

Chemical Analysis Report

WQAP-2023-07-25-01

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Algae Bloom Response NEROC-as needed**
Request ID: **RQ-2023-05-22-64**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

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Date Certified: 08-AUG-2023 10:10



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: Doctors Lake - Pace Island dock

Collection Date/Time: 07/24/2023 11:00

Field ID: NEHAB0055

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2426271	DEP SOP: NU-094-1	Color (true)	98		PCU	P432972	
2426273	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P433178	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.2		mg N/L	P433268	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.033		mg N/L	P433021	
	EPA 365.1 Rev. 2.0	Total-P	0.18		mg P/L	P433148	
2426275	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.053		mg P/L	P432978	
2426277	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P432956	
		Cylindrospermopsin	0.10	U	ug/L	P432955	
		Desmethyl microcystin LR	0.25	U	ug/L	P432955	
		Microcystin H1LR	0.25	U	ug/L	P432955	
		Microcystin HtyR	0.25	U	ug/L	P432955	
		Microcystin LA	0.10	U	ug/L	P432955	
		Microcystin LF	0.10	U	ug/L	P432955	
		Microcystin LR	0.47	I	ug/L	P432955	
		Microcystin LW	0.25	U	ug/L	P432955	
		Microcystin LY	0.10	U	ug/L	P432955	
		Microcystin RR	0.10	U	ug/L	P432955	
		Microcystin WR	0.50	U	ug/L	P432955	
		Neosaxitoxin	0.50	U	ug/L	P432956	MS
		Microcystin YR	0.25	U	ug/L	P432955	
		Saxitoxin	0.50	U	ug/L	P432956	
		Nodularin-R	0.10	U	ug/L	P432955	

Sample Location: Doctors Lake - 1915 Salt Myrtle Lane

Collection Date/Time: 07/24/2023 11:55

Field ID: NEHAB0108

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2426272	DEP SOP: NU-094-1	Color (true)	280		PCU	P432972	
2426274	EPA 350.1 Rev. 2.0	Ammonia-N	0.39		mg N/L	P433106	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	10		mg N/L	P433266	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.017		mg N/L	P433153	
	EPA 365.1 Rev. 2.0	Total-P	0.67		mg P/L	P433146	
2426276	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13		mg P/L	P432977	
2426278	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P432956	
		Cylindrospermopsin	0.10	U	ug/L	P432955	
		Desmethyl microcystin LR	0.25	U	ug/L	P432955	
		Microcystin HiLR	0.25	U	ug/L	P432955	
		Microcystin HtyR	0.25	U	ug/L	P432955	
		Microcystin LA	0.10	U	ug/L	P432955	
		Microcystin LF	0.10	U	ug/L	P432955	
		Microcystin LR	2.2		ug/L	P432955	
		Microcystin LW	0.25	U	ug/L	P432955	
		Microcystin LY	0.10	U	ug/L	P432955	
		Microcystin RR	0.10	U	ug/L	P432955	
		Microcystin WR	0.50	U	ug/L	P432955	
		Neosaxitoxin	0.50	U	ug/L	P432956	MS
		Microcystin YR	0.25	U	ug/L	P432955	
		Saxitoxin	0.50	U	ug/L	P432956	
		Nodularin-R	0.10	U	ug/L	P432955	

Quality Assurance Report

Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P432972

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433106

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433178

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433266

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433268

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433021

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433153

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P433146

Component	Result	Code	Units
Total-P	0.010	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P433148

Component	Result	Code	Units
Total-P	0.010	U	mg P/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P432977

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P432978

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

Reference Method: EPA 8321B
Batch ID: P432955

Component	Result	Code	Units
Cylindrospermopsin	0.10	U	ug/L
Desmethyl microcystin LR	0.25	U	ug/L
Microcystin HiiR	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: P432956

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: P432972

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433106

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433178

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433266

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: P433268

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433021

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433153

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P433146

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P433148

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P432977

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P432978

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

Reference Method: EPA 8321B
Batch ID: P432955

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	97.4		P	40 - 160
Desmethyl microcystin LR	109		P	40 - 160
Microcystin H1LR	100		P	40 - 160
Microcystin HtyR	90.8		P	40 - 160
Microcystin LA	103		P	40 - 160
Microcystin LF	99.4		P	40 - 160
Microcystin LR	97.0		P	40 - 160
Microcystin LW	91.5		P	40 - 160
Microcystin LY	100		P	40 - 160
Microcystin RR	94.7		P	40 - 160
Microcystin WR	103		P	40 - 160
Microcystin YR	85.2		P	40 - 160
Nodularin-R	88.2		P	40 - 160

Reference Method: EPA 8321B
Batch ID: P432956

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	117		P	40 - 150
Neosaxitoxin	97.3		P	40 - 150
Saxitoxin	80.2		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433106

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2426248	Ammonia-N	98.0	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433178

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2426207	Ammonia-N	99.0	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433266

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2426250	Kjeldahl Nitrogen	108	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433268

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2426225	Kjeldahl Nitrogen	103	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433021

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2426287	NO2NO3-N	97.4	96.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433153

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2426248	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P433146

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2426249	Total-P	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P433148

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2426287	Total-P	106	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P432977

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2426252	O-Phosphate-P	94.9	95.4	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P432978

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2426226	O-Phosphate-P	99.5	99.7	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P432955

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2426254	Cylindrospermopsin	88.7	82.4	P/P	40 - 160
2426254	Desmethyl microcystin LR	106	104	P/P	40 - 160
2426254	Microcystin HiLR	105	99.1	P/P	40 - 160
2426254	Microcystin HtyR	93.1	93.8	P/P	40 - 160
2426254	Microcystin LA	99.3	99.2	P/P	40 - 160
2426254	Microcystin LF	105	102	P/P	40 - 160
2426254	Microcystin LR	106	105	P/P	40 - 160
2426254	Microcystin LW	101	90.6	P/P	40 - 160
2426254	Microcystin LY	104	96.6	P/P	40 - 160
2426254	Microcystin RR	97.2	91.8	P/P	40 - 160
2426254	Microcystin WR	107	99.1	P/P	40 - 160
2426254	Microcystin YR	88.7	87.8	P/P	40 - 160
2426254	Nodularin-R	95.0	92.5	P/P	40 - 160

Reference Method: EPA 8321B
Batch ID: P432956

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2426254	Anatoxin-a	89.2	98.9	P/P	40 - 150
2426254	Neosaxitoxin	31.0	30.6	F/F	40 - 150
2426254	Saxitoxin	42.2	45.0	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P432972

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2426245	Color (true)	18.7	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433106

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2426248	Ammonia-N	2.50	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433178

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2426207	Ammonia-N	1.76	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433266

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2426250	Kjeldahl Nitrogen	3.27	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433268

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2426225	Kjeldahl Nitrogen	0.902	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433021

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2426287	NO2NO3-N	0.391	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433153

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2426248	NO2NO3-N	0.442	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P433146

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2426249	Total-P	0.331	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P433148

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2426287	Total-P	0.266	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P432977

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2426252	O-Phosphate-P	0.525	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P432978

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2426226	O-Phosphate-P	0.166	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P432955

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2426254	Cylindrospermopsin	7.39	Spike	P	0 - 30
2426254	Desmethyl microcystin LR	1.90	Spike	P	0 - 30
2426254	Microcystin HtIR	5.67	Spike	P	0 - 30
2426254	Microcystin HtyR	0.767	Spike	P	0 - 30
2426254	Microcystin LA	0.0795	Spike	P	0 - 30
2426254	Microcystin LF	2.20	Spike	P	0 - 30
2426254	Microcystin LR	0.805	Spike	P	0 - 30
2426254	Microcystin LW	10.4	Spike	P	0 - 30
2426254	Microcystin LY	6.98	Spike	P	0 - 30
2426254	Microcystin RR	5.71	Spike	P	0 - 30
2426254	Microcystin WR	7.94	Spike	P	0 - 30
2426254	Microcystin YR	1.01	Spike	P	0 - 30
2426254	Nodularin-R	2.57	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P432956

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2426254	Anatoxin-a	10.4	Spike	P	0 - 30
2426254	Neosaxitoxin	1.43	Spike	P	0 - 30
2426254	Saxitoxin	6.59	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2426277
Field Sample ID: NEHAB0055

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	106	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	99.4	P	30 - 160

Lab Sample ID: 2426278
Field Sample ID: NEHAB0108

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	92.9	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	117	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A120616

Included Lab Sample IDs: 2426271, 2426272

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.7	96.5	P/P	90 - 110
Color (true)	99.0	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A120619

Included Lab Sample IDs: 2426275, 2426276

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.2	P/P	90 - 110
O-Phosphate-P	100	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A120643

Included Lab Sample IDs: 2426273

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	98.0	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A120661

Included Lab Sample IDs: 2426277, 2426278

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	91.2	92.9	P/P	60 - 160
Cylindrospermopsin	92.9	95.2	P/P	60 - 160
Desmethyl microcystin LR	96.3	96.7	P/P	50 - 160
Desmethyl microcystin LR	96.7	99.0	P/P	50 - 160
Microcystin HilR	94.6	93.7	P/P	60 - 160
Microcystin HilR	96.5	94.6	P/P	60 - 160
Microcystin HtyR	84.7	82.5	P/P	60 - 160
Microcystin HtyR	84.8	84.7	P/P	60 - 160
Microcystin LA	95.6	97.1	P/P	50 - 160
Microcystin LA	97.1	94.3	P/P	50 - 160
Microcystin LF	79.2	78.7	P/P	60 - 160
Microcystin LF	83.4	79.2	P/P	60 - 160
Microcystin LR	90.6	89.2	P/P	60 - 160
Microcystin LR	91.7	90.6	P/P	60 - 160
Microcystin LW	80.4	79.5	P/P	60 - 160
Microcystin LW	82.9	80.4	P/P	60 - 160
Microcystin LY	92.7	95.5	P/P	60 - 160
Microcystin LY	95.5	92.4	P/P	60 - 160
Microcystin RR	87.9	84.8	P/P	60 - 160
Microcystin RR	88.0	87.9	P/P	60 - 160
Microcystin WR	92.4	93.8	P/P	60 - 160
Microcystin WR	92.6	92.4	P/P	60 - 160
Microcystin YR	80.0	77.9	P/P	60 - 160
Microcystin YR	82.3	80.0	P/P	60 - 160
Nodularin-R	83.9	84.9	P/P	60 - 160
Nodularin-R	88.6	83.9	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A120662

Included Lab Sample IDs: 2426277, 2426278

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	131	132	P/P	50 - 160
Anatoxin-a	132	125	P/P	50 - 160
Neosaxitoxin	110	106	P/P	50 - 160
Neosaxitoxin	110	110	P/P	50 - 160
Saxitoxin	91.1	93.1	P/P	50 - 160
Saxitoxin	93.1	92.8	P/P	50 - 160

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A120681

Included Lab Sample IDs: 2426274

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A120696

Included Lab Sample IDs: 2426274

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A120706

Included Lab Sample IDs: 2426273

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.9	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A120732

Included Lab Sample IDs: 2426273, 2426274

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	103	P/P	90 - 110
Total-P	103	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A120795

Included Lab Sample IDs: 2426273

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.5	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A120822

Included Lab Sample IDs: 2426274

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.0	96.8	P/P	90 - 110

Quality Assurance Report

Calibration Verification

* 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)	99.0			18.7	
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	98.0	101		2.50
	Ammonia-N	100	99.0	97.0		1.76
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	108	103		3.27
	Kjeldahl Nitrogen	99.9	103	102		0.902
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	97.4	96.9		0.391
	NO2NO3-N	102	103	103		0.442
EPA 365.1 Rev. 2.0	Total-P	107	102	102		0.331
	Total-P	106	106	107		0.266
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.1	94.9	95.4		0.525
	O-Phosphate-P	100	99.5	99.7		0.166
EPA 8321B	Anatoxin-a	117	89.2	98.9		10.4
	Cylindrospermopsin	97.4	88.7	82.4		7.39
	Desmethyl microcystin LR	109	106	104		1.90
	Microcystin HiIR	100	105	99.1		5.67
	Microcystin HtyR	90.8	93.1	93.8		0.767
	Microcystin LA	103	99.3	99.2		0.0795
	Microcystin LF	99.4	105	102		2.20
	Microcystin LR	97.0	106	105		0.805
	Microcystin LW	91.5	101	90.6		10.4
	Microcystin LY	100	104	96.6		6.98
	Microcystin RR	94.7	97.2	91.8		5.71
	Microcystin WR	103	107	99.1		7.94
	Microcystin YR	85.2	88.7	87.8		1.01
	Neosaxitoxin	97.3	31.0	30.6		1.43
	Nodularin-R	88.2	95.0	92.5		2.57
	Saxitoxin	80.2	42.2	45.0		6.59

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2426271, 2426272
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2426273, 2426274
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2426273, 2426274
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2426273, 2426274
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2426273, 2426274
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2426275, 2426276
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2426277, 2426278
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2426277, 2426278

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	07/25/2023			07/25/2023 13:39	Chandler E Cox	2426271
	07/25/2023			07/25/2023 13:54	Chandler E Cox	2426272
EPA 350.1 Rev. 2.0	07/25/2023			07/27/2023 12:29	Ping Hua	2426274
	07/25/2023			07/28/2023 13:00	Ping Hua	2426273
EPA 351.2 Rev. 2.0	07/25/2023	08/01/2023 10:22	Dana G. Hughes	08/02/2023 12:57	Samantha L Bates	2426273
	07/25/2023	08/01/2023 10:22	Dana G. Hughes	08/03/2023 09:53	Samantha L Bates	2426274
EPA 353.2 Rev. 2.0	07/25/2023			07/26/2023 10:42	Beverly Y. Sanders	2426273
	07/25/2023			07/27/2023 15:25	Judith K. Clark	2426274
EPA 365.1 Rev. 2.0	07/25/2023	07/28/2023 14:20	Simonne.V. Calhoun	07/31/2023 10:57	Chandler E Cox	2426274
	07/25/2023	07/28/2023 14:20	Simonne.V. Calhoun	07/31/2023 11:14	Chandler E Cox	2426273
EPA 365.1 Rev. 2.0 dissolved	07/25/2023			07/25/2023 13:56	Adam P Silver	2426276
	07/25/2023			07/25/2023 14:21	Adam P Silver	2426275
EPA 8321B	07/25/2023	07/26/2023 06:00	Hana Lee	07/26/2023 09:45	Tae K Lee	2426277
	07/25/2023	07/26/2023 06:00	Hana Lee	07/26/2023 10:19	Tae K Lee	2426278
	07/25/2023	07/26/2023 13:00	Hana Lee	07/26/2023 20:41	Tae K Lee	2426277
	07/25/2023	07/26/2023 13:00	Hana Lee	07/26/2023 21:09	Tae K Lee	2426278