

Chemical Analysis Report

WQAP-2022-09-27-02

Florida DEP Laboratory
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DOH Accreditation E31780

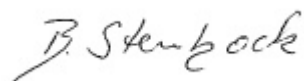
Event Description: **Algae Bloom Response NEROC-as needed**
Request ID: **RQ-2022-09-12-54**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 19-OCT-2022 14:44



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: 183rd ave Canal off Cross Creek

Collection Date/Time: 09/26/2022 12:10

Field ID: NEHAB0076

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2359365	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P420037	
		Cylindrospermopsin	0.10	U	ug/L	P420036	
		Desmethyl microcystin LR	0.25	U	ug/L	P420036	
		Microcystin HILR	0.25	U	ug/L	P420036	
		Microcystin HtyR	0.25	U	ug/L	P420036	
		Microcystin LA	0.10	U	ug/L	P420036	
		Microcystin LF	0.10	U	ug/L	P420036	
		Microcystin LR	0.25	U	ug/L	P420036	
		Microcystin LW	0.25	U	ug/L	P420036	
		Microcystin LY	0.10	U	ug/L	P420036	
		Microcystin RR	0.10	U	ug/L	P420036	
		Microcystin WR	0.50	U	ug/L	P420036	
		Neosaxitoxin	0.50	U	ug/L	P420037	
		Microcystin YR	0.25	U	ug/L	P420036	
		Saxitoxin	0.50	U	ug/L	P420037	
		Nodularin-R	0.10	U	ug/L	P420036	
2359377	EPA 350.1 Rev. 2.0	Ammonia-N	0.083		mg N/L	P420588	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P420268	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.062		mg N/L	P420442	
	EPA 365.1 Rev. 2.0	Total-P	0.090		mg P/L	P420304	
2359382	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.024		mg P/L	P420185	

Sample Location: Lochloosa Lake entrance to Cross Creek

Collection Date/Time: 09/26/2022 11:40

Field ID: NEHAB0079

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2359366	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P420037	
		Cylindrospermopsin	0.10	U	ug/L	P420036	
		Desmethyl microcystin LR	0.25	U	ug/L	P420036	
		Microcystin HILR	0.25	U	ug/L	P420036	
		Microcystin HtyR	0.25	U	ug/L	P420036	
		Microcystin LA	0.10	U	ug/L	P420036	
		Microcystin LF	0.10	U	ug/L	P420036	
		Microcystin LR	0.25	U	ug/L	P420036	
		Microcystin LW	0.25	U	ug/L	P420036	
		Microcystin LY	0.10	U	ug/L	P420036	
		Microcystin RR	0.10	U	ug/L	P420036	
		Microcystin WR	0.50	U	ug/L	P420036	
		Neosaxitoxin	0.50	U	ug/L	P420037	
		Microcystin YR	0.25	U	ug/L	P420036	
		Saxitoxin	0.50	U	ug/L	P420037	
		Nodularin-R	0.10	U	ug/L	P420036	
2359378	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P420588	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P420268	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P420442	
	EPA 365.1 Rev. 2.0	Total-P	0.040		mg P/L	P420304	
2359383	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P420185	

Sample Location: Lochloosa Lake @ Park

Collection Date/Time: 09/26/2022 12:45

Field ID: NEHAB0082

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2359367	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P420037	
		Cylindrospermopsin	0.10	U	ug/L	P420036	
		Desmethyl microcystin LR	0.25	U	ug/L	P420036	
		Microcystin HILR	0.25	U	ug/L	P420036	
		Microcystin HtyR	0.25	U	ug/L	P420036	
		Microcystin LA	0.10	U	ug/L	P420036	
		Microcystin LF	0.10	U	ug/L	P420036	
		Microcystin LR	0.25	U	ug/L	P420036	
		Microcystin LW	0.25	U	ug/L	P420036	
		Microcystin LY	0.10	U	ug/L	P420036	
		Microcystin RR	0.10	U	ug/L	P420036	
		Microcystin WR	0.50	U	ug/L	P420036	
		Neosaxitoxin	0.50	U	ug/L	P420037	
		Microcystin YR	0.25	U	ug/L	P420036	
		Saxitoxin	0.50	U	ug/L	P420037	
		Nodularin-R	0.10	U	ug/L	P420036	
2359379	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P420588	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P420268	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P420442	
	EPA 365.1 Rev. 2.0	Total-P	0.047		mg P/L	P420304	
2359384	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P420185	

Sample Location: Lochloosa Lake NE in Veg

Collection Date/Time: 09/26/2022 11:15

Field ID: NEHAB0083

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2359368	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P420037	
		Cylindrospermopsin	0.10	U	ug/L	P420036	
		Desmethyl microcystin LR	0.25	U	ug/L	P420036	
		Microcystin HILR	0.25	U	ug/L	P420036	
		Microcystin HtyR	0.25	U	ug/L	P420036	
		Microcystin LA	0.10	U	ug/L	P420036	
		Microcystin LF	0.10	U	ug/L	P420036	
		Microcystin LR	0.25	U	ug/L	P420036	
		Microcystin LW	0.25	U	ug/L	P420036	
		Microcystin LY	0.10	U	ug/L	P420036	
		Microcystin RR	0.10	U	ug/L	P420036	
		Microcystin WR	0.50	U	ug/L	P420036	
		Neosaxitoxin	0.50	U	ug/L	P420037	
		Microcystin YR	0.25	U	ug/L	P420036	
		Saxitoxin	0.50	U	ug/L	P420037	
		Nodularin-R	0.10	U	ug/L	P420036	
2359380	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P420588	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P420270	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P420443	
	EPA 365.1 Rev. 2.0	Total-P	0.054		mg P/L	P420304	
2359385	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P420185	

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: 09/26/2022 14:20

Field ID: NEHAB0087

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2359369	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P420037	
		Cylindrospermopsin	0.32	I	ug/L	P420036	
		Desmethyl microcystin LR	0.25	U	ug/L	P420036	
		Microcystin HILR	0.25	U	ug/L	P420036	
		Microcystin HtyR	0.25	U	ug/L	P420036	
		Microcystin LA	0.10	U	ug/L	P420036	
		Microcystin LF	0.10	U	ug/L	P420036	
		Microcystin LR	0.25	U	ug/L	P420036	
		Microcystin LW	0.25	U	ug/L	P420036	
		Microcystin LY	0.10	U	ug/L	P420036	
		Microcystin RR	0.10	U	ug/L	P420036	
		Microcystin WR	0.50	U	ug/L	P420036	
		Neosaxitoxin	0.50	U	ug/L	P420037	
		Microcystin YR	0.25	U	ug/L	P420036	
		Saxitoxin	0.50	U	ug/L	P420037	
		Nodularin-R	0.10	U	ug/L	P420036	
2359381	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P420588	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P420270	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P420443	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P420305	
2359386	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P420185	

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: P420588

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420268

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420270

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420442

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420443

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420304

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420305

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P420185

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

Reference Method: EPA 8321B
Batch ID: P420036

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: P420036

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: P420037

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: P420588

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420268

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420270

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420442

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420443

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	103		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420304

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420305

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P420185

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	103		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P420036

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	86.8		P	40 - 150
Desmethyl microcystin LR	83.3		P	40 - 150
Microcystin HILR	85.7		P	40 - 150
Microcystin HtyR	91.6		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P420036

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Microcystin LA	86.5		P	40 - 150
Microcystin LF	94.9		P	40 - 150
Microcystin LR	82.7		P	40 - 150
Microcystin LW	96.1		P	40 - 150
Microcystin LY	98.4		P	40 - 150
Microcystin RR	93.1		P	40 - 150
Microcystin WR	86.6		P	40 - 150
Microcystin YR	88.5		P	40 - 150
Nodularin-R	88.1		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P420037

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	114		P	40 - 150
Neosaxitoxin	142		P	40 - 150
Saxitoxin	106		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420588

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359381	Ammonia-N	98.6	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420268

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359306	Kjeldahl Nitrogen	107	110	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420442

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359306	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420443

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359381	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420304

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359378	Total-P	108	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420305

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359514	Total-P	106	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P420185

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359386	O-Phosphate-P	104	102	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P420036

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359365	Cylindrospermopsin	99.3	96.7	P/P	40 - 150
2359365	Desmethyl microcystin LR	115	105	P/P	40 - 150
2359365	Microcystin HILR	116	109	P/P	40 - 150
2359365	Microcystin HtyR	114	111	P/P	40 - 150
2359365	Microcystin LA	99.9	96.4	P/P	40 - 150
2359365	Microcystin LF	123	103	P/P	40 - 150
2359365	Microcystin LR	118	112	P/P	40 - 150
2359365	Microcystin LW	108	102	P/P	40 - 150
2359365	Microcystin LY	106	107	P/P	40 - 150
2359365	Microcystin RR	110	105	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P420036

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359365	Microcystin WR	104	104	P/P	40 - 150
2359365	Microcystin YR	124	117	P/P	40 - 150
2359365	Nodularin-R	124	119	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P420037

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359365	Anatoxin-a	111	111	P/P	40 - 150
2359365	Neosaxitoxin	83.8	87.3	P/P	40 - 150
2359365	Saxitoxin	66.0	69.7	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420588

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359381	Ammonia-N	2.32	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420268

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359306	Kjeldahl Nitrogen	2.85	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420270

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359582	Kjeldahl Nitrogen	2.35	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420442

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359306	NO2NO3-N	0.279	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420443

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359381	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420304

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359378	Total-P	0.384	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420305

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359514	Total-P	0.819	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P420185

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359386	O-Phosphate-P	1.46	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B

Batch ID: P420036

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359365	Cylindrospermopsin	2.63	Spike	P	0 - 30
2359365	Desmethyl microcystin LR	9.03	Spike	P	0 - 30
2359365	Microcystin HilR	6.33	Spike	P	0 - 30
2359365	Microcystin HtyR	2.62	Spike	P	0 - 30
2359365	Microcystin LA	3.59	Spike	P	0 - 30
2359365	Microcystin LF	17.7	Spike	P	0 - 30
2359365	Microcystin LR	5.44	Spike	P	0 - 30
2359365	Microcystin LW	6.11	Spike	P	0 - 30
2359365	Microcystin LY	1.31	Spike	P	0 - 30
2359365	Microcystin RR	4.97	Spike	P	0 - 30
2359365	Microcystin WR	0.0961	Spike	P	0 - 30
2359365	Microcystin YR	5.72	Spike	P	0 - 30
2359365	Nodularin-R	3.97	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P420037

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359365	Anatoxin-a	0.571	Spike	P	0 - 30
2359365	Neosaxitoxin	4.11	Spike	P	0 - 30
2359365	Saxitoxin	5.51	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2359365
Field Sample ID: NEHAB0076

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	76.0	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	105	P	30 - 160

Lab Sample ID: 2359366
Field Sample ID: NEHAB0079

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	91.1	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	92.9	P	30 - 160

Lab Sample ID: 2359367
Field Sample ID: NEHAB0082

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	86.8	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	107	P	30 - 160

Lab Sample ID: 2359368
Field Sample ID: NEHAB0083

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	90.7	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	100	P	30 - 160

Lab Sample ID: 2359369
Field Sample ID: NEHAB0087

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	63.5	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	129	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A114966

Included Lab Sample IDs: 2359382, 2359383, 2359384, 2359385, 2359386

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	102	P/P	90 - 110
O-Phosphate-P	102	95.0	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A115002

Included Lab Sample IDs: 2359365, 2359366, 2359367, 2359368, 2359369

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	118	112	P/P	50 - 160
Neosaxitoxin	148	141	P/P	50 - 160
Saxitoxin	113	106	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A115008

Included Lab Sample IDs: 2359365, 2359366, 2359367, 2359368, 2359369

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	96.4	94.4	P/P	50 - 160
Desmethyl microcystin LR	92.3	88.6	P/P	50 - 160
Microcystin HIR	98.7	91.6	P/P	50 - 160
Microcystin HtyR	103	97.4	P/P	50 - 160
Microcystin LA	100	86.5	P/P	50 - 160
Microcystin LF	104	95.4	P/P	50 - 160
Microcystin LR	91.6	84.3	P/P	50 - 160
Microcystin LW	117	102	P/P	50 - 160
Microcystin LY	114	94.6	P/P	50 - 160
Microcystin RR	101	95.1	P/P	50 - 160
Microcystin WR	94.6	92.4	P/P	50 - 160
Microcystin YR	94.5	87.6	P/P	50 - 160
Nodularin-R	101	96.3	P/P	50 - 160

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A115043

Included Lab Sample IDs: 2359377, 2359380

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A115048

Included Lab Sample IDs: 2359378, 2359379, 2359381

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	102	P/P	90 - 110
Total-P	98.8	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A115111

Included Lab Sample IDs: 2359377, 2359378, 2359379, 2359380, 2359381

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A115111

Included Lab Sample IDs: 2359377, 2359378, 2359379, 2359380, 2359381

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	103	P/P	90 - 110
NO2NO3-N	105	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A115115

Included Lab Sample IDs: 2359377, 2359378, 2359379, 2359380, 2359381

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	104	P/P	90 - 110
Kjeldahl Nitrogen	108	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A115158

Included Lab Sample IDs: 2359377, 2359378, 2359379, 2359380, 2359381

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

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 350.1 Rev. 2.0	Ammonia-N	98.0	98.6	101		2.32
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	107	110		2.85
	Kjeldahl Nitrogen	110				2.35
EPA 353.2 Rev. 2.0	NO2NO3-N	104	102	102		0.279
	NO2NO3-N	103	104	104		0.0
EPA 365.1 Rev. 2.0	Total-P	105	108	108		0.384
	Total-P	103	106	107		0.819
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	104	102		1.46
EPA 8321B	Anatoxin-a	114	111	111		0.571
	Cylindrospermopsin	86.8	99.3	96.7		2.63
	Desmethyl microcystin LR	83.3	115	105		9.03
	Microcystin HiLR	85.7	116	109		6.33
	Microcystin HtyR	91.6	114	111		2.62
	Microcystin LA	86.5	96.4	99.9		3.59
	Microcystin LF	94.9	103	123		17.7
	Microcystin LR	82.7	118	112		5.44
	Microcystin LW	96.1	102	108		6.11
	Microcystin LY	98.4	107	106		1.31
	Microcystin RR	93.1	110	105		4.97
	Microcystin WR	86.6	104	104		0.0961
	Microcystin YR	88.5	124	117		5.72
	Neosaxitoxin	142	83.8	87.3		4.11
	Nodularin-R	88.1	124	119		3.97
	Saxitoxin	106	66.0	69.7		5.51

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2359377, 2359378, 2359379, 2359380, 2359381
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2359377, 2359378, 2359379, 2359380, 2359381
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2359377, 2359378, 2359379, 2359380, 2359381
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2359377, 2359378, 2359379, 2359380, 2359381
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2359382, 2359383, 2359384, 2359385, 2359386
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2359365, 2359366, 2359367, 2359368, 2359369
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2359365, 2359366, 2359367, 2359368, 2359369

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	09/27/2022			10/06/2022 12:04	Ping Hua	2359381
	09/27/2022			10/06/2022 12:09	Ping Hua	2359377
	09/27/2022			10/06/2022 12:11	Ping Hua	2359378
	09/27/2022			10/06/2022 12:12	Ping Hua	2359379
	09/27/2022			10/06/2022 12:13	Ping Hua	2359380
EPA 351.2 Rev. 2.0	09/27/2022	09/29/2022 11:15	Simonne.V. Calhoun	10/04/2022 11:40	Samantha L Bates	2359377
	09/27/2022	09/29/2022 11:15	Simonne.V. Calhoun	10/04/2022 11:41	Samantha L Bates	2359378
	09/27/2022	09/29/2022 11:15	Simonne.V. Calhoun	10/04/2022 11:43	Samantha L Bates	2359379
	09/27/2022	09/29/2022 11:15	Simonne.V. Calhoun	10/04/2022 12:17	Samantha L Bates	2359380
	09/27/2022	09/29/2022 11:15	Simonne.V. Calhoun	10/04/2022 12:19	Samantha L Bates	2359381
EPA 353.2 Rev. 2.0	09/27/2022			10/04/2022 10:47	Beverly Y. Sanders	2359377
	09/27/2022			10/04/2022 10:48	Beverly Y. Sanders	2359378
	09/27/2022			10/04/2022 10:49	Beverly Y. Sanders	2359379
	09/27/2022			10/04/2022 10:56	Beverly Y. Sanders	2359381
	09/27/2022			10/04/2022 11:02	Beverly Y. Sanders	2359380
EPA 365.1 Rev. 2.0	09/27/2022	09/29/2022 14:45	Adam P Silver	09/30/2022 10:20	Simonne.V. Calhoun	2359377
	09/27/2022	09/29/2022 14:45	Adam P Silver	09/30/2022 10:22	Simonne.V. Calhoun	2359380
	09/27/2022	09/29/2022 14:45	Adam P Silver	09/30/2022 12:09	James L Waggeberby	2359378
	09/27/2022	09/29/2022 14:45	Adam P Silver	09/30/2022 12:10	James L Waggeberby	2359379
	09/27/2022	09/29/2022 14:45	Adam P Silver	09/30/2022 12:18	James L Waggeberby	2359381
EPA 365.1 Rev. 2.0 dissolved	09/27/2022			09/27/2022 15:31	Elise M. Gillis	2359386
	09/27/2022			09/27/2022 15:35	Elise M. Gillis	2359382
	09/27/2022			09/27/2022 15:36	Elise M. Gillis	2359383
	09/27/2022			09/27/2022 15:37	Elise M. Gillis	2359384
	09/27/2022			09/27/2022 15:43	Elise M. Gillis	2359385
EPA 8321B	09/27/2022	09/28/2022 09:00	Manjita Shrestha	09/28/2022 13:41	Manjita Shrestha	2359365
	09/27/2022	09/28/2022 09:00	Manjita Shrestha	09/28/2022 13:58	Manjita Shrestha	2359366
	09/27/2022	09/28/2022 09:00	Manjita Shrestha	09/28/2022 14:15	Manjita Shrestha	2359367
	09/27/2022	09/28/2022 09:00	Manjita Shrestha	09/28/2022 14:32	Manjita Shrestha	2359368
	09/27/2022	09/28/2022 09:00	Manjita Shrestha	09/28/2022 14:49	Manjita Shrestha	2359369
	09/27/2022	09/28/2022 09:00	Manjita Shrestha	09/28/2022 23:00	Manjita Shrestha	2359365
	09/27/2022	09/28/2022 09:00	Manjita Shrestha	09/28/2022 23:14	Manjita Shrestha	2359366
	09/27/2022	09/28/2022 09:00	Manjita Shrestha	09/28/2022 23:28	Manjita Shrestha	2359367
	09/27/2022	09/28/2022 09:00	Manjita Shrestha	09/28/2022 23:42	Manjita Shrestha	2359368
	09/27/2022	09/28/2022 09:00	Manjita Shrestha	09/28/2022 23:56	Manjita Shrestha	2359369