023 11:30	Simonne.V. Calhoun	02/23/2023 11:01	Judith K. Clark	2386651
	02/10/2023	02/16/2023 11:30	Simonne.V. Calhoun	02/23/2023 11:03	Judith K. Clark	2386652
	02/10/2023	02/16/2023 11:30	Simonne.V. Calhoun	02/23/2023 11:08	Judith K. Clark	2386653
	02/10/2023	02/16/2023 11:30	Simonne.V. Calhoun	02/23/2023 11:16	Judith K. Clark	2386654
EPA 353.2 Rev. 2.0	02/10/2023			02/15/2023 10:35	Beverly Y. Sanders	2386651
	02/10/2023			02/15/2023 10:37	Beverly Y. Sanders	2386652
	02/10/2023			02/15/2023 10:38	Beverly Y. Sanders	2386653
	02/10/2023			02/15/2023 10:39	Beverly Y. Sanders	2386654
EPA 365.1 Rev. 2.0	02/10/2023	02/14/2023 13:21	Adam P Silver	02/15/2023 14:47	Simonne.V. Calhoun	2386653
	02/10/2023	02/14/2023 13:21	Adam P Silver	02/15/2023 16:11	Simonne.V. Calhoun	2386651
	02/10/2023	02/14/2023 13:21	Adam P Silver	02/15/2023 16:13	Simonne.V. Calhoun	2386652
	02/10/2023	02/14/2023 13:21	Adam P Silver	02/15/2023 16:14	Simonne.V. Calhoun	2386654
EPA 365.1 Rev. 2.0 dissolved	02/10/2023			02/10/2023 14:49	Elise M. Gillis	2386655
	02/10/2023			02/10/2023 14:52	Elise M. Gillis	2386656
	02/10/2023			02/10/2023 14:53	Elise M. Gillis	2386657, 2386658
EPA 8321B	02/10/2023	02/15/2023 13:00	Manjita Shrestha	02/15/2023 17:43	Manjita Shrestha	2386647
	02/10/2023	02/15/2023 13:00	Manjita Shrestha	02/15/2023 17:57	Manjita Shrestha	2386648
	02/10/2023	02/15/2023 13:00	Manjita Shrestha	02/15/2023 18:11	Manjita Shrestha	2386649
	02/10/2023	02/15/2023 13:00	Manjita Shrestha	02/15/2023 18:25	Manjita Shrestha	2386650
	02/10/2023	02/15/2023 13:00	Manjita Shrestha	02/16/2023 04:44	Manjita Shrestha	2386647
	02/10/2023	02/15/2023 13:00	Manjita Shrestha	02/16/2023 05:01	Manjita Shrestha	2386648
	02/10/2023	02/15/2023 13:00	Manjita Shrestha	02/16/2023 05:18	Manjita Shrestha	2386649
	02/10/2023	02/15/2023 13:00	Manjita Shrestha	02/16/2023 05:35	Manjita Shrestha	2386650