

Chemical Analysis Report

WQAP-2022-08-16-04

Florida Department of Environmental Protection
Central Laboratory
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DOH Accreditation E31780

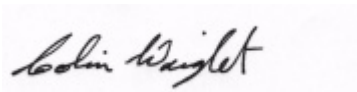
Event Description: **Algae Bloom Response-as needed**
Request ID: **RQ-2022-08-15-20**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

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Certified by: Colin Wright, Program Administrator

Date Certified: 02-SEP-2022 15:16



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: Lochloosa Lake NE in veg

Collection Date/Time: 08/15/2022 13:25

Field ID: NEHAB0083

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2349669	EPA 8321B	Anatoxin-a	0.34	I	ug/L	P418143	
		Cylindrospermopsin	0.10	U	ug/L	P417142	
		Desmethyl microcystin LR	0.25	U	ug/L	P417142	
		Microcystin HILR	0.25	U	ug/L	P417142	
		Microcystin HtyR	0.25	U	ug/L	P417142	
		Microcystin LA	0.10	U	ug/L	P417142	
		Microcystin LF	0.10	U	ug/L	P417142	
		Microcystin LR	0.25	U	ug/L	P417142	
		Microcystin LW	0.25	U	ug/L	P417142	
		Microcystin LY	0.10	U	ug/L	P417142	
		Microcystin RR	0.10	U	ug/L	P417142	
		Microcystin WR	0.50	U	ug/L	P417142	
		Neosaxitoxin	0.50	U	ug/L	P418143	
		Microcystin YR	0.25	U	ug/L	P417142	
		Saxitoxin	0.50	U	ug/L	P418143	
		Nodularin-R	0.10	U	ug/L	P417142	
2349674	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P418737	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P418447	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P418307	
	EPA 365.1 Rev. 2.0	Total-P	0.092		mg P/L	P418670	
2349679	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P418170	

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: Sampson River @ SW CR 225

Collection Date/Time: 08/15/2022 11:45

Field ID: NEHAB0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2349670	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P418143	
		Cylindrospermopsin	0.11	I	ug/L	P417142	
		Desmethyl microcystin LR	0.25	U	ug/L	P417142	
		Microcystin HILR	0.25	U	ug/L	P417142	
		Microcystin HtyR	0.25	U	ug/L	P417142	
		Microcystin LA	0.10	U	ug/L	P417142	
		Microcystin LF	0.10	U	ug/L	P417142	
		Microcystin LR	0.25	U	ug/L	P417142	
		Microcystin LW	0.25	U	ug/L	P417142	
		Microcystin LY	0.10	U	ug/L	P417142	
		Microcystin RR	0.10	U	ug/L	P417142	
		Microcystin WR	0.50	U	ug/L	P417142	
		Neosaxitoxin	0.50	U	ug/L	P418143	
		Microcystin YR	0.25	U	ug/L	P417142	
		Saxitoxin	0.50	U	ug/L	P418143	
		Nodularin-R	0.10	U	ug/L	P417142	
2349675	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P418737	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P418775	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P418307	
	EPA 365.1 Rev. 2.0	Total-P	0.051		mg P/L	P418670	
2349680	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P418170	

Sample Location: Lochloosa Lake entrance to cross creek

Collection Date/Time: 08/15/2022 14:00

Field ID: NEHAB0079

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2349671	EPA 8321B	Anatoxin-a	0.41	I	ug/L	P418143	
		Cylindrospermopsin	0.10	U	ug/L	P417142	
		Desmethyl microcystin LR	0.25	U	ug/L	P417142	
		Microcystin HILR	0.25	U	ug/L	P417142	
		Microcystin HtyR	0.25	U	ug/L	P417142	
		Microcystin LA	0.10	U	ug/L	P417142	
		Microcystin LF	0.10	U	ug/L	P417142	
		Microcystin LR	0.25	U	ug/L	P417142	
		Microcystin LW	0.25	U	ug/L	P417142	
		Microcystin LY	0.10	U	ug/L	P417142	
		Microcystin RR	0.10	U	ug/L	P417142	
		Microcystin WR	0.50	U	ug/L	P417142	
		Neosaxitoxin	0.50	U	ug/L	P418143	
		Microcystin YR	0.25	U	ug/L	P417142	
		Saxitoxin	0.50	U	ug/L	P418143	
		Nodularin-R	0.10	U	ug/L	P417142	
2349676	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P418737	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P418447	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P418307	
	EPA 365.1 Rev. 2.0	Total-P	0.087		mg P/L	P418367	
2349681	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P418170	

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: Lochloosa Lake @ Park

Collection Date/Time: 08/15/2022 14:25

Field ID: NEHAB0082

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2349672	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P418143	
		Cylindrospermopsin	0.10	U	ug/L	P417142	
		Desmethyl microcystin LR	0.25	U	ug/L	P417142	
		Microcystin HILR	0.25	U	ug/L	P417142	
		Microcystin HtyR	0.25	U	ug/L	P417142	
		Microcystin LA	0.10	U	ug/L	P417142	
		Microcystin LF	0.10	U	ug/L	P417142	
		Microcystin LR	0.25	U	ug/L	P417142	
		Microcystin LW	0.25	U	ug/L	P417142	
		Microcystin LY	0.10	U	ug/L	P417142	
		Microcystin RR	0.12	I	ug/L	P417142	
		Microcystin WR	0.50	U	ug/L	P417142	
		Neosaxitoxin	0.50	U	ug/L	P418143	
		Microcystin YR	0.25	U	ug/L	P417142	
		Saxitoxin	0.50	U	ug/L	P418143	
		Nodularin-R	0.10	U	ug/L	P417142	
2349677	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P418737	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.9		mg N/L	P418447	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P418307	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P418367	
2349682	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P418170	

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: Violet Lake @ 130 Violet Cir

Collection Date/Time: 08/15/2022 15:25

Field ID: NEHAB0087

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2349673	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P418143	
		Cylindrospermopsin	0.39	I	ug/L	P417142	
		Desmethyl microcystin LR	0.25	U	ug/L	P417142	
		Microcystin HILR	0.25	U	ug/L	P417142	
		Microcystin HtyR	0.25	U	ug/L	P417142	
		Microcystin LA	0.10	U	ug/L	P417142	
		Microcystin LF	0.10	U	ug/L	P417142	
		Microcystin LR	0.25	U	ug/L	P417142	
		Microcystin LW	0.25	U	ug/L	P417142	
		Microcystin LY	0.10	U	ug/L	P417142	
		Microcystin RR	0.10	U	ug/L	P417142	
		Microcystin WR	0.50	U	ug/L	P417142	
		Neosaxitoxin	0.50	U	ug/L	P418143	
		Microcystin YR	0.25	U	ug/L	P417142	
		Saxitoxin	0.50	U	ug/L	P418143	
		Nodularin-R	0.10	U	ug/L	P417142	
2349678	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P418738	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38		mg N/L	P418447	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P418307	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P418367	
2349683	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P418170	

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: P418737

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P418738

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P418447

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P418775

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P418307

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P418367

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P418670

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P418170

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

Reference Method: EPA 8321B
Batch ID: P417142

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: P417142

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: P418143

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: P418737

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P418738

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P418447

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P418775

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: P418307

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	95.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P418367

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	108		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P418670

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P418170

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

Reference Method: EPA 8321B
Batch ID: P417142

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	109		P	40 - 150
Desmethyl microcystin LR	95.4		P	40 - 150
Microcystin H1R	94.1		P	40 - 150
Microcystin HtyR	98.3		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P417142

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Microcystin LA	110		P	40 - 150
Microcystin LF	110		P	40 - 150
Microcystin LR	94.5		P	40 - 150
Microcystin LW	105		P	40 - 150
Microcystin LY	105		P	40 - 150
Microcystin RR	105		P	40 - 150
Microcystin WR	99.1		P	40 - 150
Microcystin YR	93.7		P	40 - 150
Nodularin-R	102		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P418143

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	121		P	40 - 150
Neosaxitoxin	144		P	40 - 150
Saxitoxin	124		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P418737

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2348907	Ammonia-N	100	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P418738

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2349678	Ammonia-N	102	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P418775

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2349404	Kjeldahl Nitrogen	95.4	97.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P418307

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2349674	NO2NO3-N	93.5	94.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P418367

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2349717	Total-P	108	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P418670

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2350245	Total-P	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P418170

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2349539	O-Phosphate-P	99.1	99.8	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P417142

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2349433	Cylindrospermopsin	92.2	91.1	P/P	40 - 150
2349433	Desmethyl microcystin LR	100	96.8	P/P	40 - 150
2349433	Microcystin HilR	90.7	90.5	P/P	40 - 150
2349433	Microcystin HtyR	91.3	91.0	P/P	40 - 150
2349433	Microcystin LA	96.6	94.4	P/P	40 - 150
2349433	Microcystin LF	94.0	92.1	P/P	40 - 150
2349433	Microcystin LR	95.6	98.6	P/P	40 - 150
2349433	Microcystin LW	89.2	84.1	P/P	40 - 150
2349433	Microcystin LY	90.2	95.2	P/P	40 - 150
2349433	Microcystin RR	95.2	93.0	P/P	40 - 150

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P417142

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2349433	Microcystin WR	89.7	84.1	P/P	40 - 150
2349433	Microcystin YR	86.2	84.4	P/P	40 - 150
2349433	Nodularin-R	95.0	96.5	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P418143

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2349433	Anatoxin-a	111	127	P/P	40 - 150
2349433	Neosaxitoxin	76.8	81.3	P/P	40 - 150
2349433	Saxitoxin	62.6	65.2	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P418737

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2348907	Ammonia-N	2.13	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P418738

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2349678	Ammonia-N	3.27	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P418447

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2349674	Kjeldahl Nitrogen	2.03	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P418775

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2349404	Kjeldahl Nitrogen	1.94	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P418307

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2349674	NO2NO3-N	1.06	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P418367

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2349717	Total-P	0.152	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P418670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2350245	Total-P	0.557	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P418170

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2349539	O-Phosphate-P	0.704	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P417142

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2349433	Cylindrospermopsin	1.15	Spike	P	0 - 30
2349433	Desmethyl microcystin LR	3.46	Spike	P	0 - 30
2349433	Microcystin HilR	0.285	Spike	P	0 - 30
2349433	Microcystin HtyR	0.335	Spike	P	0 - 30
2349433	Microcystin LA	2.29	Spike	P	0 - 30
2349433	Microcystin LF	2.06	Spike	P	0 - 30
2349433	Microcystin LR	3.09	Spike	P	0 - 30
2349433	Microcystin LW	5.81	Spike	P	0 - 30
2349433	Microcystin LY	5.45	Spike	P	0 - 30
2349433	Microcystin RR	2.37	Spike	P	0 - 30
2349433	Microcystin WR	6.51	Spike	P	0 - 30
2349433	Microcystin YR	2.08	Spike	P	0 - 30
2349433	Nodularin-R	1.59	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P418143

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2349433	Anatoxin-a	13.4	Spike	P	0 - 30
2349433	Neosaxitoxin	5.60	Spike	P	0 - 30
2349433	Saxitoxin	3.97	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2349669
Field Sample ID: NEHAB0083

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	98.9	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	105	P	30 - 160

Lab Sample ID: 2349670
Field Sample ID: NEHAB0088

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	83.2	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	104	P	30 - 160

Lab Sample ID: 2349671
Field Sample ID: NEHAB0079

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	94.3	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	103	P	30 - 160

Lab Sample ID: 2349672
Field Sample ID: NEHAB0082

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	85.0	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	61.5	P	30 - 160

Lab Sample ID: 2349673
Field Sample ID: NEHAB0087

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	89.9	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	39.0	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A114128

Included Lab Sample IDs: 2349679, 2349680, 2349681, 2349682, 2349683

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

Reference Method: EPA 8321B

Run ID: A114169

Included Lab Sample IDs: 2349669, 2349670, 2349671, 2349672, 2349673

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	105	109	P/P	60 - 160
Desmethyl microcystin LR	85.4	80.9	P/P	60 - 160
Microcystin HIR	81.3	86.5	P/P	60 - 160
Microcystin HtyR	87.7	88.3	P/P	60 - 160
Microcystin LA	98.9	95.8	P/P	50 - 160
Microcystin LF	86.8	84.3	P/P	60 - 160
Microcystin LR	80.3	81.2	P/P	60 - 160
Microcystin LW	94.2	88.8	P/P	60 - 160
Microcystin LY	104	98.1	P/P	60 - 160
Microcystin RR	96.2	98.1	P/P	60 - 160
Microcystin WR	88.0	87.4	P/P	60 - 160
Microcystin YR	75.0	74.2	P/P	60 - 160
Nodularin-R	94.2	88.1	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A114170

Included Lab Sample IDs: 2349669, 2349670, 2349671, 2349672, 2349673

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	120	120	P/P	50 - 160
Anatoxin-a	120	110	P/P	50 - 160
Neosaxitoxin	141	145	P/P	50 - 160
Neosaxitoxin	145	128	P/P	50 - 160
Saxitoxin	123	125	P/P	50 - 160
Saxitoxin	125	117	P/P	50 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A114184

Included Lab Sample IDs: 2349674, 2349675, 2349676, 2349677, 2349678

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A114298

Included Lab Sample IDs: 2349674, 2349676, 2349677, 2349678

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.5	90.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A114302

Included Lab Sample IDs: 2349676, 2349677

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A114304

Included Lab Sample IDs: 2349678

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A114376

Included Lab Sample IDs: 2349674, 2349675, 2349676, 2349677, 2349678

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.0	97.6	P/P	90 - 110
Ammonia-N	98.9	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A114401

Included Lab Sample IDs: 2349674, 2349675

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A114444

Included Lab Sample IDs: 2349675

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	100	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	96.0	100	103		2.13
	Ammonia-N	95.6	102	106		3.27
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101				2.03
	Kjeldahl Nitrogen	104	95.4	97.9		1.94
EPA 353.2 Rev. 2.0	NO2NO3-N	95.0	93.5	94.5		1.06
EPA 365.1 Rev. 2.0	Total-P	108	108	108		0.152
	Total-P	106	104	104		0.557
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.0	99.1	99.8		0.704
EPA 8321B	Anatoxin-a	121	111	127		13.4
	Cylindrospermopsin	109	92.2	91.1		1.15
	Desmethyl microcystin LR	95.4	100	96.8		3.46
	Microcystin HiIR	94.1	90.7	90.5		0.285
	Microcystin HtyR	98.3	91.3	91.0		0.335
	Microcystin LA	110	96.6	94.4		2.29
	Microcystin LF	110	94.0	92.1		2.06
	Microcystin LR	94.5	95.6	98.6		3.09
	Microcystin LW	105	89.2	84.1		5.81
	Microcystin LY	105	90.2	95.2		5.45
	Microcystin RR	105	95.2	93.0		2.37
	Microcystin WR	99.1	89.7	84.1		6.51
	Microcystin YR	93.7	86.2	84.4		2.08
	Neosaxitoxin	144	76.8	81.3		5.60
	Nodularin-R	102	95.0	96.5		1.59
	Saxitoxin	124	62.6	65.2		3.97

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2349674, 2349675, 2349676, 2349677, 2349678
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2349674, 2349675, 2349676, 2349677, 2349678
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2349674, 2349675, 2349676, 2349677, 2349678
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2349674, 2349675, 2349676, 2349677, 2349678
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2349679, 2349680, 2349681, 2349682, 2349683
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2349669, 2349670, 2349671, 2349672, 2349673
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2349669, 2349670, 2349671, 2349672, 2349673

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	08/16/2022			08/26/2022 10:26	Judith K. Clark	2349674
	08/16/2022			08/26/2022 10:28	Judith K. Clark	2349675
	08/16/2022			08/26/2022 10:29	Judith K. Clark	2349676
	08/16/2022			08/26/2022 10:30	Judith K. Clark	2349677
	08/16/2022			08/26/2022 10:48	Judith K. Clark	2349678
EPA 351.2 Rev. 2.0	08/16/2022	08/23/2022 16:31	Samantha L Bates	08/24/2022 12:29	Samantha L Bates	2349674
	08/16/2022	08/23/2022 16:31	Samantha L Bates	08/24/2022 12:34	Samantha L Bates	2349676
	08/16/2022	08/23/2022 16:31	Samantha L Bates	08/24/2022 12:35	Samantha L Bates	2349677
	08/16/2022	08/23/2022 16:31	Samantha L Bates	08/24/2022 12:37	Samantha L Bates	2349678
	08/16/2022	08/30/2022 09:19	Samantha L Bates	08/30/2022 13:44	Alexandra J Mattheus	2349675
EPA 353.2 Rev. 2.0	08/16/2022			08/18/2022 10:22	Beverly Y. Sanders	2349674
	08/16/2022			08/18/2022 10:32	Beverly Y. Sanders	2349675
	08/16/2022			08/18/2022 10:33	Beverly Y. Sanders	2349676
	08/16/2022			08/18/2022 10:34	Beverly Y. Sanders	2349677
	08/16/2022			08/18/2022 10:35	Beverly Y. Sanders	2349678
EPA 365.1 Rev. 2.0	08/16/2022	08/23/2022 18:30	Simonne.V. Calhoun	08/24/2022 10:56	James L Waggeberby	2349676
	08/16/2022	08/23/2022 18:30	Simonne.V. Calhoun	08/24/2022 10:58	James L Waggeberby	2349677
	08/16/2022	08/23/2022 18:30	Simonne.V. Calhoun	08/24/2022 15:49	James L Waggeberby	2349678
	08/16/2022	08/25/2022 15:50	Simonne.V. Calhoun	08/29/2022 09:38	James L Waggeberby	2349674
	08/16/2022	08/25/2022 15:50	Simonne.V. Calhoun	08/29/2022 09:39	James L Waggeberby	2349675
EPA 365.1 Rev. 2.0 dissolved	08/16/2022			08/16/2022 14:34	Elise M. Gillis	2349679
	08/16/2022			08/16/2022 14:35	Elise M. Gillis	2349680
	08/16/2022			08/16/2022 14:36	Elise M. Gillis	2349681, 2349682
	08/16/2022			08/16/2022 14:41	Elise M. Gillis	2349683
EPA 8321B	08/16/2022	08/17/2022 13:00	Manjita Shrestha	08/17/2022 17:49	Manjita Shrestha	2349669
	08/16/2022	08/17/2022 13:00	Manjita Shrestha	08/17/2022 18:03	Manjita Shrestha	2349670
	08/16/2022	08/17/2022 13:00	Manjita Shrestha	08/17/2022 18:31	Manjita Shrestha	2349672
	08/16/2022	08/17/2022 13:00	Manjita Shrestha	08/17/2022 18:45	Manjita Shrestha	2349673
	08/16/2022	08/17/2022 13:00	Manjita Shrestha	08/17/2022 21:04	Manjita Shrestha	2349671
	08/16/2022	08/17/2022 13:00	Umesh Chiluwal	08/17/2022 17:48	Umesh Chiluwal	2349669
	08/16/2022	08/17/2022 13:00	Umesh Chiluwal	08/17/2022 18:05	Umesh Chiluwal	2349670
	08/16/2022	08/17/2022 13:00	Umesh Chiluwal	08/17/2022 18:22	Umesh Chiluwal	2349671
	08/16/2022	08/17/2022 13:00	Umesh Chiluwal	08/17/2022 18:39	Umesh Chiluwal	2349672
	08/16/2022	08/17/2022 13:00	Umesh Chiluwal	08/17/2022 18:56	Umesh Chiluwal	2349673