

Chemical Analysis Report

CEN-DIST-2023-07-19-01

Florida DEP Laboratory
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DOH Accreditation E31780

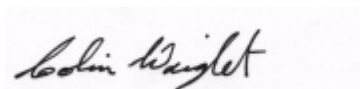
Event Description: **Algal Bloom Response - CEROC**
Request ID: **RQ-2023-07-03-20**
Customer: **CEN-DIST**
Project ID: **BLOOM-RESP**

Send Reports to:
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Certified by: Colin Wright, Program Administrator

Date Certified: 27-JUL-2023 11:48



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: Lake Rowena - near NE corner

Collection Date/Time: 07/18/2023 13:18

Field ID: HABCE0057

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2424859	DEP SOP: NU-094-1	Color (true)	14	A	PCU	P432719	
2424864	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P432918	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.73		mg N/L	P432806	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P432854	
	EPA 365.1 Rev. 2.0	Total-P	0.035		mg P/L	P432777	
2424869	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P432723	
2424878	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P432739	
		Cylindrospermopsin	0.47		ug/L	P432703	
		Desmethyl microcystin LR	0.25	U	ug/L	P432703	
		Microcystin HiLR	0.25	U	ug/L	P432703	
		Microcystin HtyR	0.25	U	ug/L	P432703	
		Microcystin LA	0.19	I	ug/L	P432703	
		Microcystin LF	0.10	U	ug/L	P432703	
		Microcystin LR	0.25	U	ug/L	P432703	
		Microcystin LW	0.25	U	ug/L	P432703	
		Microcystin LY	0.10	U	ug/L	P432703	
		Microcystin RR	0.10	U	ug/L	P432703	
		Microcystin WR	0.50	U	ug/L	P432703	
		Neosaxitoxin	0.50	U	ug/L	P432739	
		Microcystin YR	0.25	U	ug/L	P432703	
		Saxitoxin	0.50	U	ug/L	P432739	
		Nodularin-R	0.10	U	ug/L	P432703	

Sample Location: Louise Lake - NW Lobe

Collection Date/Time: 07/18/2023 10:55

Field ID: HABCE0183

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2424860	DEP SOP: NU-094-1	Color (true)	63		PCU	P432719	
2424865	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P432918	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.86		mg N/L	P432806	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P432854	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P432777	
2424870	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P432723	
2424879	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P432739	
		Cylindrospermopsin	0.10	U	ug/L	P432703	
		Desmethyl microcystin LR	0.25	U	ug/L	P432703	
		Microcystin HiLR	0.25	U	ug/L	P432703	
		Microcystin HtyR	0.25	U	ug/L	P432703	
		Microcystin LA	0.20	I	ug/L	P432703	
		Microcystin LF	0.10	U	ug/L	P432703	
		Microcystin LR	0.25	U	ug/L	P432703	
		Microcystin LW	0.25	U	ug/L	P432703	
		Microcystin LY	0.10	U	ug/L	P432703	
		Microcystin RR	0.10	U	ug/L	P432703	
		Microcystin WR	0.50	U	ug/L	P432703	
		Neosaxitoxin	0.50	U	ug/L	P432739	
		Microcystin YR	0.25	U	ug/L	P432703	
		Saxitoxin	0.50	U	ug/L	P432739	
		Nodularin-R	0.10	U	ug/L	P432703	

Sample Location: Lake Minnehaha - E Dock

Collection Date/Time: 07/18/2023 12:38

Field ID: HABCE0194

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2424861	DEP SOP: NU-094-1	Color (true)	15		PCU	P432719	
2424866	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P432918	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P432806	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P432854	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P432777	
2424871	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P432723	
2424880	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P432739	
		Cylindrospermopsin	0.43		ug/L	P432703	
		Desmethyl microcystin LR	0.25	U	ug/L	P432703	
		Microcystin HiLR	0.25	U	ug/L	P432703	
		Microcystin HtyR	0.25	U	ug/L	P432703	
		Microcystin LA	0.10	U	ug/L	P432703	
		Microcystin LF	0.10	U	ug/L	P432703	
		Microcystin LR	0.25	U	ug/L	P432703	
		Microcystin LW	0.25	U	ug/L	P432703	
		Microcystin LY	0.10	U	ug/L	P432703	
		Microcystin RR	0.10	U	ug/L	P432703	
		Microcystin WR	0.50	U	ug/L	P432703	
		Neosaxitoxin	0.50	U	ug/L	P432739	
		Microcystin YR	0.25	U	ug/L	P432703	
		Saxitoxin	0.50	U	ug/L	P432739	
		Nodularin-R	0.10	U	ug/L	P432703	

Sample Location: Park Lake - W Shore

Collection Date/Time: 07/18/2023 09:38

Field ID: HABCE0195

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2424862	DEP SOP: NU-094-1	Color (true)	13		PCU	P432719	
2424867	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P432918	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.75		mg N/L	P432806	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P432854	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P432777	
2424872	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P432723	
2424881	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P432739	
		Cylindrospermopsin	0.10	U	ug/L	P432703	
		Desmethyl microcystin LR	0.25	U	ug/L	P432703	
		Microcystin HiLR	0.25	U	ug/L	P432703	
		Microcystin HtyR	0.25	U	ug/L	P432703	
		Microcystin LA	0.10	U	ug/L	P432703	
		Microcystin LF	0.10	U	ug/L	P432703	
		Microcystin LR	0.49	I	ug/L	P432703	
		Microcystin LW	0.25	U	ug/L	P432703	
		Microcystin LY	0.10	U	ug/L	P432703	
		Microcystin RR	0.10	U	ug/L	P432703	
		Microcystin WR	0.50	U	ug/L	P432703	
		Neosaxitoxin	0.50	U	ug/L	P432739	
		Microcystin YR	0.25	U	ug/L	P432703	
		Saxitoxin	0.50	U	ug/L	P432739	
		Nodularin-R	0.10	U	ug/L	P432703	

Sample Location: Pioneer - N Shore

Collection Date/Time: 07/18/2023 11:27

Field ID: HABCE0206

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2424863	DEP SOP: NU-094-1	Color (true)	19	A	PCU	P432720	
2424868	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P432918	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.53		mg N/L	P432806	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.61		mg N/L	P432854	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P432777	
2424873	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P432723	
2424882	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P432739	
		Cylindrospermopsin	0.10	U	ug/L	P432703	
		Desmethyl microcystin LR	0.25	U	ug/L	P432703	
		Microcystin HILR	0.25	U	ug/L	P432703	
		Microcystin HtyR	0.25	U	ug/L	P432703	
		Microcystin LA	0.72		ug/L	P432703	
		Microcystin LF	0.10	U	ug/L	P432703	
		Microcystin LR	0.25	U	ug/L	P432703	
		Microcystin LW	0.25	U	ug/L	P432703	
		Microcystin LY	0.10	U	ug/L	P432703	
		Microcystin RR	0.10	U	ug/L	P432703	
		Microcystin WR	0.50	U	ug/L	P432703	
		Neosaxitoxin	0.50	U	ug/L	P432739	
		Microcystin YR	0.25	U	ug/L	P432703	
		Saxitoxin	0.50	U	ug/L	P432739	
		Nodularin-R	0.10	U	ug/L	P432703	

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P432719

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P432720

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P432918

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P432806

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P432854

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P432777

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P432723

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

Reference Method: EPA 8321B
Batch ID: P432703

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: P432703

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: P432739

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: P432719

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.6		P	90 - 110

Reference Method: DEP SOP: NU-094-1
Batch ID: P432720

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: P432918

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P432806

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P432854

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: P432777

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P432723

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

Reference Method: EPA 8321B
Batch ID: P432703

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	89.1		P	40 - 160
Desmethyl microcystin LR	98.3		P	40 - 160
Microcystin HILR	102		P	40 - 160
Microcystin HtyR	88.7		P	40 - 160
Microcystin LA	101		P	40 - 160
Microcystin LF	101		P	40 - 160
Microcystin LR	109		P	40 - 160
Microcystin LW	90.9		P	40 - 160
Microcystin LY	115		P	40 - 160
Microcystin RR	89.8		P	40 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P432703

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Microcystin WR	96.6		P	40 - 160
Microcystin YR	112		P	40 - 160
Nodularin-R	96.4		P	40 - 160

Reference Method: EPA 8321B
Batch ID: P432739

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	128		P	40 - 150
Neosaxitoxin	114		P	40 - 150
Saxitoxin	94.3		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P432918

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2424864	Ammonia-N	96.6	97.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P432806

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2424868	Kjeldahl Nitrogen	91.6	94.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P432854

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2424853	NO2NO3-N	98.5	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P432777

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2424866	Total-P	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P432723

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2424739	O-Phosphate-P	98.7	97.5	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P432703

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2424835	Cylindrospermopsin	107	97.4	P/P	40 - 160
2424835	Desmethyl microcystin LR	131	130	P/P	40 - 160
2424835	Microcystin HiLR	134	130	P/P	40 - 160
2424835	Microcystin HtyR	124	117	P/P	40 - 160
2424835	Microcystin LA	122	111	P/P	40 - 160
2424835	Microcystin LF	123	118	P/P	40 - 160
2424835	Microcystin LR	145	143	P/P	40 - 160
2424835	Microcystin LW	126	122	P/P	40 - 160
2424835	Microcystin LY	141	136	P/P	40 - 160
2424835	Microcystin RR	115	106	P/P	40 - 160
2424835	Microcystin WR	128	122	P/P	40 - 160
2424835	Microcystin YR	149	144	P/P	40 - 160
2424835	Nodularin-R	138	129	P/P	40 - 160

Reference Method: EPA 8321B
Batch ID: P432739

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2424835	Anatoxin-a	104	120	P/P	40 - 150
2424835	Neosaxitoxin	60.1	64.7	P/P	40 - 150
2424835	Saxitoxin	45.2	41.8	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P432719

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2424859	Color (true)	0.981	Sample	P	0 - 20

Reference Method: DEP SOP: NU-094-1
Batch ID: P432720

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2424863	Color (true)	4.21	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P432918

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2424864	Ammonia-N	1.14	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P432806

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2424868	Kjeldahl Nitrogen	2.39	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P432854

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2424853	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P432777

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2424866	Total-P	0.584	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P432723

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2424739	O-Phosphate-P	1.03	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P432703

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2424835	Cylindrospermopsin	8.96	Spike	P	0 - 30
2424835	Desmethyl microcystin LR	0.958	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P432703

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2424835	Microcystin HII R	3.71	Spike	P	0 - 30
2424835	Microcystin Hty R	6.42	Spike	P	0 - 30
2424835	Microcystin LA	8.78	Spike	P	0 - 30
2424835	Microcystin LF	3.90	Spike	P	0 - 30
2424835	Microcystin LR	1.13	Spike	P	0 - 30
2424835	Microcystin LW	3.26	Spike	P	0 - 30
2424835	Microcystin LY	3.96	Spike	P	0 - 30
2424835	Microcystin RR	8.40	Spike	P	0 - 30
2424835	Microcystin WR	4.84	Spike	P	0 - 30
2424835	Microcystin YR	3.66	Spike	P	0 - 30
2424835	Nodularin-R	7.12	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P432739

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2424835	Anatoxin-a	13.9	Spike	P	0 - 30
2424835	Neosaxitoxin	7.27	Spike	P	0 - 30
2424835	Saxitoxin	7.88	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2424878
Field Sample ID: HABCE0057

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	93.8	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	87.8	P	30 - 160

Lab Sample ID: 2424879
Field Sample ID: HABCE0183

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	98.4	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	87.5	P	30 - 160

Lab Sample ID: 2424880
Field Sample ID: HABCE0194

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	98.0	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	76.8	P	30 - 160

Lab Sample ID: 2424881
Field Sample ID: HABCE0195

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	97.8	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	105	P	30 - 160

Lab Sample ID: 2424882
Field Sample ID: HABCE0206

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	88.4	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	61.2	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A120499

Included Lab Sample IDs: 2424859, 2424860, 2424861, 2424862, 2424863

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 110
Color (true)	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A120500

Included Lab Sample IDs: 2424869, 2424870, 2424871, 2424872, 2424873

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.3	98.5	P/P	90 - 110
O-Phosphate-P	98.7	98.3	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A120514

Included Lab Sample IDs: 2424878, 2424879, 2424880, 2424881, 2424882

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	124	123	P/P	50 - 160
Neosaxitoxin	112	113	P/P	50 - 160
Saxitoxin	97.3	97.9	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A120526

Included Lab Sample IDs: 2424878, 2424879, 2424880, 2424881, 2424882

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	112	92.1	P/P	60 - 160
Cylindrospermopsin	92.1	90.6	P/P	60 - 160
Desmethyl microcystin LR	120	99.5	P/P	50 - 160
Desmethyl microcystin LR	99.5	99.3	P/P	50 - 160
Microcystin HiIR	103	104	P/P	60 - 160
Microcystin HiIR	126	103	P/P	60 - 160
Microcystin HtyR	111	91.5	P/P	60 - 160
Microcystin HtyR	91.5	91.1	P/P	60 - 160
Microcystin LA	102	102	P/P	50 - 160
Microcystin LA	124	102	P/P	50 - 160
Microcystin LF	120	99.1	P/P	60 - 160
Microcystin LF	99.1	90.1	P/P	60 - 160
Microcystin LR	109	109	P/P	60 - 160
Microcystin LR	134	109	P/P	60 - 160
Microcystin LW	111	96.1	P/P	60 - 160
Microcystin LW	96.1	94.7	P/P	60 - 160
Microcystin LY	116	117	P/P	60 - 160
Microcystin LY	141	116	P/P	60 - 160
Microcystin RR	109	91.5	P/P	60 - 160
Microcystin RR	91.5	90.2	P/P	60 - 160
Microcystin WR	108	95.2	P/P	60 - 160
Microcystin WR	95.2	94.6	P/P	60 - 160
Microcystin YR	114	108	P/P	60 - 160
Microcystin YR	138	114	P/P	60 - 160
Nodularin-R	117	90.7	P/P	60 - 160
Nodularin-R	90.7	92.0	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A120558

Included Lab Sample IDs: 2424864, 2424865, 2424866, 2424867, 2424868

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A120585

Included Lab Sample IDs: 2424864, 2424865, 2424866, 2424867, 2424868

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.0	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A120586

Included Lab Sample IDs: 2424864, 2424865, 2424866, 2424867, 2424868

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.4	96.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A120615

Included Lab Sample IDs: 2424864, 2424865, 2424866, 2424867, 2424868

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	99.0	P/P	90 - 110
Kjeldahl Nitrogen	99.3	105	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)	99.6				0.981	
	Color (true)	101				4.21	
EPA 350.1 Rev. 2.0	Ammonia-N	96.6	96.6	97.8			1.14
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.5	91.6	94.5			2.39
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	98.5	98.5			0.0
EPA 365.1 Rev. 2.0	Total-P	99.1	101	101			0.584
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	98.7	97.5			1.03
EPA 8321B	Anatoxin-a	128	104	120			13.9
	Cylindrospermopsin	89.1	107	97.4			8.96
	Desmethyl microcystin LR	98.3	131	130			0.958
	Microcystin HiLR	102	134	130			3.71
	Microcystin HtyR	88.7	124	117			6.42
	Microcystin LA	101	122	111			8.78
	Microcystin LF	101	123	118			3.90
	Microcystin LR	109	145	143			1.13
	Microcystin LW	90.9	126	122			3.26
	Microcystin LY	115	141	136			3.96
	Microcystin RR	89.8	115	106			8.40
	Microcystin WR	96.6	128	122			4.84
	Microcystin YR	112	149	144			3.66
	Neosaxitoxin	114	60.1	64.7			7.27
	Nodularin-R	96.4	138	129			7.12
	Saxitoxin	94.3	45.2	41.8			7.88

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2424859, 2424860, 2424861, 2424862, 2424863
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2424864, 2424865, 2424866, 2424867, 2424868
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2424864, 2424865, 2424866, 2424867, 2424868
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2424864, 2424865, 2424866, 2424867, 2424868
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2424864, 2424865, 2424866, 2424867, 2424868
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2424869, 2424870, 2424871, 2424872, 2424873
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2424878, 2424879, 2424880, 2424881, 2424882
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2424878, 2424879, 2424880, 2424881, 2424882

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	07/19/2023			07/19/2023 14:58	Samantha L Bates	2424859
	07/19/2023			07/19/2023 14:59	Samantha L Bates	2424860
	07/19/2023			07/19/2023 15:00	Samantha L Bates	2424861
	07/19/2023			07/19/2023 15:01	Samantha L Bates	2424862
	07/19/2023			07/19/2023 15:05	Samantha L Bates	2424863
EPA 350.1 Rev. 2.0	07/19/2023			07/24/2023 12:12	Khloe J Berg	2424864
	07/19/2023			07/24/2023 12:16	Khloe J Berg	2424865
	07/19/2023			07/24/2023 12:17	Khloe J Berg	2424866
	07/19/2023			07/24/2023 12:19	Khloe J Berg	2424867
	07/19/2023			07/24/2023 12:20	Khloe J Berg	2424868
EPA 351.2 Rev. 2.0	07/19/2023	07/21/2023 11:50	Simonne.V. Calhoun	07/25/2023 11:53	Samantha L Bates	2424864
	07/19/2023	07/21/2023 11:50	Simonne.V. Calhoun	07/25/2023 11:55	Samantha L Bates	2424865
	07/19/2023	07/21/2023 11:50	Simonne.V. Calhoun	07/25/2023 12:00	Samantha L Bates	2424866
	07/19/2023	07/21/2023 11:50	Simonne.V. Calhoun	07/25/2023 12:01	Samantha L Bates	2424867
	07/19/2023	07/21/2023 11:50	Simonne.V. Calhoun	07/25/2023 12:03	Samantha L Bates	2424868
EPA 353.2 Rev. 2.0	07/19/2023			07/21/2023 12:43	Judith K. Clark	2424864
	07/19/2023			07/21/2023 12:44	Judith K. Clark	2424865
	07/19/2023			07/21/2023 12:45	Judith K. Clark	2424866
	07/19/2023			07/21/2023 12:47	Judith K. Clark	2424867
	07/19/2023			07/21/2023 12:48	Judith K. Clark	2424868
EPA 365.1 Rev. 2.0	07/19/2023	07/20/2023 14:21	Adam P Silver	07/24/2023 12:24	Simonne.V. Calhoun	2424866
	07/19/2023	07/20/2023 14:21	Adam P Silver	07/24/2023 12:25	Simonne.V. Calhoun	2424864
	07/19/2023	07/20/2023 14:21	Adam P Silver	07/24/2023 12:26	Simonne.V. Calhoun	2424865
	07/19/2023	07/20/2023 14:21	Adam P Silver	07/24/2023 12:27	Simonne.V. Calhoun	2424867
	07/19/2023	07/20/2023 14:21	Adam P Silver	07/24/2023 12:28	Simonne.V. Calhoun	2424868
EPA 365.1 Rev. 2.0 dissolved	07/19/2023			07/19/2023 15:50	Elise M. Gillis	2424869, 2424870
	07/19/2023			07/19/2023 15:56	Elise M. Gillis	2424871
	07/19/2023			07/19/2023 15:57	Elise M. Gillis	2424872
	07/19/2023			07/19/2023 15:58	Elise M. Gillis	2424873
EPA 8321B	07/19/2023	07/19/2023 13:00	Tae K Lee	07/20/2023 05:43	Hana Lee	2424878
	07/19/2023	07/19/2023 13:00	Tae K Lee	07/20/2023 05:57	Hana Lee	2424879
	07/19/2023	07/19/2023 13:00	Tae K Lee	07/20/2023 06:11	Hana Lee	2424880
	07/19/2023	07/19/2023 13:00	Tae K Lee	07/20/2023 06:25	Hana Lee	2424881
	07/19/2023	07/19/2023 13:00	Tae K Lee	07/20/2023 06:39	Hana Lee	2424882
	07/19/2023	07/19/2023 13:00	Tae K Lee	07/20/2023 07:20	Juyoung Kim	2424878
	07/19/2023	07/19/2023 13:00	Tae K Lee	07/20/2023 07:36	Juyoung Kim	2424879
	07/19/2023	07/19/2023 13:00	Tae K Lee	07/20/2023 08:10	Juyoung Kim	2424880
	07/19/2023	07/19/2023 13:00	Tae K Lee	07/20/2023 08:27	Juyoung Kim	2424881
	07/19/2023	07/19/2023 13:00	Tae K Lee	07/20/2023 08:44	Juyoung Kim	2424882