

Chemical Analysis Report

WQAP-2023-04-19-01

Florida DEP Laboratory
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Tallahassee, FL 32399-2400
DOH Accreditation E31780

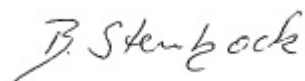
Event Description: **Algae Bloom Response NEROC-as needed**
Request ID: **RQ-2023-03-06-56**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

Send Reports to:
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Date Certified: 02-MAY-2023 18:18



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: GEORGES LAKE AT CENTER HAB

Collection Date/Time: 04/18/2023 12:10

Field ID: NEHAB0098

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2401176	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P428621	
		Cylindrospermopsin	0.10	U	ug/L	P428620	
		Desmethyl microcystin LR	0.25	U	ug/L	P428620	
		Microcystin HILR	0.25	U	ug/L	P428620	
		Microcystin HtyR	0.25	U	ug/L	P428620	
		Microcystin LA	0.10	U	ug/L	P428620	
		Microcystin LF	0.10	U	ug/L	P428620	
		Microcystin LR	0.25	U	ug/L	P428620	
		Microcystin LW	0.25	U	ug/L	P428620	
		Microcystin LY	0.10	U	ug/L	P428620	
		Microcystin RR	0.16	I	ug/L	P428620	
		Microcystin WR	0.50	U	ug/L	P428620	
		Neosaxitoxin	0.50	U	ug/L	P428621	
		Microcystin YR	0.25	U	ug/L	P428620	
		Saxitoxin	0.50	U	ug/L	P428621	
		Nodularin-R	0.10	U	ug/L	P428620	
2401182	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P428966	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56	J	mg N/L	P428800	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.024		mg N/L	P429084	
	EPA 365.1 Rev. 2.0	Total-P	0.059		mg P/L	P428739	
2401185	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P428703	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: GEORGES LAKE AT BOAT RAMP

Collection Date/Time: 04/18/2023 12:30

Field ID: NEHAB0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2401177	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P428621	
		Cylindrospermopsin	0.10	U	ug/L	P428620	
		Desmethyl microcystin LR	0.25	U	ug/L	P428620	
		Microcystin HILR	0.25	U	ug/L	P428620	
		Microcystin HtyR	0.25	U	ug/L	P428620	
		Microcystin LA	0.10	U	ug/L	P428620	
		Microcystin LF	0.10	U	ug/L	P428620	
		Microcystin LR	0.25	U	ug/L	P428620	
		Microcystin LW	0.25	U	ug/L	P428620	
		Microcystin LY	0.10	U	ug/L	P428620	
		Microcystin RR	0.20	I	ug/L	P428620	
		Microcystin WR	0.50	U	ug/L	P428620	
		Neosaxitoxin	0.50	U	ug/L	P428621	
		Microcystin YR	0.25	U	ug/L	P428620	
		Saxitoxin	0.50	U	ug/L	P428621	
		Nodularin-R	0.10	U	ug/L	P428620	
2401183	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P428967	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56		mg N/L	P428800	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.010		mg N/L	P429084	
	EPA 365.1 Rev. 2.0	Total-P	0.059		mg P/L	P428739	
2401186	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P428703	

Sample Location: Swan Lake at 114 Serenity Dr

Collection Date/Time: 04/18/2023 10:50

Field ID: NEHAB0100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2401178	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P428621	
		Cylindrospermopsin	0.10	U	ug/L	P428620	
		Desmethyl microcystin LR	0.25	U	ug/L	P428620	
		Microcystin HILR	0.25	U	ug/L	P428620	
		Microcystin HtyR	0.25	U	ug/L	P428620	
		Microcystin LA	0.10	U	ug/L	P428620	
		Microcystin LF	0.10	U	ug/L	P428620	
		Microcystin LR	0.25	U	ug/L	P428620	
		Microcystin LW	0.25	U	ug/L	P428620	
		Microcystin LY	0.10	U	ug/L	P428620	
		Microcystin RR	0.10	U	ug/L	P428620	
		Microcystin WR	0.50	U	ug/L	P428620	
		Neosaxitoxin	0.50	U	ug/L	P428621	
		Microcystin YR	0.25	U	ug/L	P428620	
		Saxitoxin	0.50	U	ug/L	P428621	
		Nodularin-R	0.10	U	ug/L	P428620	
2401184	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P428967	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50		mg N/L	P428800	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P429085	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P428739	
2401187	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P428703	

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428966

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428967

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428800

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429084

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429085

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P428739

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P428703

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

Reference Method: EPA 8321B
Batch ID: P428620

Component	Result	Code	Units
Cylindrospermopsin	0.10	U	ug/L
Desmethyl microcystin LR	0.25	U	ug/L
Microcystin H1R	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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P428620

Component	Result	Code	Units
Microcystin WR	0.50	U	ug/L
Microcystin YR	0.25	U	ug/L
Nodularin-R	0.10	U	ug/L

Reference Method: EPA 8321B
Batch ID: P428621

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: P428966

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428967

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428800

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429084

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429085

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: P428739

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P428703

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

Reference Method: EPA 8321B
Batch ID: P428620

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	92.1		P	40 - 150
Desmethyl microcystin LR	95.4		P	40 - 150
Microcystin HILR	99.8		P	40 - 150
Microcystin HtyR	99.1		P	40 - 150
Microcystin LA	103		P	40 - 150
Microcystin LF	110		P	40 - 150
Microcystin LR	109		P	40 - 150
Microcystin LW	97.7		P	40 - 150
Microcystin LY	94.5		P	40 - 150
Microcystin RR	99.4		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P428620

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Microcystin WR	114		P	40 - 150
Microcystin YR	98.7		P	40 - 150
Nodularin-R	92.2		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P428621

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	112		P	40 - 150
Neosaxitoxin	116		P	40 - 150
Saxitoxin	106		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428966

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2401122	Ammonia-N	98.6	96.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428967

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2401183	Ammonia-N	93.2	93.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428800

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2401182	Kjeldahl Nitrogen	92.6	89.4	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429084

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2401122	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429085

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2401184	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P428739

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2401161	Total-P	105	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P428703

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2401162	O-Phosphate-P	99.3	99.5	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P428620

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2400746	Cylindrospermopsin	91.9	98.8	P/P	40 - 150
2400746	Desmethyl microcystin LR	113	108	P/P	40 - 150
2400746	Microcystin HILR	109	119	P/P	40 - 150
2400746	Microcystin HtyR	120	118	P/P	40 - 150
2400746	Microcystin LA	96.2	105	P/P	40 - 150
2400746	Microcystin LF	105	104	P/P	40 - 150
2400746	Microcystin LR	113	116	P/P	40 - 150
2400746	Microcystin LW	92.5	112	P/P	40 - 150
2400746	Microcystin LY	106	98.5	P/P	40 - 150
2400746	Microcystin RR	97.7	104	P/P	40 - 150

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P428620

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2400746	Microcystin WR	115	116	P/P	40 - 150
2400746	Microcystin YR	115	116	P/P	40 - 150
2400746	Nodularin-R	99.1	104	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P428621

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2400746	Anatoxin-a	109	107	P/P	40 - 150
2400746	Neosaxitoxin	93.7	86.5	P/P	40 - 150
2400746	Saxitoxin	94.0	90.7	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428966

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2401122	Ammonia-N	1.89	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P428967

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2401183	Ammonia-N	0.563	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P428800

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2401182	Kjeldahl Nitrogen	2.31	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429084

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2401122	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429085

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2401184	NO2NO3-N	0.491	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P428739

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2401161	Total-P	1.58	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P428703

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2401162	O-Phosphate-P	0.201	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P428620

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400746	Cylindrospermopsin	7.20	Spike	P	0 - 30
2400746	Desmethyl microcystin LR	5.27	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P428620

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400746	Microcystin HII R	9.06	Spike	P	0 - 30
2400746	Microcystin Hty R	1.69	Spike	P	0 - 30
2400746	Microcystin LA	8.52	Spike	P	0 - 30
2400746	Microcystin LF	0.573	Spike	P	0 - 30
2400746	Microcystin LR	2.51	Spike	P	0 - 30
2400746	Microcystin LW	18.9	Spike	P	0 - 30
2400746	Microcystin LY	7.59	Spike	P	0 - 30
2400746	Microcystin RR	6.51	Spike	P	0 - 30
2400746	Microcystin WR	0.456	Spike	P	0 - 30
2400746	Microcystin YR	0.543	Spike	P	0 - 30
2400746	Nodularin-R	4.98	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P428621

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2400746	Anatoxin-a	2.08	Spike	P	0 - 30
2400746	Neosaxitoxin	8.07	Spike	P	0 - 30
2400746	Saxitoxin	3.50	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2401176
Field Sample ID: NEHAB0098

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	88.4	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	90.9	P	30 - 160

Lab Sample ID: 2401177
Field Sample ID: NEHAB0099

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	87.6	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	97.3	P	30 - 160

Lab Sample ID: 2401178
Field Sample ID: NEHAB0100

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	81.6	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	82.9	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A118662
Included Lab Sample IDs: 2401185, 2401186, 2401187

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.6	99.1	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A118670
Included Lab Sample IDs: 2401176, 2401177, 2401178

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	89.2	89.0	P/P	50 - 160
Desmethyl microcystin LR	100	103	P/P	50 - 160
Microcystin HILR	102	107	P/P	50 - 160
Microcystin HtyR	108	106	P/P	50 - 160
Microcystin LA	92.1	105	P/P	50 - 160
Microcystin LF	91.4	107	P/P	50 - 160
Microcystin LR	109	107	P/P	50 - 160
Microcystin LW	99.3	102	P/P	50 - 160
Microcystin LY	74.1	108	P/P	50 - 160
Microcystin RR	97.6	93.2	P/P	50 - 160
Microcystin WR	108	117	P/P	50 - 160
Microcystin YR	99.6	98.5	P/P	50 - 160
Nodularin-R	94.1	97.9	P/P	50 - 160

Reference Method: EPA 8321B
Run ID: A118671
Included Lab Sample IDs: 2401176, 2401177, 2401178

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	104	105	P/P	50 - 160
Neosaxitoxin	112	114	P/P	50 - 160
Saxitoxin	104	99.7	P/P	50 - 160

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A118700
Included Lab Sample IDs: 2401182, 2401183

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A118721
Included Lab Sample IDs: 2401184

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A118765
Included Lab Sample IDs: 2401182, 2401183, 2401184

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.1	94.4	P/P	90 - 110
Kjeldahl Nitrogen	97.1	96.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A118767

Included Lab Sample IDs: 2401182, 2401183, 2401184

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.6	P/P	90 - 110
Ammonia-N	99.2	99.6	P/P	90 - 110
Ammonia-N	99.6	99.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A118783

Included Lab Sample IDs: 2401182, 2401183, 2401184

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	103	P/P	90 - 110
NO2NO3-N	103	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	SMP
EPA 350.1 Rev. 2.0	Ammonia-N	99.0	98.6	96.6		1.89
	Ammonia-N	98.6	93.2	93.8		0.563
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.2	92.6	89.4		2.31
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	102		0.0
	NO2NO3-N	102	102	102		0.491
EPA 365.1 Rev. 2.0	Total-P	102	105	107		1.58
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.5	99.3	99.5		0.201
EPA 8321B	Anatoxin-a	112	109	107		2.08
	Cylindrospermopsin	92.1	98.8	91.9		7.20
	Desmethyl microcystin LR	95.4	108	113		5.27
	Microcystin HiLR	99.8	119	109		9.06
	Microcystin HtyR	99.1	118	120		1.69
	Microcystin LA	103	105	96.2		8.52
	Microcystin LF	110	105	104		0.573
	Microcystin LR	109	116	113		2.51
	Microcystin LW	97.7	92.5	112		18.9
	Microcystin LY	94.5	106	98.5		7.59
	Microcystin RR	99.4	104	97.7		6.51
	Microcystin WR	114	116	115		0.456
	Microcystin YR	98.7	116	115		0.543
	Neosaxitoxin	116	93.7	86.5		8.07
	Nodularin-R	92.2	104	99.1		4.98
	Saxitoxin	106	94.0	90.7		3.50

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2401182, 2401183, 2401184
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2401182, 2401183, 2401184
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2401182, 2401183, 2401184
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2401182, 2401183, 2401184
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2401185, 2401186, 2401187
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2401176, 2401177, 2401178
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2401176, 2401177, 2401178

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	04/19/2023			04/25/2023 13:46	Ping Hua	2401182
	04/19/2023			04/25/2023 14:04	Ping Hua	2401184
	04/19/2023			04/25/2023 14:54	Ping Hua	2401183
EPA 351.2 Rev. 2.0	04/19/2023	04/21/2023 11:01	Simonne.V. Calhoun	04/25/2023 14:48	Samantha L Bates	2401182
	04/19/2023	04/21/2023 11:01	Simonne.V. Calhoun	04/25/2023 14:56	Samantha L Bates	2401183
	04/19/2023	04/21/2023 11:01	Simonne.V. Calhoun	04/25/2023 14:58	Samantha L Bates	2401184
EPA 353.2 Rev. 2.0	04/19/2023			04/26/2023 10:26	Beverly Y. Sanders	2401182
	04/19/2023			04/26/2023 10:27	Beverly Y. Sanders	2401183
	04/19/2023			04/26/2023 10:34	Beverly Y. Sanders	2401184
EPA 365.1 Rev. 2.0	04/19/2023	04/20/2023 13:15	Alexis Price	04/21/2023 10:13	James L Waggeberby	2401182
	04/19/2023	04/20/2023 13:15	Alexis Price	04/21/2023 10:14	James L Waggeberby	2401183
	04/19/2023	04/20/2023 13:15	Alexis Price	04/22/2023 13:56	James L Waggeberby	2401184
EPA 365.1 Rev. 2.0 dissolved	04/19/2023			04/19/2023 13:54	Elise M. Gillis	2401185
	04/19/2023			04/19/2023 13:55	Elise M. Gillis	2401186
	04/19/2023			04/19/2023 13:56	Elise M. Gillis	2401187
EPA 8321B	04/19/2023	04/19/2023 11:00	Manjita Shrestha	04/19/2023 16:45	Manjita Shrestha	2401176
	04/19/2023	04/19/2023 11:00	Manjita Shrestha	04/19/2023 17:02	Manjita Shrestha	2401177
	04/19/2023	04/19/2023 11:00	Manjita Shrestha	04/19/2023 17:19	Manjita Shrestha	2401178
	04/19/2023	04/19/2023 11:00	Manjita Shrestha	04/20/2023 01:13	Manjita Shrestha	2401176
	04/19/2023	04/19/2023 11:00	Manjita Shrestha	04/20/2023 01:27	Manjita Shrestha	2401177
	04/19/2023	04/19/2023 11:00	Manjita Shrestha	04/20/2023 01:41	Manjita Shrestha	2401178