

Chemical Analysis Report

WQAP-2021-10-08-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Algal Bloom Response- NEROC**
Request ID: **RQ-2021-09-27-51**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 01-NOV-2021 14:48

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first 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: Doctor's Lake @ White Owl Rd

Collection Date/Time: 10/07/2021 09:50

Field ID: NEHAB0058

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2282096	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P404777	
		Cylindrospermopsin	0.10	U	ug/L	P404777	
		Desmethyl microcystin LR	0.25	U	ug/L	P404777	
		Microcystin HilR**	0.25	U	ug/L	P404777	
		Microcystin HtyR**	0.25	U	ug/L	P404777	
		Microcystin LA	0.10	U	ug/L	P404777	
		Microcystin LF	0.10	U	ug/L	P404777	
		Microcystin LR	0.30	I	ug/L	P404777	
		Microcystin LW	0.25	U	ug/L	P404777	
		Microcystin LY	0.10	U	ug/L	P404777	
		Microcystin RR	0.10	U	ug/L	P404777	
		Microcystin WR	0.50	U	ug/L	P404777	
		Microcystin YR	0.25	U	ug/L	P404777	
		Nodularin-R**	0.10	U	ug/L	P404777	
2282100	EPA 350.1 Rev. 2.0	Ammonia-N	0.14		mg N/L	P405208	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P405368	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.039		mg N/L	P404976	
	EPA 365.1 Rev. 2.0	Total-P	0.070		mg P/L	P404974	
2282104	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.010		mg P/L	P404804	

Sample Location: Doctor's Lake @ Mill Cove

Collection Date/Time: 10/07/2021 10:10

Field ID: NEHAB0057

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2282095	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P404777	
		Cylindrospermopsin	0.10	U	ug/L	P404777	
		Desmethyl microcystin LR	0.25	U	ug/L	P404777	
		Microcystin HilR**	0.25	U	ug/L	P404777	
		Microcystin HtyR**	0.25	U	ug/L	P404777	
		Microcystin LA	0.10	U	ug/L	P404777	
		Microcystin LF	0.10	U	ug/L	P404777	
		Microcystin LR	0.25	U	ug/L	P404777	
		Microcystin LW	0.25	U	ug/L	P404777	
		Microcystin LY	0.10	U	ug/L	P404777	
		Microcystin RR	0.10	U	ug/L	P404777	
		Microcystin WR	0.50	U	ug/L	P404777	
		Microcystin YR	0.25	U	ug/L	P404777	
		Nodularin-R**	0.10	U	ug/L	P404777	
2282099	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P405208	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P405368	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P404976	
	EPA 365.1 Rev. 2.0	Total-P	0.056		mg P/L	P404974	
2282103	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P404804	

Sample Location: Pace Island Dock

Collection Date/Time: 10/07/2021 10:45

Field ID: NEHAB0055

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2282094	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P404777	
		Cylindrospermopsin	0.10	U	ug/L	P404777	
		Desmethyl microcystin LR	0.25	U	ug/L	P404777	
		Microcystin HilR**	0.25	U	ug/L	P404777	
		Microcystin HtyR**	0.25	U	ug/L	P404777	
		Microcystin LA	0.10	U	ug/L	P404777	
		Microcystin LF	0.10	U	ug/L	P404777	
		Microcystin LR	0.25	U	ug/L	P404777	
		Microcystin LW	0.25	U	ug/L	P404777	
		Microcystin LY	0.10	U	ug/L	P404777	
		Microcystin RR	0.10	U	ug/L	P404777	
		Microcystin WR	0.50	U	ug/L	P404777	
		Microcystin YR	0.25	U	ug/L	P404777	
		Nodularin-R**	0.10	U	ug/L	P404777	
2282098	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P405206	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P405368	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P404976	
	EPA 365.1 Rev. 2.0	Total-P	0.060		mg P/L	P404974	
2282102	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P404804	

Sample Location: LSJR @ N Ridge Dr

Collection Date/Time: 10/07/2021 11:20

Field ID: NEHAB0030

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2282093	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P404777	
		Cylindrospermopsin	0.10	U	ug/L	P404777	
		Desmethyl microcystin LR	0.25	U	ug/L	P404777	
		Microcystin HilR**	0.25	U	ug/L	P404777	
		Microcystin HtyR**	0.25	U	ug/L	P404777	
		Microcystin LA	0.10	U	ug/L	P404777	
		Microcystin LF	0.10	U	ug/L	P404777	
		Microcystin LR	0.25	U	ug/L	P404777	
		Microcystin LW	0.25	U	ug/L	P404777	
		Microcystin LY	0.10	U	ug/L	P404777	
		Microcystin RR	0.10	U	ug/L	P404777	
		Microcystin WR	0.50	U	ug/L	P404777	
		Microcystin YR	0.25	U	ug/L	P404777	
		Nodularin-R**	0.10	U	ug/L	P404777	
2282097	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P405206	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.79		mg N/L	P405367	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.092		mg N/L	P404976	
	EPA 365.1 Rev. 2.0	Total-P	0.066		mg P/L	P404974	
2282101	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.037		mg P/L	P404804	

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405206

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405208

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405367

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405368

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404976

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404974

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404804

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

Reference Method: EPA 8321B
Batch ID: P404777

Component	Result	Code	Units
Anatoxin-a	0.25	U	ug/L
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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P404777

Component	Result	Code	Units
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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405206

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405208

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405367

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405368

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404976

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404974

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404804

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.8		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P404777

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	106		P	40 - 150
Cylindrospermopsin	97.3		P	40 - 150
Desmethyl microcystin LR	112		P	40 - 150
Microcystin HIR	122		P	40 - 150
Microcystin HtyR	122		P	40 - 150
Microcystin LA	118		P	40 - 150
Microcystin LF	124		P	40 - 150
Microcystin LR	127		P	40 - 150
Microcystin LW	126		P	40 - 150
Microcystin LY	129		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P404777

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Microcystin RR	109		P	40 - 150
Microcystin WR	120		P	40 - 150
Microcystin YR	128		P	40 - 150
Nodularin-R	107		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P405206

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2282098	Ammonia-N	97.2	98.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P405208

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2282158	Ammonia-N	97.2	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P405367

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2281668	Kjeldahl Nitrogen	101	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P405368

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2282120	Kjeldahl Nitrogen	90.2	90.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P404976

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2282097	NO2NO3-N	97.9	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P404974

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2282100	Total-P	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P404804

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2282104	O-Phosphate-P	95.7	96.7	P/P	90 - 110

Reference Method: EPA 8321B

Batch ID: P404777

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2282093	Anatoxin-a	116	111	P/P	40 - 150
2282093	Cylindrospermopsin	98.9	91.0	P/P	40 - 150
2282093	Desmethyl microcystin LR	112	112	P/P	40 - 150
2282093	Microcystin HtIR	116	116	P/P	40 - 150
2282093	Microcystin HtyR	127	119	P/P	40 - 150
2282093	Microcystin LA	108	107	P/P	40 - 150
2282093	Microcystin LF	118	115	P/P	40 - 150
2282093	Microcystin LR	122	122	P/P	40 - 150
2282093	Microcystin LW	118	120	P/P	40 - 150
2282093	Microcystin LY	124	117	P/P	40 - 150

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P404777

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2282093	Microcystin RR	108	104	P/P	40 - 150
2282093	Microcystin WR	111	113	P/P	40 - 150
2282093	Microcystin YR	122	116	P/P	40 - 150
2282093	Nodularin-R	109	110	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405206

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282098	Ammonia-N	0.940	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405208

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282158	Ammonia-N	0.977	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405367

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2281668	Kjeldahl Nitrogen	1.39	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405368

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282120	Kjeldahl Nitrogen	0.0206	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404976

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282097	NO2NO3-N	0.348	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404974

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282100	Total-P	0.0423	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404804

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282104	O-Phosphate-P	0.937	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P404777

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282093	Anatoxin-a	3.72	Spike	P	0 - 30
2282093	Cylindrospermopsin	8.31	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B

Batch ID: P404777

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282093	Desmethyl microcystin LR	0.176	Spike	P	0 - 30
2282093	Microcystin HilR	0.00845	Spike	P	0 - 30
2282093	Microcystin HtyR	6.11	Spike	P	0 - 30
2282093	Microcystin LA	1.20	Spike	P	0 - 30
2282093	Microcystin LF	2.15	Spike	P	0 - 30
2282093	Microcystin LR	0.518	Spike	P	0 - 30
2282093	Microcystin LW	1.84	Spike	P	0 - 30
2282093	Microcystin LY	5.73	Spike	P	0 - 30
2282093	Microcystin RR	4.30	Spike	P	0 - 30
2282093	Microcystin WR	1.89	Spike	P	0 - 30
2282093	Microcystin YR	4.83	Spike	P	0 - 30
2282093	Nodularin-R	1.22	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2282093
Field Sample ID: NEHAB0030

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	120	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	117	P	30 - 160

Lab Sample ID: 2282094
Field Sample ID: NEHAB0055

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	121	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	115	P	30 - 160

Lab Sample ID: 2282095
Field Sample ID: NEHAB0057

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	123	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	112	P	30 - 160

Lab Sample ID: 2282096
Field Sample ID: NEHAB0058

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	117	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	124	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A108240

Included Lab Sample IDs: 2282101, 2282102, 2282103, 2282104

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.3	98.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A108296

Included Lab Sample IDs: 2282093, 2282094, 2282095, 2282096

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	115	111	P/P	50 - 160
Cylindrospermopsin	105	106	P/P	50 - 160
Desmethyl microcystin LR	122	132	P/P	50 - 160
Microcystin HIR	132	139	P/P	50 - 160
Microcystin HtyR	130	142	P/P	50 - 160
Microcystin LA	125	126	P/P	50 - 160
Microcystin LF	137	145	P/P	50 - 160
Microcystin LR	141	136	P/P	50 - 160
Microcystin LW	142	147	P/P	50 - 160
Microcystin LY	130	141	P/P	50 - 160
Microcystin RR	116	117	P/P	50 - 160
Microcystin WR	129	136	P/P	50 - 160
Microcystin YR	126	129	P/P	50 - 160
Nodularin-R	118	115	P/P	50 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A108305

Included Lab Sample IDs: 2282097, 2282098, 2282099, 2282100

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A108351

Included Lab Sample IDs: 2282097, 2282098, 2282099, 2282100

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A108394

Included Lab Sample IDs: 2282097, 2282098, 2282099, 2282100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.8	97.9	P/P	90 - 110
Ammonia-N	98.7	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A108488

Included Lab Sample IDs: 2282097, 2282098, 2282099, 2282100

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A108488

Included Lab Sample IDs: 2282097, 2282098, 2282099, 2282100

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	98.0	P/P	90 - 110
Kjeldahl Nitrogen	98.0	99.0	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	
EPA 350.1 Rev. 2.0	Ammonia-N	99.0	97.2	98.6			0.940
	Ammonia-N	96.8	97.2	98.4			0.977
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	101	103			1.39
	Kjeldahl Nitrogen	99.8	90.2	90.2			0.0206
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	97.9	97.4			0.348
EPA 365.1 Rev. 2.0	Total-P	101	101	101			0.0423
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.8	95.7	96.7			0.937
EPA 8321B	Anatoxin-a	106	116	111			3.72
	Cylindrospermopsin	97.3	98.9	91.0			8.31
	Desmethyl microcystin LR	112	112	112			0.176
	Microcystin HilR	122	116	116			0.0084
	Microcystin HtyR	122	127	119			6.11
	Microcystin LA	118	108	107			1.20
	Microcystin LF	124	118	115			2.15
	Microcystin LR	127	122	122			0.518
	Microcystin LW	126	118	120			1.84
	Microcystin LY	129	124	117			5.73
	Microcystin RR	109	108	104			4.30
	Microcystin WR	120	111	113			1.89
	Microcystin YR	128	122	116			4.83
	Nodularin-R	107	109	110			1.22

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2282097, 2282098, 2282099, 2282100
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2282097, 2282098, 2282099, 2282100
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2282097, 2282098, 2282099, 2282100
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2282097, 2282098, 2282099, 2282100
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2282101, 2282102, 2282103, 2282104
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2282093, 2282094, 2282095, 2282096

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 350.1 Rev. 2.0	10/08/2021			10/18/2021 12:15	Ping Hua	2282098
	10/08/2021			10/18/2021 12:21	Ping Hua	2282097
	10/08/2021			10/18/2021 13:15	Ping Hua	2282099
	10/08/2021			10/18/2021 13:17	Ping Hua	2282100
EPA 351.2 Rev. 2.0	10/08/2021	10/21/2021 11:19	Benjamin T. Nordmann	10/22/2021 10:48	Alexandra J Mattheus	2282097
	10/08/2021	10/21/2021 11:19	Benjamin T. Nordmann	10/22/2021 12:26	Alexandra J Mattheus	2282098
	10/08/2021	10/21/2021 11:19	Benjamin T. Nordmann	10/22/2021 12:30	Alexandra J Mattheus	2282099
	10/08/2021	10/21/2021 11:19	Benjamin T. Nordmann	10/22/2021 12:32	Alexandra J Mattheus	2282100
EPA 353.2 Rev. 2.0	10/08/2021			10/13/2021 09:41	Beverly Y. Sanders	2282097
	10/08/2021			10/13/2021 11:31	Beverly Y. Sanders	2282098
	10/08/2021			10/13/2021 11:32	Beverly Y. Sanders	2282099
	10/08/2021			10/13/2021 11:33	Beverly Y. Sanders	2282100
EPA 365.1 Rev. 2.0	10/08/2021	10/13/2021 11:40	Simonne.V. Calhoun	10/14/2021 15:59	Sarah A Nixon	2282100
	10/08/2021	10/13/2021 11:40	Simonne.V. Calhoun	10/14/2021 16:02	Sarah A Nixon	2282097
	10/08/2021	10/13/2021 11:40	Simonne.V. Calhoun	10/14/2021 16:03	Sarah A Nixon	2282098
	10/08/2021	10/13/2021 11:40	Simonne.V. Calhoun	10/14/2021 16:04	Sarah A Nixon	2282099
EPA 365.1 Rev. 2.0 dissolved	10/08/2021			10/08/2021 15:08	James L Waggeberby	2282104
	10/08/2021			10/08/2021 15:11	James L Waggeberby	2282101
	10/08/2021			10/08/2021 15:12	James L Waggeberby	2282102, 2282103
EPA 8321B	10/08/2021	10/12/2021 11:00	Manjita Shrestha	10/12/2021 13:47	Manjita Shrestha	2282093
	10/08/2021	10/12/2021 11:00	Manjita Shrestha	10/12/2021 14:07	Manjita Shrestha	2282094
	10/08/2021	10/12/2021 11:00	Manjita Shrestha	10/12/2021 14:23	Manjita Shrestha	2282095
	10/08/2021	10/12/2021 11:00	Manjita Shrestha	10/12/2021 14:40	Manjita Shrestha	2282096