

Chemical Analysis Report

WQAP-2022-08-03-01

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

Event Description: **Algal Bloom Response- NEROC**
Request ID: **RQ-2022-08-01-66**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

Send Reports to:
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8800 Baymeadows Way West
Jacksonville, FL 32256
Attn: Jeremy Parrish

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

Date Certified: 23-AUG-2022 11:39

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: Doctor's Lake @ Mill Cove

Collection Date/Time: 08/02/2022 12:20

Field ID: NEHAB0057

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2345404	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P417568	
		Cylindrospermopsin	0.10	U	ug/L	P417567	
		Desmethyl microcystin LR	0.25	U	ug/L	P417567	
		Microcystin HILR	0.25	U	ug/L	P417567	
		Microcystin HtyR	0.25	U	ug/L	P417567	
		Microcystin LA	0.10	U	ug/L	P417567	
		Microcystin LF	0.10	U	ug/L	P417567	
		Microcystin LR	1.8		ug/L	P417567	
		Microcystin LW	0.25	U	ug/L	P417567	
		Microcystin LY	0.10	U	ug/L	P417567	
		Microcystin RR	0.10	U	ug/L	P417567	
		Microcystin WR	0.50	U	ug/L	P417567	
		Neosaxitoxin	0.50	U	ug/L	P417568	
		Microcystin YR	0.25	U	ug/L	P417567	
		Saxitoxin	0.50	U	ug/L	P417568	
		Nodularin-R	0.10	U	ug/L	P417567	
2345416	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P417772	MS
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P417711	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P417819	
	EPA 365.1 Rev. 2.0	Total-P	0.070		mg P/L	P417741	
2345420	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P417591	

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

Collection Date/Time: 08/02/2022 10:50

Field ID: NEHAB0074

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2345406	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P417568	
		Cylindrospermopsin	0.10	U	ug/L	P417567	
		Desmethyl microcystin LR	0.25	I	ug/L	P417567	
		Microcystin HILR	0.25	U	ug/L	P417567	
		Microcystin HtyR	0.25	U	ug/L	P417567	
		Microcystin LA	0.10	U	ug/L	P417567	
		Microcystin LF	0.10	U	ug/L	P417567	
		Microcystin LR	5.1		ug/L	P417567	
		Microcystin LW	0.25	U	ug/L	P417567	
		Microcystin LY	0.10	U	ug/L	P417567	
		Microcystin RR	0.10	U	ug/L	P417567	
		Microcystin WR	0.50	U	ug/L	P417567	
		Neosaxitoxin	0.50	U	ug/L	P417568	
		Microcystin YR	0.25	U	ug/L	P417567	
		Saxitoxin	0.50	U	ug/L	P417568	
		Nodularin-R	0.10	U	ug/L	P417567	
2345418	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P417772	MS
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.9		mg N/L	P417678	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.011		mg N/L	P417819	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P417741	
2345422	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P417591	

Sample Location: Dr's Lake End of Lawrence Rd

Collection Date/Time: 08/02/2022 11:20

Field ID: NEHAB0073

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2345405	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P417568	
		Cylindrospermopsin	0.10	U	ug/L	P417567	
		Desmethyl microcystin LR	0.25	U	ug/L	P417567	
		Microcystin HILR	0.25	U	ug/L	P417567	
		Microcystin HtyR	0.25	U	ug/L	P417567	
		Microcystin LA	0.10	U	ug/L	P417567	
		Microcystin LF	0.10	U	ug/L	P417567	
		Microcystin LR	2.2		ug/L	P417567	
		Microcystin LW	0.25	U	ug/L	P417567	
		Microcystin LY	0.10	U	ug/L	P417567	
		Microcystin RR	0.10	U	ug/L	P417567	
		Microcystin WR	0.50	U	ug/L	P417567	
		Neosaxitoxin	0.50	U	ug/L	P417568	
		Microcystin YR	0.25	U	ug/L	P417567	
		Saxitoxin	0.50	U	ug/L	P417568	
		Nodularin-R	0.10	U	ug/L	P417567	
2345417	EPA 350.1 Rev. 2.0	Ammonia-N	0.21		mg N/L	P417772	MS
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.9		mg N/L	P417678	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P417819	
	EPA 365.1 Rev. 2.0	Total-P	0.081		mg P/L	P417741	
2345421	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P417591	

Sample Location: LSJR @ 2930 SR 13

Collection Date/Time: 08/02/2022 15:00

Field ID: NEHAB0077

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2345407	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P417568	
		Cylindrospermopsin	0.13	I	ug/L	P417567	
		Desmethyl microcystin LR	0.25	U	ug/L	P417567	
		Microcystin HILR	0.25	U	ug/L	P417567	
		Microcystin HtyR	0.25	U	ug/L	P417567	
		Microcystin LA	0.10	U	ug/L	P417567	
		Microcystin LF	0.10	U	ug/L	P417567	
		Microcystin LR	0.25	U	ug/L	P417567	
		Microcystin LW	0.25	U	ug/L	P417567	
		Microcystin LY	0.10	U	ug/L	P417567	
		Microcystin RR	0.10	U	ug/L	P417567	
		Microcystin WR	0.50	U	ug/L	P417567	
		Neosaxitoxin	0.50	U	ug/L	P417568	
		Microcystin YR	0.25	U	ug/L	P417567	
		Saxitoxin	0.50	U	ug/L	P417568	
		Nodularin-R	0.10	U	ug/L	P417567	
2345419	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P417776	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P417796	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P417718	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P417740	
2345423	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P417592	

Sample Location: Dr's Lake at Camp Echochotee

Collection Date/Time: 08/02/2022 12:00

Field ID: NEHAB0085

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2345402	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P417568	
		Cylindrospermopsin	0.10	U	ug/L	P417567	
		Desmethyl microcystin LR	0.25	U	ug/L	P417567	
		Microcystin HILR	0.25	U	ug/L	P417567	
		Microcystin HtyR	0.25	U	ug/L	P417567	
		Microcystin LA	0.10	U	ug/L	P417567	
		Microcystin LF	0.10	U	ug/L	P417567	
		Microcystin LR	0.43	I	ug/L	P417567	
		Microcystin LW	0.25	U	ug/L	P417567	
		Microcystin LY	0.10	U	ug/L	P417567	
		Microcystin RR	0.10	U	ug/L	P417567	
		Microcystin WR	0.50	U	ug/L	P417567	
		Neosaxitoxin	0.50	U	ug/L	P417568	
		Microcystin YR	0.25	U	ug/L	P417567	
		Saxitoxin	0.50	U	ug/L	P417568	
		Nodularin-R	0.10	U	ug/L	P417567	
2345412	EPA 350.1 Rev. 2.0	Ammonia-N	0.061		mg N/L	P417776	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P417714	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P417717	
	EPA 365.1 Rev. 2.0	Total-P	0.094		mg P/L	P417740	
2345414	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P417592	

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 Near Lucy Branch

Collection Date/Time: 08/02/2022 11:40

Field ID: NEHAB0086

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2345403	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P417568	
		Cylindrospermopsin	0.10	U	ug/L	P417567	
		Desmethyl microcystin LR	0.25	U	ug/L	P417567	
		Microcystin HILR	0.25	U	ug/L	P417567	
		Microcystin HtyR	0.25	U	ug/L	P417567	
		Microcystin LA	0.10	U	ug/L	P417567	
		Microcystin LF	0.10	U	ug/L	P417567	
		Microcystin LR	0.92	I	ug/L	P417567	
		Microcystin LW	0.25	U	ug/L	P417567	
		Microcystin LY	0.10	U	ug/L	P417567	
		Microcystin RR	0.10	U	ug/L	P417567	
		Microcystin WR	0.50	U	ug/L	P417567	
		Neosaxitoxin	0.50	U	ug/L	P417568	
		Microcystin YR	0.25	U	ug/L	P417567	
		Saxitoxin	0.50	U	ug/L	P417568	
		Nodularin-R	0.10	U	ug/L	P417567	
2345413	EPA 350.1 Rev. 2.0	Ammonia-N	0.087		mg N/L	P417776	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P417714	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.019		mg N/L	P417717	
	EPA 365.1 Rev. 2.0	Total-P	0.080		mg P/L	P417740	
2345415	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P417592	

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: P417772

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417776

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417678

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417711

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417714

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417796

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417717

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417718

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417819

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417740

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417741

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P417591

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P417592

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

Reference Method: EPA 8321B
Batch ID: P417567

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
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: P417568

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: P417772

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417776

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: P417678

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: P417711

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417714

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417796

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417717

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417718

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417819

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417740

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417741

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: P417591

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P417592

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

Reference Method: EPA 8321B
Batch ID: P417567

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	96.8		P	40 - 150
Desmethyl microcystin LR	87.7		P	40 - 150
Microcystin HILR	92.0		P	40 - 150
Microcystin HtyR	90.0		P	40 - 150
Microcystin LA	95.0		P	40 - 150
Microcystin LF	89.7		P	40 - 150
Microcystin LR	83.2		P	40 - 150
Microcystin LW	89.5		P	40 - 150
Microcystin LY	91.7		P	40 - 150
Microcystin RR	91.6		P	40 - 150
Microcystin WR	87.5		P	40 - 150
Microcystin YR	85.3		P	40 - 150
Nodularin-R	85.7		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P417568

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	97.2		P	40 - 150
Neosaxitoxin	97.6		P	40 - 150
Saxitoxin	96.5		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417772

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345388	Ammonia-N	109	116	P/F	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417776

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345595	Ammonia-N	98.2	97.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417678

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345417	Kjeldahl Nitrogen	97.0	97.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417711

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344938	Kjeldahl Nitrogen	105	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417796

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345668	Kjeldahl Nitrogen	94.4	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417717

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345317	NO2NO3-N	95.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417718

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345419	NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417819

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345116	NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417740

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345443	Total-P	105	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P417741

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345441	Total-P	98.2	97.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P417591

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345444	O-Phosphate-P	99.4	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P417592

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345672	O-Phosphate-P	100	100	P/P	90 - 110

Reference Method: EPA 8321B

Batch ID: P417567

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345402	Cylindrospermopsin	95.0	94.9	P/P	40 - 150
2345402	Desmethyl microcystin LR	97.8	93.4	P/P	40 - 150
2345402	Microcystin HilR	98.4	95.4	P/P	40 - 150
2345402	Microcystin HtyR	98.9	95.1	P/P	40 - 150
2345402	Microcystin LA	98.9	96.1	P/P	40 - 150
2345402	Microcystin LF	97.4	92.9	P/P	40 - 150
2345402	Microcystin LR	98.1	93.3	P/P	40 - 150
2345402	Microcystin LW	92.7	93.4	P/P	40 - 150
2345402	Microcystin LY	91.2	97.7	P/P	40 - 150
2345402	Microcystin RR	98.4	95.8	P/P	40 - 150
2345402	Microcystin WR	97.3	99.7	P/P	40 - 150
2345402	Microcystin YR	93.7	91.7	P/P	40 - 150
2345402	Nodularin-R	93.9	91.9	P/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P417568

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2345402	Anatoxin-a	80.9	80.3	P/P	40 - 150
2345402	Neosaxitoxin	71.3	71.2	P/P	40 - 150
2345402	Saxitoxin	79.9	69.6	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345388	Ammonia-N	5.28	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417776

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345595	Ammonia-N	0.416	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417678

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345417	Kjeldahl Nitrogen	0.356	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417711

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344938	Kjeldahl Nitrogen	2.90	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417714

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345205	Kjeldahl Nitrogen	7.72	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417796

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345668	Kjeldahl Nitrogen	5.33	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417717

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345317	NO2NO3-N	0.183	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417718

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345419	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P417819

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345116	NO2NO3-N	0.482	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P417740

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345443	Total-P	3.66	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P417741

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345441	Total-P	0.265	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P417591

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345444	O-Phosphate-P	0.448	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P417592

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345672	O-Phosphate-P	0.0933	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P417567

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345402	Cylindrospermopsin	0.0384	Spike	P	0 - 30
2345402	Desmethyl microcystin LR	4.64	Spike	P	0 - 30
2345402	Microcystin H1LR	3.06	Spike	P	0 - 30
2345402	Microcystin HtyR	3.95	Spike	P	0 - 30
2345402	Microcystin LA	2.89	Spike	P	0 - 30
2345402	Microcystin LF	4.71	Spike	P	0 - 30
2345402	Microcystin LR	4.76	Spike	P	0 - 30
2345402	Microcystin LW	0.659	Spike	P	0 - 30
2345402	Microcystin LY	6.93	Spike	P	0 - 30
2345402	Microcystin RR	2.64	Spike	P	0 - 30
2345402	Microcystin WR	2.44	Spike	P	0 - 30
2345402	Microcystin YR	2.19	Spike	P	0 - 30
2345402	Nodularin-R	2.14	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P417568

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2345402	Anatoxin-a	0.665	Spike	P	0 - 30
2345402	Neosaxitoxin	0.207	Spike	P	0 - 30
2345402	Saxitoxin	13.8	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2345402
Field Sample ID: NEHAB0085

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	94.2	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	79.1	P	30 - 160

Lab Sample ID: 2345403
Field Sample ID: NEHAB0086

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	109	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	73.0	P	30 - 160

Lab Sample ID: 2345404
Field Sample ID: NEHAB0057

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	86.7	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	76.4	P	30 - 160

Lab Sample ID: 2345405
Field Sample ID: NEHAB0073

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	84.8	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	72.8	P	30 - 160

Lab Sample ID: 2345406
Field Sample ID: NEHAB0074

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	87.2	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	66.2	P	30 - 160

Lab Sample ID: 2345407
Field Sample ID: NEHAB0077

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	71.5	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	83.3	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A113568

Included Lab Sample IDs: 2345402, 2345403, 2345404, 2345405, 2345406, 2345407

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	99.7	98.6	P/P	50 - 160
Neosaxitoxin	107	98.4	P/P	50 - 160
Saxitoxin	99.1	99.1	P/P	50 - 160

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A113883

Included Lab Sample IDs: 2345414, 2345415, 2345420, 2345421, 2345422, 2345423

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.8	P/P	90 - 110
O-Phosphate-P	101	101	P/P	90 - 110
O-Phosphate-P	99.8	101	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A113885

Included Lab Sample IDs: 2345402, 2345403, 2345404, 2345405, 2345406, 2345407

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	93.0	90.9	P/P	60 - 160
Desmethyl microcystin LR	92.4	86.3	P/P	60 - 160
Microcystin HIR	90.9	88.5	P/P	60 - 160
Microcystin HtyR	96.5	90.9	P/P	60 - 160
Microcystin LA	94.7	88.2	P/P	50 - 160
Microcystin LF	79.6	88.9	P/P	60 - 160
Microcystin LR	93.5	81.1	P/P	60 - 160
Microcystin LW	83.8	87.2	P/P	60 - 160
Microcystin LY	97.2	85.1	P/P	60 - 160
Microcystin RR	95.0	86.9	P/P	60 - 160
Microcystin WR	89.8	87.2	P/P	60 - 160
Microcystin YR	95.0	81.8	P/P	60 - 160
Nodularin-R	89.7	85.8	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A113931

Included Lab Sample IDs: 2345412, 2345413, 2345419

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110
NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A113965

Included Lab Sample IDs: 2345412, 2345413, 2345416, 2345417, 2345418, 2345419

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A113967

Included Lab Sample IDs: 2345412, 2345413, 2345416, 2345417, 2345418, 2345419

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.2	98.0	P/P	90 - 110
Ammonia-N	99.4	99.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A113985

Included Lab Sample IDs: 2345416, 2345417, 2345418

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A113996

Included Lab Sample IDs: 2345417, 2345418

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.8	93.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A114025

Included Lab Sample IDs: 2345416

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.2	94.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A114046

Included Lab Sample IDs: 2345412, 2345413

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.6	94.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A114104

Included Lab Sample IDs: 2345419

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.9	91.5	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		LCS	Precision	MS
						SMP	
EPA 350.1 Rev. 2.0	Ammonia-N	95.4	109	116			5.28
	Ammonia-N	95.4	98.2	97.6			0.416
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	97.0	97.6			0.356
	Kjeldahl Nitrogen	102	105	102			2.90
	Kjeldahl Nitrogen	99.9					7.72
	Kjeldahl Nitrogen	102	94.4	103			5.33
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	95.5				0.183
	NO2NO3-N	99.0	99.5	99.5			0.0
	NO2NO3-N	100	100	101			0.482
EPA 365.1 Rev. 2.0	Total-P	104	105	101			3.66
	Total-P	105	98.2	97.9			0.265
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.9	99.4	100			0.448
	O-Phosphate-P	99.4	100	100			0.0933
EPA 8321B	Anatoxin-a	97.2	80.9	80.3			0.665
	Cylindrospermopsin	96.8	95.0	94.9			0.0384
	Desmethyl microcystin LR	87.7	97.8	93.4			4.64
	Microcystin HilR	92.0	98.4	95.4			3.06
	Microcystin HtyR	90.0	98.9	95.1			3.95
	Microcystin LA	95.0	98.9	96.1			2.89
	Microcystin LF	89.7	97.4	92.9			4.71
	Microcystin LR	83.2	98.1	93.3			4.76
	Microcystin LW	89.5	92.7	93.4			0.659
	Microcystin LY	91.7	91.2	97.7			6.93
	Microcystin RR	91.6	98.4	95.8			2.64
	Microcystin WR	87.5	97.3	99.7			2.44
	Microcystin YR	85.3	93.7	91.7			2.19
	Neosaxitoxin	97.6	71.3	71.2			0.207
	Nodularin-R	85.7	93.9	91.9			2.14
	Saxitoxin	96.5	79.9	69.6			13.8

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2345412, 2345413, 2345416, 2345417, 2345418, 2345419
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2345412, 2345413, 2345416, 2345417, 2345418, 2345419
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2345412, 2345413, 2345416, 2345417, 2345418, 2345419
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2345412, 2345413, 2345416, 2345417, 2345418, 2345419
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2345414, 2345415, 2345420, 2345421, 2345422, 2345423
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2345402, 2345403, 2345404, 2345405, 2345406, 2345407
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2345402, 2345403, 2345404, 2345405, 2345406, 2345407

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	08/03/2022			08/08/2022 15:17	Ping Hua	2345416
	08/03/2022			08/08/2022 15:18	Ping Hua	2345417
	08/03/2022			08/08/2022 15:19	Ping Hua	2345418
	08/03/2022			08/08/2022 17:01	Ping Hua	2345412
	08/03/2022			08/08/2022 17:02	Ping Hua	2345413
	08/03/2022			08/08/2022 17:03	Ping Hua	2345419
EPA 351.2 Rev. 2.0	08/03/2022	08/05/2022 10:08	Samantha L Bates	08/09/2022 16:05	Samantha L Bates	2345417
	08/03/2022	08/05/2022 10:08	Samantha L Bates	08/09/2022 16:09	Samantha L Bates	2345418
	08/03/2022	08/08/2022 14:48	Samantha L Bates	08/11/2022 11:33	Alexandra J Mattheus	2345416
	08/03/2022	08/08/2022 14:48	Samantha L Bates	08/11/2022 14:17	Alexandra J Mattheus	2345412
	08/03/2022	08/08/2022 14:48	Samantha L Bates	08/11/2022 14:18	Alexandra J Mattheus	2345413
	08/03/2022	08/09/2022 15:01	Alexandra J Mattheus	08/15/2022 10:50	Samantha L Bates	2345419
EPA 353.2 Rev. 2.0	08/03/2022			08/05/2022 09:36	Beverly Y. Sanders	2345412
	08/03/2022			08/05/2022 09:37	Beverly Y. Sanders	2345413
	08/03/2022			08/05/2022 09:44	Beverly Y. Sanders	2345419
	08/03/2022			08/09/2022 10:41	Beverly Y. Sanders	2345416
	08/03/2022			08/09/2022 10:42	Beverly Y. Sanders	2345417
	08/03/2022			08/09/2022 10:44	Beverly Y. Sanders	2345418
EPA 365.1 Rev. 2.0	08/03/2022	08/05/2022 18:15	Adam P Silver	08/08/2022 14:50	Simonne.V. Calhoun	2345412
	08/03/2022	08/05/2022 18:15	Adam P Silver	08/08/2022 14:51	Simonne.V. Calhoun	2345413, 2345419
	08/03/2022	08/05/2022 18:15	Adam P Silver	08/08/2022 15:04	Simonne.V. Calhoun	2345416
	08/03/2022	08/05/2022 18:15	Adam P Silver	08/08/2022 15:05	Simonne.V. Calhoun	2345417
	08/03/2022	08/05/2022 18:15	Adam P Silver	08/08/2022 15:06	Simonne.V. Calhoun	2345418
EPA 365.1 Rev. 2.0 dissolved	08/03/2022			08/03/2022 14:27	Chandler E Cox	2345420
	08/03/2022			08/03/2022 14:32	Chandler E Cox	2345421
	08/03/2022			08/03/2022 14:33	Chandler E Cox	2345422
	08/03/2022			08/03/2022 14:49	Chandler E Cox	2345414
	08/03/2022			08/03/2022 14:50	Chandler E Cox	2345415
	08/03/2022			08/03/2022 14:51	Chandler E Cox	2345423
EPA 8321B	08/03/2022	08/04/2022 08:00	Umesh Chiluwal	08/04/2022 09:54	Umesh Chiluwal	2345402
	08/03/2022	08/04/2022 08:00	Umesh Chiluwal	08/04/2022 10:11	Umesh Chiluwal	2345403
	08/03/2022	08/04/2022 08:00	Umesh Chiluwal	08/04/2022 10:28	Umesh Chiluwal	2345404
	08/03/2022	08/04/2022 08:00	Umesh Chiluwal	08/04/2022 10:45	Umesh Chiluwal	2345405
	08/03/2022	08/04/2022 08:00	Umesh Chiluwal	08/04/2022 11:02	Umesh Chiluwal	2345406
	08/03/2022	08/04/2022 08:00	Umesh Chiluwal	08/04/2022 11:19	Umesh Chiluwal	2345407
	08/03/2022	08/04/2022 10:30	Manjita Shrestha	08/04/2022 12:16	Umesh Chiluwal	2345402
	08/03/2022	08/04/2022 10:30	Manjita Shrestha	08/04/2022 12:30	Umesh Chiluwal	2345403
	08/03/2022	08/04/2022 10:30	Manjita Shrestha	08/04/2022 12:44	Umesh Chiluwal	2345404
	08/03/2022	08/04/2022 10:30	Manjita Shrestha	08/04/2022 12:58	Umesh Chiluwal	2345405
	08/03/2022	08/04/2022 10:30	Manjita Shrestha	08/04/2022 13:12	Umesh Chiluwal	2345406

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	08/03/2022	08/04/2022 10:30	Manjita Shrestha	08/04/2022 13:26	Umesh Chiluwal	2345407