

Chemical Analysis Report

SO-DIST-2023-06-23-01

Florida DEP Laboratory
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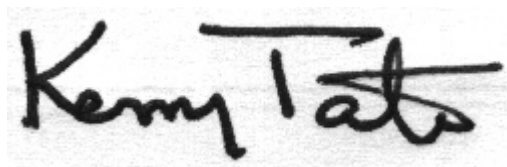
Event Description: **Algal Bloom Response -SOROC**
Request ID: **RQ-2023-06-19-28**
Customer: **SO-DIST**
Project ID: **BLOOM-RESP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 10-JUL-2023 11:25

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line extending from the end of the 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: Peace River - Crews Park Boat Ramp

Collection Date/Time: 06/22/2023 09:30

Field ID: HAB-SD-062223-0930

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2419580	DEP SOP: NU-094-1	Color (true)	99		PCU	P431728	
2419583	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P431807	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P431803	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.36		mg N/L	P432000	
	EPA 365.1 Rev. 2.0	Total-P	1.2		mg P/L	P431782	
2419586	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.98		mg P/L	P431727	
2419590	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P431691	
		Cylindrospermopsin	0.10	U	ug/L	P431690	
		Desmethyl microcystin LR	0.25	U	ug/L	P431690	
		Microcystin HILR	0.25	U	ug/L	P431690	
		Microcystin HtyR	0.25	U	ug/L	P431690	
		Microcystin LA	0.10	U	ug/L	P431690	
		Microcystin LF	0.10	U	ug/L	P431690	
		Microcystin LR	0.25	U	ug/L	P431690	
		Microcystin LW	0.25	U	ug/L	P431690	
		Microcystin LY	0.10	U	ug/L	P431690	
		Microcystin RR	0.10	U	ug/L	P431690	
		Microcystin WR	0.50	U	ug/L	P431690	
		Neosaxitoxin	0.50	U	ug/L	P431691	
		Microcystin YR	0.25	U	ug/L	P431690	
		Saxitoxin	0.50	U	ug/L	P431691	
		Nodularin-R	0.10	U	ug/L	P431690	

Ref. Method and Comment:

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Peace River - Brownville Park

Collection Date/Time: 06/22/2023 10:10

Field ID: HAB-SD-062223-1010

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2419581	DEP SOP: NU-094-1	Color (true)	190		PCU	P431728	
2419584	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P431807	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P431860	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.32		mg N/L	P432000	
	EPA 365.1 Rev. 2.0	Total-P	0.99		mg P/L	P431782	
2419587	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.89		mg P/L	P431727	
2419591	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P431691	
		Cylindrospermopsin	0.10	U	ug/L	P431690	
		Desmethyl microcystin LR	0.25	U	ug/L	P431690	
		Microcystin HILR	0.25	U	ug/L	P431690	
		Microcystin HtyR	0.25	U	ug/L	P431690	
		Microcystin LA	0.10	U	ug/L	P431690	
		Microcystin LF	0.10	U	ug/L	P431690	
		Microcystin LR	0.25	U	ug/L	P431690	
		Microcystin LW	0.25	U	ug/L	P431690	
		Microcystin LY	0.10	U	ug/L	P431690	
		Microcystin RR	0.10	U	ug/L	P431690	
		Microcystin WR	0.50	U	ug/L	P431690	
		Neosaxitoxin	0.50	U	ug/L	P431691	
		Microcystin YR	0.25	U	ug/L	P431690	
		Saxitoxin	0.50	U	ug/L	P431691	
		Nodularin-R	0.10	U	ug/L	P431690	

Ref. Method and Comment:

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Peace River - Veterans Park Ramp

Collection Date/Time: 06/22/2023 10:40

Field ID: HAB-SD-062223-1040

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2419582	DEP SOP: NU-094-1	Color (true)	180		PCU	P431728	
2419585	EPA 350.1 Rev. 2.0	Ammonia-N	0.13		mg N/L	P431807	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P431860	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.48		mg N/L	P432000	
	EPA 365.1 Rev. 2.0	Total-P	0.91		mg P/L	P431782	
2419588	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.79		mg P/L	P431727	
2419592	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P431691	
		Cylindrospermopsin	0.10	U	ug/L	P431690	
		Desmethyl microcystin LR	0.25	U	ug/L	P431690	
		Microcystin H1LR	0.25	U	ug/L	P431690	
		Microcystin HtyR	0.25	U	ug/L	P431690	
		Microcystin LA	0.10	U	ug/L	P431690	
		Microcystin LF	0.10	U	ug/L	P431690	
		Microcystin LR	0.25	U	ug/L	P431690	
		Microcystin LW	0.25	U	ug/L	P431690	
		Microcystin LY	0.10	U	ug/L	P431690	
		Microcystin RR	0.10	U	ug/L	P431690	
		Microcystin WR	0.50	U	ug/L	P431690	
		Neosaxitoxin	0.50	U	ug/L	P431691	
		Microcystin YR	0.25	U	ug/L	P431690	
		Saxitoxin	0.50	U	ug/L	P431691	
		Nodularin-R	0.10	U	ug/L	P431690	

Ref. Method and Comment:

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P431728

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P431807

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P431803

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P431860

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P432000

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P431782

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P431727

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

Reference Method: EPA 8321B
Batch ID: P431690

Component	Result	Code	Units
Cylindrospermopsin	0.10	U	ug/L
Desmethyl microcystin LR	0.25	U	ug/L
Microcystin HIR	0.25	U	ug/L
Microcystin HtyR	0.25	U	ug/L
Microcystin LA	0.10	U	ug/L
Microcystin LF	0.10	U	ug/L
Microcystin LR	0.25	U	ug/L
Microcystin LW	0.25	U	ug/L
Microcystin LY	0.10	U	ug/L
Microcystin RR	0.10	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P431690

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

Reference Method: EPA 8321B
Batch ID: P431691

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: DEP SOP: NU-094-1
Batch ID: P431728

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P431807

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: P431803

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P431860

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P432000

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P431782

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P431727

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

Reference Method: EPA 8321B
Batch ID: P431690

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	91.6		P	40 - 160
Desmethyl microcystin LR	94.3		P	40 - 160
Microcystin HILR	93.8		P	40 - 160
Microcystin HtyR	89.4		P	40 - 160
Microcystin LA	90.5		P	40 - 160
Microcystin LF	87.3		P	40 - 160
Microcystin LR	88.8		P	40 - 160
Microcystin LW	76.8		P	40 - 160
Microcystin LY	85.6		P	40 - 160
Microcystin RR	89.4		P	40 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P431690

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Microcystin WR	92.0		P	40 - 160
Microcystin YR	84.8		P	40 - 160
Nodularin-R	91.1		P	40 - 160

Reference Method: EPA 8321B
Batch ID: P431691

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	73.9		P	40 - 150
Neosaxitoxin	62.8		P	40 - 150
Saxitoxin	60.1		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P431807

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2419546	Ammonia-N	93.0	95.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P431803

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2419564	Kjeldahl Nitrogen	107	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P431860

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2419585	Kjeldahl Nitrogen	105	99.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P432000

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2419583	NO2NO3-N	94.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P431727

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2419547	O-Phosphate-P	98.1	98.2	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P431690

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2419542	Cylindrospermopsin	96.7	94.4	P/P	40 - 160
2419542	Desmethyl microcystin LR	126	127	P/P	40 - 160
2419542	Microcystin HiLR	107	113	P/P	40 - 160
2419542	Microcystin HtyR	107	103	P/P	40 - 160
2419542	Microcystin LA	91.2	89.9	P/P	40 - 160
2419542	Microcystin LF	96.2	94.9	P/P	40 - 160
2419542	Microcystin LR	115	113	P/P	40 - 160
2419542	Microcystin LW	81.9	80.0	P/P	40 - 160
2419542	Microcystin LY	85.4	80.2	P/P	40 - 160
2419542	Microcystin RR	92.2	92.3	P/P	40 - 160
2419542	Microcystin WR	104	103	P/P	40 - 160
2419542	Microcystin YR	99.3	97.4	P/P	40 - 160
2419542	Nodularin-R	101	100	P/P	40 - 160

Reference Method: EPA 8321B
Batch ID: P431691

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2419542	Anatoxin-a	70.8	71.0	P/P	40 - 150
2419542	Neosaxitoxin	61.1	62.1	P/P	40 - 150
2419542	Saxitoxin	73.9	74.8	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P431728

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2419563	Color (true)	0.868	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P431807

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2419546	Ammonia-N	2.72	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P431803

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2419564	Kjeldahl Nitrogen	0.870	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P431860

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2419585	Kjeldahl Nitrogen	3.29	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P432000

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2419583	NO2NO3-N	0.179	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P431782

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2419678	Total-P	1.94	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P431727

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2419547	O-Phosphate-P	0.102	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P431690

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2419542	Cylindrospermopsin	2.39	Spike	P	0 - 30
2419542	Desmethyl microcystin LR	0.489	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P431690

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2419542	Microcystin HllR	5.44	Spike	P	0 - 30
2419542	Microcystin HtyR	3.79	Spike	P	0 - 30
2419542	Microcystin LA	1.36	Spike	P	0 - 30
2419542	Microcystin LF	1.33	Spike	P	0 - 30
2419542	Microcystin LR	1.53	Spike	P	0 - 30
2419542	Microcystin LW	2.39	Spike	P	0 - 30
2419542	Microcystin LY	6.19	Spike	P	0 - 30
2419542	Microcystin RR	0.104	Spike	P	0 - 30
2419542	Microcystin WR	0.980	Spike	P	0 - 30
2419542	Microcystin YR	1.97	Spike	P	0 - 30
2419542	Nodularin-R	0.406	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P431691

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2419542	Anatoxin-a	0.252	Spike	P	0 - 30
2419542	Neosaxitoxin	1.47	Spike	P	0 - 30
2419542	Saxitoxin	1.14	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2419590
Field Sample ID: HAB-SD-062223-0930

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	79.4	P	30 - 160
EPA 8321B	Saxitoxin-15N7	75.2	P	30 - 160

Lab Sample ID: 2419591
Field Sample ID: HAB-SD-062223-1010

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	76.4	P	30 - 160
EPA 8321B	Saxitoxin-15N7	67.6	P	30 - 160

Lab Sample ID: 2419592
Field Sample ID: HAB-SD-062223-1040

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	60.2	P	30 - 160
EPA 8321B	Saxitoxin-15N7	64.5	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A119980

Included Lab Sample IDs: 2419590, 2419591, 2419592

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	79.6	82.1	P/P	50 - 160
Neosaxitoxin	65.3	74.8	P/P	50 - 160
Saxitoxin	67.5	79.7	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A119981

Included Lab Sample IDs: 2419590, 2419591, 2419592

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	105	99.5	P/P	60 - 160
Cylindrospermopsin	99.5	98.6	P/P	60 - 160
Desmethyl microcystin LR	97.0	100	P/P	50 - 160
Desmethyl microcystin LR	97.6	97.0	P/P	50 - 160
Microcystin HiiR	104	88.8	P/P	60 - 160
Microcystin HiiR	88.8	97.1	P/P	60 - 160
Microcystin HtyR	88.9	85.7	P/P	60 - 160
Microcystin HtyR	98.2	88.9	P/P	60 - 160
Microcystin LA	90.6	94.5	P/P	50 - 160
Microcystin LA	98.6	90.6	P/P	50 - 160
Microcystin LF	70.1	75.7	P/P	60 - 160
Microcystin LF	87.9	70.1	P/P	60 - 160
Microcystin LR	107	88.2	P/P	60 - 160
Microcystin LR	88.2	84.8	P/P	60 - 160
Microcystin LW	74.8	69.1	P/P	60 - 160
Microcystin LW	87.6	74.8	P/P	60 - 160
Microcystin LY	80.0	77.4	P/P	60 - 160
Microcystin LY	98.9	80.0	P/P	60 - 160
Microcystin RR	101	96.2	P/P	60 - 160
Microcystin RR	96.2	97.5	P/P	60 - 160
Microcystin WR	89.8	94.2	P/P	60 - 160
Microcystin WR	98.4	89.8	P/P	60 - 160
Microcystin YR	77.5	80.4	P/P	60 - 160
Microcystin YR	89.3	77.5	P/P	60 - 160
Nodularin-R	100	89.1	P/P	60 - 160
Nodularin-R	89.1	90.2	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A120001

Included Lab Sample IDs: 2419586, 2419587, 2419588

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	99.1	P/P	90 - 110

Reference Method: DEP SOP: NU-094-1

Run ID: A120002

Included Lab Sample IDs: 2419580

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A120003

Included Lab Sample IDs: 2419581, 2419582

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A120041

Included Lab Sample IDs: 2419583, 2419584, 2419585

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.3	99.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A120073

Included Lab Sample IDs: 2419583

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.7	95.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A120083

Included Lab Sample IDs: 2419583, 2419584, 2419585

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A120095

Included Lab Sample IDs: 2419583, 2419584, 2419585

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A120096

Included Lab Sample IDs: 2419584, 2419585

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.6	97.6	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 SMP	MS
					LCS	
DEP SOP: NU-094-1	Color (true)	101			0.868	
EPA 350.1 Rev. 2.0	Ammonia-N	95.6	93.0	95.8		2.72
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	107	106		0.870
	Kjeldahl Nitrogen	105	105	99.4		3.29
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	94.2			0.179
EPA 365.1 Rev. 2.0	Total-P	96.7				1.94
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	105	98.1	98.2		0.102
EPA 8321B	Anatoxin-a	73.9	70.8	71.0		0.252
	Cylindrospermopsin	91.6	96.7	94.4		2.39
	Desmethyl microcystin LR	94.3	126	127		0.489
	Microcystin HiLR	93.8	107	113		5.44
	Microcystin HtyR	89.4	107	103		3.79
	Microcystin LA	90.5	91.2	89.9		1.36
	Microcystin LF	87.3	96.2	94.9		1.33
	Microcystin LR	88.8	115	113		1.53
	Microcystin LW	76.8	81.9	80.0		2.39
	Microcystin LY	85.6	85.4	80.2		6.19
	Microcystin RR	89.4	92.2	92.3		0.104
	Microcystin WR	92.0	104	103		0.980
	Microcystin YR	84.8	99.3	97.4		1.97
	Neosaxitoxin	62.8	61.1	62.1		1.47
	Nodularin-R	91.1	101	100		0.406
	Saxitoxin	60.1	73.9	74.8		1.14

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2419580, 2419581, 2419582
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2419583, 2419584, 2419585
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2419583, 2419584, 2419585
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2419583, 2419584, 2419585
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2419583, 2419584, 2419585
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2419586, 2419587, 2419588
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2419590, 2419591, 2419592
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2419590, 2419591, 2419592

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	06/23/2023			06/23/2023 13:35	Samantha L Bates	2419580
	06/23/2023			06/23/2023 13:54	Samantha L Bates	2419581
	06/23/2023			06/23/2023 13:55	Samantha L Bates	2419582
EPA 350.1 Rev. 2.0	06/23/2023			06/26/2023 13:37	Khloe J Berg	2419583
	06/23/2023			06/26/2023 13:39	Khloe J Berg	2419584
	06/23/2023			06/26/2023 13:40	Khloe J Berg	2419585
EPA 351.2 Rev. 2.0	06/23/2023	06/27/2023 10:05	Dana G. Hughes	06/28/2023 14:48	Ping Hua	2419583
	06/23/2023	06/28/2023 11:03	Dana G. Hughes	06/29/2023 11:48	Ping Hua	2419584
	06/23/2023	06/28/2023 11:03	Dana G. Hughes	06/29/2023 11:50	Ping Hua	2419585
EPA 353.2 Rev. 2.0	06/23/2023			06/29/2023 11:56	Beverly Y. Sanders	2419583
	06/23/2023			06/29/2023 12:08	Beverly Y. Sanders	2419584
	06/23/2023			06/29/2023 12:09	Beverly Y. Sanders	2419585
EPA 365.1 Rev. 2.0	06/23/2023	06/27/2023 13:15	Simonne.V. Calhoun	06/28/2023 16:25	Simonne.V. Calhoun	2419583
	06/23/2023	06/27/2023 13:15	Simonne.V. Calhoun	06/28/2023 16:26	Simonne.V. Calhoun	2419584
	06/23/2023	06/27/2023 13:15	Simonne.V. Calhoun	06/28/2023 16:27	Simonne.V. Calhoun	2419585
EPA 365.1 Rev. 2.0 dissolved	06/23/2023			06/23/2023 14:06	Elise M. Gillis	2419586, 2419587
	06/23/2023			06/23/2023 14:07	Elise M. Gillis	2419588
EPA 8321B	06/23/2023	06/23/2023 12:00	Touraj Touran	06/23/2023 15:22	Touraj Touran	2419590
	06/23/2023	06/23/2023 12:00	Touraj Touran	06/23/2023 15:39	Touraj Touran	2419591
	06/23/2023	06/23/2023 12:00	Touraj Touran	06/23/2023 16:12	Touraj Touran	2419592
	06/23/2023	06/23/2023 12:00	Touraj Touran	06/23/2023 16:15	Touraj Touran	2419590
	06/23/2023	06/23/2023 12:00	Touraj Touran	06/23/2023 16:29	Touraj Touran	2419591
	06/23/2023	06/23/2023 12:00	Touraj Touran	06/23/2023 16:43	Touraj Touran	2419592