Chemical Analysis Report

WQAP-2022-06-29-01

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-2022-06-06-57**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

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Certified by: Thekkekalathil Chandrasekhar, Environmental Consultant Date Certified: 20-JUL-2022 10:54

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: Lochloosa Lake entrance to Cross Creek **Collection Date/Time: 06/28/2022 12:00**

Field ID: NEHAB0079 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2337968	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P415886	
		Cylindrospermopsin	0.10	U	ug/L	P415886	
		Desmethyl microcystin LR	0.25	U	ug/L	P415886	
		Microcystin HilR	0.25	U	ug/L	P415886	
		Microcystin HtyR	0.25	U	ug/L	P415886	
		Microcystin LA	0.10	U	ug/L	P415886	
		Microcystin LF	0.10	U	ug/L	P415886	
		Microcystin LR	1.1		ug/L	P415886	
		Microcystin LW	0.25	U	ug/L	P415886	
		Microcystin LY	0.10	U	ug/L	P415886	
		Microcystin RR	0.81		ug/L	P415886	
		Microcystin WR	0.50	U	ug/L	P415886	
		Microcystin YR	0.25	U	ug/L	P415886	
		Nodularin-R	0.10	U	ug/L	P415886	
2337974	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P416259	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P416181	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P416128	
	EPA 365.1 Rev. 2.0	Total-P	0.090		mg P/L	P416335	
2337977	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P415980	

Sample Location: Lochloosa Lake @ Park **Collection Date/Time: 06/28/2022 12:25**

Field ID: NEHAB0082 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2337969	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P415886	
		Cylindrospermopsin	0.10	U	ug/L	P415886	
		Desmethyl microcystin LR	0.25	U	ug/L	P415886	
		Microcystin HilR	0.25	U	ug/L	P415886	
		Microcystin HtyR	0.25	U	ug/L	P415886	
		Microcystin LA	0.10	U	ug/L	P415886	
		Microcystin LF	0.10	U	ug/L	P415886	
		Microcystin LR	1.2		ug/L	P415886	
		Microcystin LW	0.25	U	ug/L	P415886	
		Microcystin LY	0.10	U	ug/L	P415886	
		Microcystin RR	0.89		ug/L	P415886	
		Microcystin WR	0.50	U	ug/L	P415886	
		Microcystin YR	0.25	U	ug/L	P415886	
		Nodularin-R	0.10	U	ug/L	P415886	
2337975	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P416259	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P416181	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P416128	
	EPA 365.1 Rev. 2.0	Total-P	0.074		mg P/L	P416335	
2337978	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.020		mg P/L	P415980	

Sample Location: Lochloosa Lake NE in Veg **Collection Date/Time: 06/28/2022 11:25**

Field ID: NEHAB0083 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2337970	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P415886	
		Cylindrospermopsin	0.10	U	ug/L	P415886	
		Desmethyl microcystin LR	0.25	U	ug/L	P415886	
		Microcystin HilR	0.25	U	ug/L	P415886	
		Microcystin HtyR	0.25	U	ug/L	P415886	
		Microcystin LA	0.10	U	ug/L	P415886	
		Microcystin LF	0.10	U	ug/L	P415886	
		Microcystin LR	1.1		ug/L	P415886	
		Microcystin LW	0.25	U	ug/L	P415886	
		Microcystin LY	0.10	U	ug/L	P415886	
		Microcystin RR	0.84		ug/L	P415886	
		Microcystin WR	0.50	U	ug/L	P415886	
		Microcystin YR	0.25	U	ug/L	P415886	
		Nodularin-R	0.10	U	ug/L	P415886	
2337976	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P416265	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P416181	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P416128	
	EPA 365.1 Rev. 2.0	Total-P	0.081		mg P/L	P416140	
2337979	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P415980	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416259

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416265

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416181

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416128

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416140

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416335

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P415980

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

Reference Method: EPA 8321B
Batch ID: P415886

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 HilR	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: P415886

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: P416259

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416265

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416181

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416128

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416140

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416335

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P415980

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

Reference Method: EPA 8321B
Batch ID: P415886

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	108		P	40 - 150
Cylindrospermopsin	82.0		P	40 - 150
Desmethyl microcystin LR	90.2		P	40 - 150
Microcystin HilR	89.2		P	40 - 150
Microcystin HtyR	87.1		P	40 - 150
Microcystin LA	88.1		P	40 - 150
Microcystin LF	113		P	40 - 150
Microcystin LR	94.2		P	40 - 150
Microcystin LW	127		P	40 - 150
Microcystin LY	89.0		P	40 - 150

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P415886

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Microcystin RR	98.4		P	40 - 150
Microcystin WR	94.2		P	40 - 150
Microcystin YR	95.8		P	40 - 150
Nodularin-R	87.9		P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416259

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337911	Ammonia-N	100	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416265

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337909	Ammonia-N	98.4	96.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416181

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337734	Kjeldahl Nitrogen	97.0	96.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416128

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337755	NO2NO3-N	98.8	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416140

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337976	Total-P	105	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416335

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337975	Total-P	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P415980

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337859	O-Phosphate-P	98.8	99.0	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P415886

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337754	Anatoxin-a	111	113	P/P	40 - 150
2337754	Cylindrospermopsin	82.0	82.4	P/P	40 - 150
2337754	Desmethyl microcystin LR	89.4	93.0	P/P	40 - 150
2337754	Microcystin HilR	92.1	93.6	P/P	40 - 150
2337754	Microcystin HtyR	84.6	89.2	P/P	40 - 150
2337754	Microcystin LA	97.5	93.8	P/P	40 - 150
2337754	Microcystin LF	130	124	P/P	40 - 150
2337754	Microcystin LR	97.1	93.7	P/P	40 - 150
2337754	Microcystin LW	114	132	P/P	40 - 150
2337754	Microcystin LY	78.7	90.5	P/P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P415886

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2337754	Microcystin RR	99.3	97.9	P/P	40 - 150
2337754	Microcystin WR	100	94.0	P/P	40 - 150
2337754	Microcystin YR	95.9	98.9	P/P	40 - 150
2337754	Nodularin-R	93.9	92.6	P/P	40 - 150

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416259

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337911	Ammonia-N	0.0	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P416265

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337909	Ammonia-N	1.22	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416181

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337734	Kjeldahl Nitrogen	0.443	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416128

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337755	NO2NO3-N	0.475	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416140

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337976	Total-P	0.599	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416335

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337975	Total-P	0.244	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P415980

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337859	O-Phosphate-P	0.202	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P415886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337754	Anatoxin-a	1.66	Spike	P	0 - 30
2337754	Cylindrospermopsin	0.441	Spike	P	0 - 30

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P415886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2337754	Desmethyl microcystin LR	3.95	Spike	P	0 - 30
2337754	Microcystin HilR	1.55	Spike	P	0 - 30
2337754	Microcystin HtyR	5.34	Spike	P	0 - 30
2337754	Microcystin LA	3.93	Spike	P	0 - 30
2337754	Microcystin LF	5.15	Spike	P	0 - 30
2337754	Microcystin LR	3.40	Spike	P	0 - 30
2337754	Microcystin LW	15.0	Spike	P	0 - 30
2337754	Microcystin LY	13.9	Spike	P	0 - 30
2337754	Microcystin RR	1.39	Spike	P	0 - 30
2337754	Microcystin WR	6.48	Spike	P	0 - 30
2337754	Microcystin YR	3.15	Spike	P	0 - 30
2337754	Nodularin-R	1.35	Spike	P	0 - 30

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2337968
Field Sample ID: NEHAB0079

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

Lab Sample ID: 2337969
Field Sample ID: NEHAB0082

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	130	P	30 - 160

Lab Sample ID: 2337970
Field Sample ID: NEHAB0083

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	137	P	30 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A113168
Included Lab Sample IDs: 2337977, 2337978, 2337979

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.7	100	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A113216
Included Lab Sample IDs: 2337968, 2337969, 2337970

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	100	102	P/P	50 - 160
Cylindrospermopsin	78.3	79.4	P/P	50 - 160
Desmethyl microcystin LR	93.9	98.9	P/P	50 - 160
Microcystin HilR	91.0	91.5	P/P	50 - 160
Microcystin HtyR	88.6	95.3	P/P	50 - 160
Microcystin LA	91.0	95.0	P/P	50 - 160
Microcystin LF	114	114	P/P	50 - 160
Microcystin LR	91.1	97.3	P/P	50 - 160
Microcystin LW	111	100	P/P	50 - 160
Microcystin LY	87.9	100	P/P	50 - 160
Microcystin RR	94.8	96.9	P/P	50 - 160
Microcystin WR	92.6	99.2	P/P	50 - 160
Microcystin YR	90.9	94.3	P/P	50 - 160
Nodularin-R	87.6	92.9	P/P	50 - 160

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A113268
Included Lab Sample IDs: 2337974, 2337975, 2337976

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A113326
Included Lab Sample IDs: 2337974, 2337975

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.5	97.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A113332
Included Lab Sample IDs: 2337976

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.4	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A113340
Included Lab Sample IDs: 2337976

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	94.9	93.0	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A113435
Included Lab Sample IDs: 2337974, 2337975

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.1	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A113474
Included Lab Sample IDs: 2337974, 2337975, 2337976

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	97.4	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		Precision		
					LCS	SMP	MS
EPA 350.1 Rev. 2.0	Ammonia-N	94.6	100	100			0.0
	Ammonia-N	95.4	98.4	96.8			1.22
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	97.0	96.5			0.443
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	98.8	99.4			0.475
EPA 365.1 Rev. 2.0	Total-P	104	105	105			0.599
	Total-P	103	104	104			0.244
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.7	98.8	99.0			0.202
EPA 8321B	Anatoxin-a	108	111	113			1.66
	Cylindrospermopsin	82.0	82.0	82.4			0.441
	Desmethyl microcystin LR	90.2	89.4	93.0			3.95
	Microcystin HilR	89.2	92.1	93.6			1.55
	Microcystin HtyR	87.1	84.6	89.2			5.34
	Microcystin LA	88.1	97.5	93.8			3.93
	Microcystin LF	113	130	124			5.15
	Microcystin LR	94.2	97.1	93.7			3.40
	Microcystin LW	127	114	132			15.0
	Microcystin LY	89.0	78.7	90.5			13.9
	Microcystin RR	98.4	99.3	97.9			1.39
	Microcystin WR	94.2	100	94.0			6.48
	Microcystin YR	95.8	95.9	98.9			3.15
	Nodularin-R	87.9	93.9	92.6			1.35

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2337974, 2337975, 2337976
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2337974, 2337975, 2337976
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2337974, 2337975, 2337976
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2337974, 2337975, 2337976
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2337977, 2337978, 2337979
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2337968, 2337969, 2337970

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	06/29/2022			07/06/2022 13:16	Ping Hua	2337974
	06/29/2022			07/06/2022 13:17	Ping Hua	2337975
	06/29/2022			07/07/2022 12:02	Ping Hua	2337976
EPA 351.2 Rev. 2.0	06/29/2022	07/12/2022 12:13	Simonne.V. Calhoun	07/13/2022 11:55	Alexandra J Mattheus	2337974
	06/29/2022	07/12/2022 12:13	Simonne.V. Calhoun	07/13/2022 11:56	Alexandra J Mattheus	2337975
	06/29/2022	07/12/2022 12:13	Simonne.V. Calhoun	07/13/2022 11:58	Alexandra J Mattheus	2337976
EPA 353.2 Rev. 2.0	06/29/2022			07/05/2022 09:12	Beverly Y. Sanders	2337974
	06/29/2022			07/05/2022 09:13	Beverly Y. Sanders	2337975
	06/29/2022			07/05/2022 09:14	Beverly Y. Sanders	2337976
EPA 365.1 Rev. 2.0	06/29/2022	07/06/2022 16:30	Adam P Silver	07/07/2022 15:31	James L Waggerby	2337976
	06/29/2022	07/08/2022 17:39	Adam P Silver	07/11/2022 17:11	James L Waggerby	2337975
	06/29/2022	07/08/2022 17:39	Adam P Silver	07/11/2022 17:14	James L Waggerby	2337974
EPA 365.1 Rev. 2.0 dissolved	06/29/2022			06/29/2022 14:11	Chandler E Cox	2337977
	06/29/2022			06/29/2022 14:12	Chandler E Cox	2337978, 2337979
EPA 8321B	06/29/2022	06/30/2022 08:00	Manjita Shrestha	06/30/2022 13:12	Manjita Shrestha	2337968
	06/29/2022	06/30/2022 08:00	Manjita Shrestha	06/30/2022 13:29	Manjita Shrestha	2337969
	06/29/2022	06/30/2022 08:00	Manjita Shrestha	06/30/2022 13:46	Manjita Shrestha	2337970