

Chemical Analysis Report

WQAP-2023-02-01-01

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-2023-01-02-48**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

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Date Certified: 15-FEB-2023 11:34



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: Doctor's Lake @ Mill Cove

Collection Date/Time: 01/31/2023 10:20

Field ID: NEHAB0057

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2384135	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P425246	
		Cylindrospermopsin	0.10	U	ug/L	P425245	
		Desmethyl microcystin LR	0.25	U	ug/L	P425245	
		Microcystin HILR	0.25	U	ug/L	P425245	
		Microcystin HtyR	0.25	U	ug/L	P425245	
		Microcystin LA	0.10	U	ug/L	P425245	
		Microcystin LF	0.10	U	ug/L	P425245	
		Microcystin LR	0.25	U	ug/L	P425245	
		Microcystin LW	0.25	U	ug/L	P425245	
		Microcystin LY	0.10	U	ug/L	P425245	
		Microcystin RR	0.10	U	ug/L	P425245	
		Microcystin WR	0.50	U	ug/L	P425245	
		Neosaxitoxin	0.50	U	ug/L	P425246	
		Microcystin YR	0.25	U	ug/L	P425245	
		Saxitoxin	0.50	U	ug/L	P425246	
		Nodularin-R	0.10	U	ug/L	P425245	
2384139	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P425724	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.99		mg N/L	P425342	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.43		mg N/L	P425308	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P425498	
2384143	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.053		mg P/L	P425273	

Ref. Method and Comment:

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

Sample Location: Swimming Pen Cr @ Whitey's Fish Camp

Collection Date/Time: 01/31/2023 11:00

Field ID: NEHAB0074

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2384136	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P425246	
		Cylindrospermopsin	0.10	U	ug/L	P425245	
		Desmethyl microcystin LR	0.25	U	ug/L	P425245	
		Microcystin HILR	0.25	U	ug/L	P425245	
		Microcystin HtyR	0.25	U	ug/L	P425245	
		Microcystin LA	0.10	U	ug/L	P425245	
		Microcystin LF	0.10	U	ug/L	P425245	
		Microcystin LR	0.25	U	ug/L	P425245	
		Microcystin LW	0.25	U	ug/L	P425245	
		Microcystin LY	0.10	U	ug/L	P425245	
		Microcystin RR	0.10	U	ug/L	P425245	
		Microcystin WR	0.50	U	ug/L	P425245	
		Neosaxitoxin	0.50	U	ug/L	P425246	
		Microcystin YR	0.25	U	ug/L	P425245	
		Saxitoxin	0.50	U	ug/L	P425246	
		Nodularin-R	0.10	U	ug/L	P425245	
2384140	EPA 350.1 Rev. 2.0	Ammonia-N	0.061		mg N/L	P425724	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.94		mg N/L	P425342	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.42		mg N/L	P425308	
	EPA 365.1 Rev. 2.0	Total-P	0.099		mg P/L	P425429	MS
2384144	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.063		mg P/L	P425272	

Ref. Method and Comment:

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

Sample Location: Black Creek @ SR-17

Collection Date/Time: 01/31/2023 12:00

Field ID: NEHAB0035

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2384134	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P425246	
		Cylindrospermopsin	0.10	U	ug/L	P425245	
		Desmethyl microcystin LR	0.25	U	ug/L	P425245	
		Microcystin HILR	0.25	U	ug/L	P425245	
		Microcystin HtyR	0.25	U	ug/L	P425245	
		Microcystin LA	0.10	U	ug/L	P425245	
		Microcystin LF	0.10	U	ug/L	P425245	
		Microcystin LR	0.25	U	ug/L	P425245	
		Microcystin LW	0.25	U	ug/L	P425245	
		Microcystin LY	0.10	U	ug/L	P425245	
		Microcystin RR	0.10	U	ug/L	P425245	
		Microcystin WR	0.50	U	ug/L	P425245	
		Neosaxitoxin	0.50	U	ug/L	P425246	
		Microcystin YR	0.25	U	ug/L	P425245	
		Saxitoxin	0.50	U	ug/L	P425246	
		Nodularin-R	0.10	U	ug/L	P425245	
2384138	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P425724	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P425342	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P425308	
	EPA 365.1 Rev. 2.0	Total-P	0.082		mg P/L	P425429	MS
2384142	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.060		mg P/L	P425272	

Ref. Method and Comment:

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

Sample Location: Dr's Lake at Camp Echockotee

Collection Date/Time: 01/31/2023 12:45

Field ID: NEHAB0085

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2384137	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P425246	
		Cylindrospermopsin	0.10	U	ug/L	P425245	
		Desmethyl microcystin LR	0.25	U	ug/L	P425245	
		Microcystin HILR	0.25	U	ug/L	P425245	
		Microcystin HtyR	0.25	U	ug/L	P425245	
		Microcystin LA	0.10	U	ug/L	P425245	
		Microcystin LF	0.10	U	ug/L	P425245	
		Microcystin LR	0.25	U	ug/L	P425245	
		Microcystin LW	0.25	U	ug/L	P425245	
		Microcystin LY	0.10	U	ug/L	P425245	
		Microcystin RR	0.10	U	ug/L	P425245	
		Microcystin WR	0.50	U	ug/L	P425245	
		Neosaxitoxin	0.50	U	ug/L	P425246	
		Microcystin YR	0.25	U	ug/L	P425245	
		Saxitoxin	0.50	U	ug/L	P425246	
		Nodularin-R	0.10	U	ug/L	P425245	
2384141	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P425724	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P425342	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.38		mg N/L	P425308	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P425430	
2384145	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.057		mg P/L	P425272	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries 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: P425724

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P425342

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P425308

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425429

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425430

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425498

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P425272

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P425273

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

Reference Method: EPA 8321B
Batch ID: P425245

Component	Result	Code	Units
Cylindrospermopsin	0.10	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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P425245

Component	Result	Code	Units
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

Reference Method: EPA 8321B
Batch ID: P425246

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: P425724

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P425342

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P425308

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425429

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425430

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425498

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P425272

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P425273

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	109		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P425245

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	100		P	40 - 150
Desmethyl microcystin LR	94.7		P	40 - 150
Microcystin HILR	96.5		P	40 - 150
Microcystin HtyR	100		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P425245

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Microcystin LA	99.7		P	40 - 150
Microcystin LF	97.0		P	40 - 150
Microcystin LR	97.9		P	40 - 150
Microcystin LW	87.4		P	40 - 150
Microcystin LY	89.8		P	40 - 150
Microcystin RR	101		P	40 - 150
Microcystin WR	95.6		P	40 - 150
Microcystin YR	95.7		P	40 - 150
Nodularin-R	103		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P425246

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	86.6		P	40 - 150
Neosaxitoxin	92.3		P	40 - 150
Saxitoxin	76.6		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P425724

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2384071	Ammonia-N	103	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P425308

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2384138	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425429

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2384115	Total-P	110	111	F/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425430

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2384223	Total-P	107	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425498

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2384949	Total-P	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P425272

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2384225	O-Phosphate-P	99.4	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P425273

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2384143	O-Phosphate-P	98.3	97.9	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P425245

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2383704	Cylindrospermopsin	105	120	P/P	40 - 150
2383704	Desmethyl microcystin LR	123	127	P/P	40 - 150
2383704	Microcystin HiLR	119	127	P/P	40 - 150
2383704	Microcystin HtyR	118	124	P/P	40 - 150
2383704	Microcystin LA	95.7	105	P/P	40 - 150
2383704	Microcystin LF	102	97.9	P/P	40 - 150
2383704	Microcystin LR	127	133	P/P	40 - 150
2383704	Microcystin LW	102	108	P/P	40 - 150
2383704	Microcystin LY	95.2	102	P/P	40 - 150
2383704	Microcystin RR	105	109	P/P	40 - 150

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P425245

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2383704	Microcystin WR	113	117	P/P	40 - 150
2383704	Microcystin YR	123	127	P/P	40 - 150
2383704	Nodularin-R	129	139	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P425246

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2383704	Anatoxin-a	88.3	91.9	P/P	40 - 150
2383704	Neosaxitoxin	53.1	58.0	P/P	40 - 150
2383704	Saxitoxin	43.9	46.6	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P425724

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2384071	Ammonia-N	3.58	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P425342

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2384224	Kjeldahl Nitrogen	6.53	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P425308

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2384138	NO2NO3-N	0.258	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425429

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2384115	Total-P	0.565	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425430

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2384223	Total-P	0.368	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P425498

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2384949	Total-P	0.199	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P425272

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2384225	O-Phosphate-P	1.62	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P425273

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2384143	O-Phosphate-P	0.265	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P425245

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2383704	Cylindrospermopsin	13.1	Spike	P	0 - 30
2383704	Desmethyl microcystin LR	3.71	Spike	P	0 - 30
2383704	Microcystin HilR	6.32	Spike	P	0 - 30
2383704	Microcystin HtyR	4.49	Spike	P	0 - 30
2383704	Microcystin LA	9.14	Spike	P	0 - 30
2383704	Microcystin LF	4.56	Spike	P	0 - 30
2383704	Microcystin LR	4.08	Spike	P	0 - 30
2383704	Microcystin LW	5.64	Spike	P	0 - 30
2383704	Microcystin LY	6.59	Spike	P	0 - 30
2383704	Microcystin RR	4.20	Spike	P	0 - 30
2383704	Microcystin WR	3.68	Spike	P	0 - 30
2383704	Microcystin YR	2.93	Spike	P	0 - 30
2383704	Nodularin-R	7.50	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P425246

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2383704	Anatoxin-a	4.06	Spike	P	0 - 30
2383704	Neosaxitoxin	8.74	Spike	P	0 - 30
2383704	Saxitoxin	6.06	Spike	P	0 - 30

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2384134
Field Sample ID: NEHAB0035

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	75.2	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	58.3	P	30 - 160

Lab Sample ID: 2384135
Field Sample ID: NEHAB0057

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	91.7	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	56.3	P	30 - 160

Lab Sample ID: 2384136
Field Sample ID: NEHAB0074

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	95.7	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	48.5	P	30 - 160

Lab Sample ID: 2384137
Field Sample ID: NEHAB0085

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	89.3	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	51.4	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A117209

Included Lab Sample IDs: 2384142, 2384143, 2384144, 2384145

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.9	98.7	P/P	90 - 110
O-Phosphate-P	99.0	98.9	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A117218

Included Lab Sample IDs: 2384134, 2384135, 2384136, 2384137

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	98.2	102	P/P	50 - 160
Desmethyl microcystin LR	95.4	98.5	P/P	50 - 160
Microcystin HILR	96.8	97.7	P/P	50 - 160
Microcystin HtyR	102	100	P/P	50 - 160
Microcystin LA	90.7	103	P/P	50 - 160
Microcystin LF	97.5	107	P/P	50 - 160
Microcystin LR	105	105	P/P	50 - 160
Microcystin LW	108	118	P/P	50 - 160
Microcystin LY	94.5	94.1	P/P	50 - 160
Microcystin RR	101	99.6	P/P	50 - 160
Microcystin WR	103	103	P/P	50 - 160
Microcystin YR	102	105	P/P	50 - 160
Nodularin-R	102	98.7	P/P	50 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A117222

Included Lab Sample IDs: 2384138, 2384139, 2384140, 2384141

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

Reference Method: EPA 8321B

Run ID: A117229

Included Lab Sample IDs: 2384134, 2384135, 2384136, 2384137

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	81.2	86.3	P/P	50 - 160
Neosaxitoxin	86.4	91.9	P/P	50 - 160
Saxitoxin	74.3	76.6	P/P	50 - 160

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A117273

Included Lab Sample IDs: 2384138, 2384139, 2384140, 2384141

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.5	95.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A117302

Included Lab Sample IDs: 2384141

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A117316

Included Lab Sample IDs: 2384138, 2384140

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A117350

Included Lab Sample IDs: 2384139

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A117404

Included Lab Sample IDs: 2384138, 2384139, 2384140, 2384141

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.2	96.9	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
EPA 350.1 Rev. 2.0	Ammonia-N	95.4	103	98.8		3.58
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.5				6.53
EPA 353.2 Rev. 2.0	NO2NO3-N	104	104	104		0.258
EPA 365.1 Rev. 2.0	Total-P	106	110	111		0.565
	Total-P	106	107	107		0.368
	Total-P	105	106	106		0.199
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.3	99.4	97.8		1.62
	O-Phosphate-P	109	98.3	97.9		0.265
EPA 8321B	Anatoxin-a	86.6	88.3	91.9		4.06
	Cylindrospermopsin	100	105	120		13.1
	Desmethyl microcystin LR	94.7	123	127		3.71
	Microcystin HiLR	96.5	119	127		6.32
	Microcystin HtyR	100	118	124		4.49
	Microcystin LA	99.7	95.7	105		9.14
	Microcystin LF	97.0	102	97.9		4.56
	Microcystin LR	97.9	127	133		4.08
	Microcystin LW	87.4	102	108		5.64
	Microcystin LY	89.8	95.2	102		6.59
	Microcystin RR	101	105	109		4.20
	Microcystin WR	95.6	113	117		3.68
	Microcystin YR	95.7	123	127		2.93
	Neosaxitoxin	92.3	53.1	58.0		8.74
	Nodularin-R	103	129	139		7.50
	Saxitoxin	76.6	43.9	46.6		6.06

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2384138, 2384139, 2384140, 2384141
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2384138, 2384139, 2384140, 2384141
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2384138, 2384139, 2384140, 2384141
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2384138, 2384139, 2384140, 2384141
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2384142, 2384143, 2384144, 2384145
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2384134, 2384135, 2384136, 2384137
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2384134, 2384135, 2384136, 2384137

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	02/01/2023			02/13/2023 12:46	Khloe J Berg	2384138
	02/01/2023			02/13/2023 12:48	Khloe J Berg	2384139
	02/01/2023			02/13/2023 12:49	Khloe J Berg	2384140
	02/01/2023			02/13/2023 12:50	Khloe J Berg	2384141
EPA 351.2 Rev. 2.0	02/01/2023	02/03/2023 11:05	Simonne.V. Calhoun	02/06/2023 11:22	Samantha L Bates	2384138
	02/01/2023	02/03/2023 11:05	Simonne.V. Calhoun	02/06/2023 11:24	Samantha L Bates	2384139
	02/01/2023	02/03/2023 11:05	Simonne.V. Calhoun	02/06/2023 11:25	Samantha L Bates	2384140
	02/01/2023	02/03/2023 11:05	Simonne.V. Calhoun	02/06/2023 11:27	Samantha L Bates	2384141
EPA 353.2 Rev. 2.0	02/01/2023			02/02/2023 11:14	Beverly Y. Sanders	2384138
	02/01/2023			02/02/2023 11:20	Beverly Y. Sanders	2384139
	02/01/2023			02/02/2023 11:21	Beverly Y. Sanders	2384140
	02/01/2023			02/02/2023 11:22	Beverly Y. Sanders	2384141
EPA 365.1 Rev. 2.0	02/01/2023	02/06/2023 03:24	Adam P Silver	02/07/2023 14:54	Simonne.V. Calhoun	2384141
	02/01/2023	02/06/2023 03:24	Adam P Silver	02/08/2023 09:26	James L Waggeberby	2384138
	02/01/2023	02/06/2023 03:24	Adam P Silver	02/08/2023 09:27	James L Waggeberby	2384140
	02/01/2023	02/08/2023 16:06	Adam P Silver	02/09/2023 10:13	Simonne.V. Calhoun	2384139
EPA 365.1 Rev. 2.0 dissolved	02/01/2023			02/01/2023 13:55	Chandler E Cox	2384142
	02/01/2023			02/01/2023 13:56	Chandler E Cox	2384144, 2384145
	02/01/2023			02/01/2023 14:14	Chandler E Cox	2384143
EPA 8321B	02/01/2023	02/01/2023 13:00	Manjita Shrestha	02/02/2023 01:04	Manjita Shrestha	2384134
	02/01/2023	02/01/2023 13:00	Manjita Shrestha	02/02/2023 01:21	Manjita Shrestha	2384135
	02/01/2023	02/01/2023 13:00	Manjita Shrestha	02/02/2023 01:38	Manjita Shrestha	2384136
	02/01/2023	02/01/2023 13:00	Manjita Shrestha	02/02/2023 01:55	Manjita Shrestha	2384137
	02/01/2023	02/01/2023 13:00	Manjita Shrestha	02/02/2023 09:59	Manjita Shrestha	2384134
	02/01/2023	02/01/2023 13:00	Manjita Shrestha	02/02/2023 10:13	Manjita Shrestha	2384135
	02/01/2023	02/01/2023 13:00	Manjita Shrestha	02/02/2023 10:27	Manjita Shrestha	2384136
	02/01/2023	02/01/2023 13:00	Manjita Shrestha	02/02/2023 10:41	Manjita Shrestha	2384137