

Chemical Analysis Report

NE-DIST-2023-08-02-02

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-2023-07-24-49**
Customer: **NE-DIST**
Project ID: **BLOOM-RESP**

Send Reports to:
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 17-AUG-2023 10:33

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: Swimming Pen Creek - Whiteys Fish Camp

Collection Date/Time: 08/01/2023 11:15

Field ID: NEHAB0074

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2427885	DEP SOP: NU-094-1	Color (true)	68		PCU	P433331	
2427889	EPA 350.1 Rev. 2.0	Ammonia-N	0.26		mg N/L	P433836	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P433378	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P433386	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P433364	
2427893	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.055		mg P/L	P433344	
2427897	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P433311	
		Cylindrospermopsin	0.10	U	ug/L	P433310	
		Desmethyl microcystin LR	0.25	U	ug/L	P433310	
		Microcystin HiLR	0.25	U	ug/L	P433310	
		Microcystin HtyR	0.25	U	ug/L	P433310	
		Microcystin LA	0.10	U	ug/L	P433310	
		Microcystin LF	0.10	U	ug/L	P433310	
		Microcystin LR	0.28	I	ug/L	P433310	
		Microcystin LW	0.25	U	ug/L	P433310	
		Microcystin LY	0.10	U	ug/L	P433310	
		Microcystin RR	0.10	U	ug/L	P433310	
		Microcystin WR	0.50	U	ug/L	P433310	
		Neosaxitoxin	0.50	U	ug/L	P433311	
		Microcystin YR	0.25	U	ug/L	P433310	
		Saxitoxin	0.50	U	ug/L	P433311	
		Nodularin-R	0.10	U	ug/L	P433310	

Sample Location: Doctor's Lake -Catfish Point

Collection Date/Time: 08/01/2023 10:50

Field ID: NAEHAB0110

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2427883	DEP SOP: NU-094-1	Color (true)	63		PCU	P433331	
2427887	EPA 350.1 Rev. 2.0	Ammonia-N	0.14		mg N/L	P433556	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P433378	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P433386	
	EPA 365.1 Rev. 2.0	Total-P	0.090		mg P/L	P433364	
2427891	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.033		mg P/L	P433344	
2427895	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P433311	
		Cylindrospermopsin	0.10	U	ug/L	P433310	
		Desmethyl microcystin LR	0.25	U	ug/L	P433310	
		Microcystin HiLR	0.25	U	ug/L	P433310	
		Microcystin HtyR	0.25	U	ug/L	P433310	
		Microcystin LA	0.10	U	ug/L	P433310	
		Microcystin LF	0.10	U	ug/L	P433310	
		Microcystin LR	0.38	I	ug/L	P433310	
		Microcystin LW	0.25	U	ug/L	P433310	
		Microcystin LY	0.10	U	ug/L	P433310	
		Microcystin RR	0.10	U	ug/L	P433310	
		Microcystin WR	0.50	U	ug/L	P433310	
		Neosaxitoxin	0.50	U	ug/L	P433311	
		Microcystin YR	0.25	U	ug/L	P433310	
		Saxitoxin	0.50	U	ug/L	P433311	
		Nodularin-R	0.10	U	ug/L	P433310	

Sample Location: Doctors Lake - 1915 Salt Myrtle Lane

Collection Date/Time: 08/01/2023 10:25

Field ID: NEHAB0108

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2427886	DEP SOP: NU-094-1	Color (true)	73		PCU	P433331	
2427890	EPA 350.1 Rev. 2.0	Ammonia-N	0.27		mg N/L	P433836	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P433378	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.027		mg N/L	P433386	
	EPA 365.1 Rev. 2.0	Total-P	0.099		mg P/L	P433364	
2427894	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.038		mg P/L	P433344	
2427898	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P433311	
		Cylindrospermopsin	0.10	U	ug/L	P433310	
		Desmethyl microcystin LR	0.25	U	ug/L	P433310	
		Microcystin HiLR	0.25	U	ug/L	P433310	
		Microcystin HtyR	0.25	U	ug/L	P433310	
		Microcystin LA	0.10	U	ug/L	P433310	
		Microcystin LF	0.10	U	ug/L	P433310	
		Microcystin LR	0.25	U	ug/L	P433310	
		Microcystin LW	0.25	U	ug/L	P433310	
		Microcystin LY	0.10	U	ug/L	P433310	
		Microcystin RR	0.10	U	ug/L	P433310	
		Microcystin WR	0.50	U	ug/L	P433310	
		Neosaxitoxin	0.50	U	ug/L	P433311	
		Microcystin YR	0.25	U	ug/L	P433310	
		Saxitoxin	0.50	U	ug/L	P433311	
		Nodularin-R	0.10	U	ug/L	P433310	

Sample Location: Doctors Lake - Mill Cove

Collection Date/Time: 08/01/2023 11:35

Field ID: NEHAB0057

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2427884	DEP SOP: NU-094-1	Color (true)	62		PCU	P433331	
2427888	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P433556	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P433378	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P433386	
	EPA 365.1 Rev. 2.0	Total-P	0.063		mg P/L	P433364	
2427892	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P433344	
2427896	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P433311	
		Cylindrospermopsin	0.10	U	ug/L	P433310	
		Desmethyl microcystin LR	0.25	U	ug/L	P433310	
		Microcystin HiLR	0.25	U	ug/L	P433310	
		Microcystin HtyR	0.25	U	ug/L	P433310	
		Microcystin LA	0.10	U	ug/L	P433310	
		Microcystin LF	0.10	U	ug/L	P433310	
		Microcystin LR	0.25	U	ug/L	P433310	
		Microcystin LW	0.25	U	ug/L	P433310	
		Microcystin LY	0.10	U	ug/L	P433310	
		Microcystin RR	0.10	U	ug/L	P433310	
		Microcystin WR	0.50	U	ug/L	P433310	
		Neosaxitoxin	0.50	U	ug/L	P433311	
		Microcystin YR	0.25	U	ug/L	P433310	
		Saxitoxin	0.50	U	ug/L	P433311	
		Nodularin-R	0.10	U	ug/L	P433310	

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P433331

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433556

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433836

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433378

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433386

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P433364

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P433344

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

Reference Method: EPA 8321B
Batch ID: P433310

Component	Result	Code	Units
Cylindrospermopsin	0.10	U	ug/L
Desmethyl microcystin LR	0.25	U	ug/L
Microcystin H1R	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: P433310

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: P433311

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: P433331

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433556

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433836

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433378

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433386

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: P433364

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P433344

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

Reference Method: EPA 8321B
Batch ID: P433310

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	109		P	40 - 160
Desmethyl microcystin LR	103		P	40 - 160
Microcystin HIR	111		P	40 - 160
Microcystin HtyR	102		P	40 - 160
Microcystin LA	111		P	40 - 160
Microcystin LF	86.5		P	40 - 160
Microcystin LR	108		P	40 - 160
Microcystin LW	101		P	40 - 160
Microcystin LY	115		P	40 - 160
Microcystin RR	106		P	40 - 160

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P433310

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Microcystin WR	115		P	40 - 160
Microcystin YR	99.5		P	40 - 160
Nodularin-R	99.2		P	40 - 160

Reference Method: EPA 8321B
Batch ID: P433311

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	104		P	40 - 150
Neosaxitoxin	96.2		P	40 - 150
Saxitoxin	92.1		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433556

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2427795	Ammonia-N	96.0	94.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433836

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2428705	Ammonia-N	98.8	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433378

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2427914	Kjeldahl Nitrogen	99.4	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433386

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2427858	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P433364

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2427887	Total-P	105	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P433344

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2428060	O-Phosphate-P	99.6	100	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P433310

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2427663	Cylindrospermopsin	102	109	P/P	40 - 160
2427663	Desmethyl microcystin LR	109	110	P/P	40 - 160
2427663	Microcystin HILR	114	117	P/P	40 - 160
2427663	Microcystin HtyR	109	109	P/P	40 - 160
2427663	Microcystin LA	109	113	P/P	40 - 160
2427663	Microcystin LF	105	109	P/P	40 - 160
2427663	Microcystin LR	115	113	P/P	40 - 160
2427663	Microcystin LW	110	110	P/P	40 - 160
2427663	Microcystin LY	111	116	P/P	40 - 160
2427663	Microcystin RR	110	113	P/P	40 - 160
2427663	Microcystin WR	116	119	P/P	40 - 160
2427663	Microcystin YR	103	102	P/P	40 - 160
2427663	Nodularin-R	112	118	P/P	40 - 160

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P433311

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2427663	Anatoxin-a	95.1	93.9	P/P	40 - 150
2427663	Neosaxitoxin	61.5	59.4	P/P	40 - 150
2427663	Saxitoxin	61.2	60.4	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P433331

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427794	Color (true)	6.53	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433556

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427795	Ammonia-N	1.43	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P433836

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2428705	Ammonia-N	0.0	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433378

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427914	Kjeldahl Nitrogen	0.892	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P433386

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427858	NO2NO3-N	0.633	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P433364

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427887	Total-P	0.684	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P433344

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2428060	O-Phosphate-P	0.601	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P433310

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427663	Cylindrospermopsin	7.21	Spike	P	0 - 30
2427663	Desmethyl microcystin LR	1.64	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P433310

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427663	Microcystin HII R	2.84	Spike	P	0 - 30
2427663	Microcystin Hty R	0.0255	Spike	P	0 - 30
2427663	Microcystin LA	3.24	Spike	P	0 - 30
2427663	Microcystin LF	3.07	Spike	P	0 - 30
2427663	Microcystin LR	1.54	Spike	P	0 - 30
2427663	Microcystin LW	0.0888	Spike	P	0 - 30
2427663	Microcystin LY	4.59	Spike	P	0 - 30
2427663	Microcystin RR	3.31	Spike	P	0 - 30
2427663	Microcystin WR	3.27	Spike	P	0 - 30
2427663	Microcystin YR	1.02	Spike	P	0 - 30
2427663	Nodularin-R	5.39	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P433311

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2427663	Anatoxin-a	1.20	Spike	P	0 - 30
2427663	Neosaxitoxin	3.52	Spike	P	0 - 30
2427663	Saxitoxin	1.24	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2427895
Field Sample ID: NAEHAB0110

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	75.9	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	103	P	30 - 160

Lab Sample ID: 2427896
Field Sample ID: NEHAB0057

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	73.6	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	96.8	P	30 - 160

Lab Sample ID: 2427897
Field Sample ID: NEHAB0074

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	68.6	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	85.7	P	30 - 160

Lab Sample ID: 2427898
Field Sample ID: NEHAB0108

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	73.0	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	91.5	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A120796

Included Lab Sample IDs: 2427883, 2427884, 2427885, 2427886

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.2	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A120802

Included Lab Sample IDs: 2427891, 2427892, 2427893, 2427894

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.9	99.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A120804

Included Lab Sample IDs: 2427895, 2427896, 2427897, 2427898

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	97.9	101	P/P	60 - 160
Desmethyl microcystin LR	95.1	93.9	P/P	50 - 160
Microcystin HiiR	99.3	100	P/P	60 - 160
Microcystin HtyR	91.9	91.0	P/P	60 - 160
Microcystin LA	102	102	P/P	50 - 160
Microcystin LF	84.3	82.9	P/P	60 - 160
Microcystin LR	91.5	89.6	P/P	60 - 160
Microcystin LW	91.0	86.9	P/P	60 - 160
Microcystin LY	105	94.6	P/P	60 - 160
Microcystin RR	97.8	96.7	P/P	60 - 160
Microcystin WR	102	100	P/P	60 - 160
Microcystin YR	81.4	78.9	P/P	60 - 160
Nodularin-R	96.0	91.2	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A120817

Included Lab Sample IDs: 2427887, 2427888, 2427889, 2427890

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

Reference Method: EPA 8321B

Run ID: A120830

Included Lab Sample IDs: 2427895, 2427896, 2427897, 2427898

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	93.8	87.1	P/P	50 - 160
Neosaxitoxin	88.6	87.2	P/P	50 - 160
Saxitoxin	84.2	83.5	P/P	50 - 160

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A120847

Included Lab Sample IDs: 2427887, 2427888, 2427889, 2427890

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	109	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A120851

Included Lab Sample IDs: 2427887, 2427888, 2427889, 2427890

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A120890

Included Lab Sample IDs: 2427887, 2427888

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.7	97.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A121029

Included Lab Sample IDs: 2427889, 2427890

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.3	98.4	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
DEP SOP: NU-094-1	Color (true)	96.5				6.53	
EPA 350.1 Rev. 2.0	Ammonia-N	96.8	96.0	94.2			1.43
	Ammonia-N	94.2	98.8	98.8			0.0
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	99.4	101			0.892
EPA 353.2 Rev. 2.0	NO2NO3-N	104	101	102			0.633
EPA 365.1 Rev. 2.0	Total-P	104	105	106			0.684
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	99.6	100			0.601
EPA 8321B	Anatoxin-a	104	95.1	93.9			1.20
	Cylindrospermopsin	109	102	109			7.21
	Desmethyl microcystin LR	103	109	110			1.64
	Microcystin HiLR	111	114	117			2.84
	Microcystin HtyR	102	109	109			0.0255
	Microcystin LA	111	109	113			3.24
	Microcystin LF	86.5	105	109			3.07
	Microcystin LR	108	115	113			1.54
	Microcystin LW	101	110	110			0.0888
	Microcystin LY	115	111	116			4.59
	Microcystin RR	106	110	113			3.31
	Microcystin WR	115	116	119			3.27
	Microcystin YR	99.5	103	102			1.02
	Neosaxitoxin	96.2	61.5	59.4			3.52
	Nodularin-R	99.2	112	118			5.39
	Saxitoxin	92.1	61.2	60.4			1.24

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2427883, 2427884, 2427885, 2427886
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2427887, 2427888, 2427889, 2427890
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2427887, 2427888, 2427889, 2427890
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2427887, 2427888, 2427889, 2427890
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2427887, 2427888, 2427889, 2427890
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2427891, 2427892, 2427893, 2427894
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2427895, 2427896, 2427897, 2427898
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2427895, 2427896, 2427897, 2427898

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	08/02/2023			08/02/2023 14:40	Chandler E Cox	2427883
	08/02/2023			08/02/2023 14:41	Chandler E Cox	2427884, 2427885
	08/02/2023			08/02/2023 14:42	Chandler E Cox	2427886
EPA 350.1 Rev. 2.0	08/02/2023			08/08/2023 11:41	Ping Hua	2427887
	08/02/2023			08/08/2023 11:42	Ping Hua	2427888
	08/02/2023			08/14/2023 12:59	Khloe J Berg	2427889
	08/02/2023			08/14/2023 13:01	Khloe J Berg	2427890
EPA 351.2 Rev. 2.0	08/02/2023	08/03/2023 10:50	Dana G. Hughes	08/04/2023 10:29	Samantha L Bates	2427887
	08/02/2023	08/03/2023 10:50	Dana G. Hughes	08/04/2023 10:31	Samantha L Bates	2427888
	08/02/2023	08/03/2023 10:50	Dana G. Hughes	08/04/2023 10:32	Samantha L Bates	2427889
	08/02/2023	08/03/2023 10:50	Dana G. Hughes	08/04/2023 10:34	Samantha L Bates	2427890
EPA 353.2 Rev. 2.0	08/02/2023			08/03/2023 10:12	Beverly Y. Sanders	2427887
	08/02/2023			08/03/2023 10:14	Beverly Y. Sanders	2427888
	08/02/2023			08/03/2023 10:15	Beverly Y. Sanders	2427889
	08/02/2023			08/03/2023 10:16	Beverly Y. Sanders	2427890
EPA 365.1 Rev. 2.0	08/02/2023	08/03/2023 13:11	Simonne.V. Calhoun	08/04/2023 11:29	Chandler E Cox	2427887
	08/02/2023	08/03/2023 13:11	Simonne.V. Calhoun	08/04/2023 11:31	Chandler E Cox	2427888
	08/02/2023	08/03/2023 13:11	Simonne.V. Calhoun	08/04/2023 11:34	Chandler E Cox	2427889
	08/02/2023	08/03/2023 13:11	Simonne.V. Calhoun	08/04/2023 11:35	Chandler E Cox	2427890
EPA 365.1 Rev. 2.0 dissolved	08/02/2023			08/02/2023 14:21	James L Waggeberby	2427891
	08/02/2023			08/02/2023 14:22	James L Waggeberby	2427892
	08/02/2023			08/02/2023 14:23	James L Waggeberby	2427893
	08/02/2023			08/02/2023 14:24	James L Waggeberby	2427894
EPA 8321B	08/02/2023	08/02/2023 12:00	Tae K Lee	08/02/2023 17:12	Hana Lee	2427895
	08/02/2023	08/02/2023 12:00	Tae K Lee	08/02/2023 17:29	Hana Lee	2427896
	08/02/2023	08/02/2023 12:00	Tae K Lee	08/02/2023 17:46	Hana Lee	2427897
	08/02/2023	08/02/2023 12:00	Tae K Lee	08/02/2023 18:03	Hana Lee	2427898
	08/02/2023	08/02/2023 12:00	Tae K Lee	08/03/2023 16:51	Hana Lee	2427895
	08/02/2023	08/02/2023 12:00	Tae K Lee	08/03/2023 17:05	Hana Lee	2427896
	08/02/2023	08/02/2023 12:00	Tae K Lee	08/03/2023 17:19	Hana Lee	2427897
	08/02/2023	08/02/2023 12:00	Tae K Lee	08/03/2023 17:33	Hana Lee	2427898