Chemical Analysis Report

WQAP-2022-10-14-01

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

Event Description: **Algal Bloom Response - CEROC**
Request ID: **RQ-2022-08-29-41**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

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Certified by: Colin Wright, Program Administrator

Date Certified: 10-NOV-2022 10:47

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: Fish Lake - Sexton Park **Collection Date/Time: 10/13/2022 11:16**

Field ID: HABCE0132_FishLake Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2362479	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P420913	
		Cylindrospermopsin	0.10	U	ug/L	P420912	
		Desmethyl microcystin LR	0.25	U	ug/L	P420912	
		Microcystin HilR	0.25	U	ug/L	P420912	
		Microcystin HtyR	0.25	U	ug/L	P420912	
		Microcystin LA	0.10	U	ug/L	P420912	
		Microcystin LF	0.10	U	ug/L	P420912	
		Microcystin LR	0.25	U	ug/L	P420912	
		Microcystin LW	0.25	U	ug/L	P420912	
		Microcystin LY	0.10	U	ug/L	P420912	
		Microcystin RR	0.10	U	ug/L	P420912	
		Microcystin WR	0.50	U	ug/L	P420912	
		Microcystin YR	0.25	U	ug/L	P420912	
		Nodularin-R	0.10	U	ug/L	P420912	
2362482	EPA 350.1 Rev. 2.0	Ammonia-N	0.049		mg N/L	P421332	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.95		mg N/L	P421225	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.019		mg N/L	P420969	
	EPA 365.1 Rev. 2.0	Total-P	0.051		mg P/L	P421056	
2362484	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P420942	

Sample Location: Fish Lake - Sexton Park **Collection Date/Time: 10/13/2022 11:35**

Field ID: FB_10132022 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2362481	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P420913	
		Cylindrospermopsin	0.10	U	ug/L	P420912	
		Desmethyl microcystin LR	0.25	U	ug/L	P420912	
		Microcystin HilR	0.25	U	ug/L	P420912	
		Microcystin HtyR	0.25	U	ug/L	P420912	
		Microcystin LA	0.10	U	ug/L	P420912	
		Microcystin LF	0.10	U	ug/L	P420912	
		Microcystin LR	0.25	U	ug/L	P420912	
		Microcystin LW	0.25	U	ug/L	P420912	
		Microcystin LY	0.10	U	ug/L	P420912	
		Microcystin RR	0.10	U	ug/L	P420912	
		Microcystin WR	0.50	U	ug/L	P420912	
		Microcystin YR	0.25	U	ug/L	P420912	
		Nodularin-R	0.10	U	ug/L	P420912	
2362486	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P421333	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P421225	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P420969	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P421056	
2362487	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P420942	

Sample Location: Sawgrass Lake From CWC Dock **Collection Date/Time: 10/13/2022 13:32**

Field ID: HABCE0082_SawgrassLake Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2362480	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P420913	
		Cylindrospermopsin	0.10	U	ug/L	P420912	
		Desmethyl microcystin LR	0.25	U	ug/L	P420912	
		Microcystin HilR	0.25	U	ug/L	P420912	
		Microcystin HtyR	0.25	U	ug/L	P420912	
		Microcystin LA	0.10	U	ug/L	P420912	
		Microcystin LF	0.10	U	ug/L	P420912	
		Microcystin LR	0.25	I	ug/L	P420912	
		Microcystin LW	0.25	U	ug/L	P420912	
		Microcystin LY	0.10	U	ug/L	P420912	
		Microcystin RR	0.10	U	ug/L	P420912	
		Microcystin WR	0.50	U	ug/L	P420912	
		Microcystin YR	0.25	U	ug/L	P420912	
		Nodularin-R	0.10	U	ug/L	P420912	
2362483	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P421332	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P421225	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P420969	
	EPA 365.1 Rev. 2.0	Total-P	0.077		mg P/L	P421056	
2362485	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.039		mg P/L	P420942	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P421332

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P421333

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P421225

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420969

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P421056

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P420942

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

Reference Method: EPA 8321B
Batch ID: P420912

Component	Result	Code	Units
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
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
Method Blank Results

Reference Method: EPA 8321B
Batch ID: P420913

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P421332

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P421333

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P421225

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: P420969

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: P421056

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	108		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P420942

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

Reference Method: EPA 8321B
Batch ID: P420912

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	97.2		P	40 - 150
Desmethyl microcystin LR	100		P	40 - 150
Microcystin HilR	87.5		P	40 - 150
Microcystin HtyR	99.2		P	40 - 150
Microcystin LA	95.6		P	40 - 150
Microcystin LF	101		P	40 - 150
Microcystin LR	108		P	40 - 150
Microcystin LW	101		P	40 - 150
Microcystin LY	101		P	40 - 150
Microcystin RR	94.0		P	40 - 150
Microcystin WR	95.4		P	40 - 150
Microcystin YR	103		P	40 - 150
Nodularin-R	93.9		P	40 - 150

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P420913

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	109		P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P421332

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2362408	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P421333

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2362499	Ammonia-N	98.2	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P421225

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2362483	Kjeldahl Nitrogen	105	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420969

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2362456	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P421056

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2362431	Total-P	107	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P420942

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2362544	O-Phosphate-P	99.3	99.1	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P420912

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2362455	Cylindrospermopsin	87.4	92.5	P/P	40 - 150
2362455	Desmethyl microcystin LR	91.4	92.6	P/P	40 - 150
2362455	Microcystin HilR	81.5	80.9	P/P	40 - 150
2362455	Microcystin HtyR	90.1	85.8	P/P	40 - 150
2362455	Microcystin LA	85.3	87.5	P/P	40 - 150
2362455	Microcystin LF	85.2	89.5	P/P	40 - 150
2362455	Microcystin LR	100	100	P/P	40 - 150
2362455	Microcystin LW	84.3	90.8	P/P	40 - 150
2362455	Microcystin LY	90.1	94.6	P/P	40 - 150
2362455	Microcystin RR	88.5	92.8	P/P	40 - 150
2362455	Microcystin WR	81.5	86.8	P/P	40 - 150
2362455	Microcystin YR	102	97.6	P/P	40 - 150
2362455	Nodularin-R	92.2	91.3	P/P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P420913

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2362455	Anatoxin-a	122	118	P/P	40 - 150

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P421332

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2362408	Ammonia-N	0.792	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P421333

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2362499	Ammonia-N	2.63	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P421225

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2362483	Kjeldahl Nitrogen	1.56	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420969

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2362456	NO2NO3-N	0.491	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P421056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2362431	Total-P	0.677	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P420942

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2362544	O-Phosphate-P	0.202	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P420912

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2362455	Cylindrospermopsin	5.74	Spike	P	0 - 30
2362455	Desmethyl microcystin LR	1.39	Spike	P	0 - 30
2362455	Microcystin HilR	0.741	Spike	P	0 - 30
2362455	Microcystin HtyR	4.94	Spike	P	0 - 30
2362455	Microcystin LA	2.55	Spike	P	0 - 30
2362455	Microcystin LF	4.84	Spike	P	0 - 30
2362455	Microcystin LR	0.284	Spike	P	0 - 30
2362455	Microcystin LW	7.38	Spike	P	0 - 30
2362455	Microcystin LY	4.88	Spike	P	0 - 30

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P420912

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2362455	Microcystin RR	4.72	Spike	P	0 - 30
2362455	Microcystin WR	6.32	Spike	P	0 - 30
2362455	Microcystin YR	4.09	Spike	P	0 - 30
2362455	Nodularin-R	0.967	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P420913

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2362455	Anatoxin-a	3.60	Spike	P	0 - 30

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2362479
Field Sample ID: HABCE0132_FishLake

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	84.8	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	84.5	P	30 - 160

Lab Sample ID: 2362480
Field Sample ID: HABCE0082_SawgrassLake

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	77.1	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	68.5	P	30 - 160

Lab Sample ID: 2362481
Field Sample ID: FB_10132022

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	56.2	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	65.9	P	30 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A115323
Included Lab Sample IDs: 2362484, 2362485, 2362487

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	98.4	P/P	90 - 110
O-Phosphate-P	98.4	98.8	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A115333
Included Lab Sample IDs: 2362479, 2362480, 2362481

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	85.0	88.0	P/P	60 - 160
Desmethyl microcystin LR	82.3	86.3	P/P	60 - 160
Microcystin HilR	69.6	73.7	P/P	60 - 160
Microcystin HtyR	78.4	82.5	P/P	60 - 160
Microcystin LA	77.4	79.6	P/P	50 - 160
Microcystin LF	77.3	80.5	P/P	60 - 160
Microcystin LR	81.8	88.4	P/P	60 - 160
Microcystin LW	80.1	87.4	P/P	60 - 160
Microcystin LY	83.9	86.5	P/P	60 - 160
Microcystin RR	81.1	83.4	P/P	60 - 160
Microcystin WR	79.0	78.4	P/P	60 - 160
Microcystin YR	84.3	86.0	P/P	60 - 160
Nodularin-R	82.3	83.1	P/P	60 - 160

Reference Method: EPA 8321B
Run ID: A115335
Included Lab Sample IDs: 2362479, 2362480, 2362481

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	114	104	P/P	50 - 160

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A115338
Included Lab Sample IDs: 2362482, 2362483, 2362486

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A115428
Included Lab Sample IDs: 2362482, 2362483

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A115435
Included Lab Sample IDs: 2362486

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	104	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A115481
Included Lab Sample IDs: 2362482, 2362483, 2362486

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	101	P/P	90 - 110
Kjeldahl Nitrogen	100	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A115485
Included Lab Sample IDs: 2362482, 2362483, 2362486

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	98.7	P/P	90 - 110
Ammonia-N	98.7	101	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	96.4	101	101			0.792
	Ammonia-N	98.4	98.2	101			2.63
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	105	108			1.56
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	102			0.491
EPA 365.1 Rev. 2.0	Total-P	108	107	108			0.677
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	99.3	99.1			0.202
EPA 8321B	Anatoxin-a	109	122	118			3.60
	Cylindrospermopsin	97.2	87.4	92.5			5.74
	Desmethyl microcystin LR	100	91.4	92.6			1.39
	Microcystin HilR	87.5	81.5	80.9			0.741
	Microcystin HtyR	99.2	90.1	85.8			4.94
	Microcystin LA	95.6	85.3	87.5			2.55
	Microcystin LF	101	85.2	89.5			4.84
	Microcystin LR	108	100	100			0.284
	Microcystin LW	101	84.3	90.8			7.38
	Microcystin LY	101	90.1	94.6			4.88
	Microcystin RR	94.0	88.5	92.8			4.72
	Microcystin WR	95.4	81.5	86.8			6.32
	Microcystin YR	103	102	97.6			4.09
	Nodularin-R	93.9	92.2	91.3			0.967

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2362482, 2362483, 2362486
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2362482, 2362483, 2362486
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2362482, 2362483, 2362486
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2362482, 2362483, 2362486
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2362484, 2362485, 2362487
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2362479, 2362480, 2362481
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2362479, 2362480, 2362481

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	10/14/2022			10/24/2022 13:44	Judith K. Clark	2362482
	10/14/2022			10/24/2022 13:45	Judith K. Clark	2362483
	10/14/2022			10/24/2022 14:12	Judith K. Clark	2362486
EPA 351.2 Rev. 2.0	10/14/2022	10/21/2022 11:19	Simonne.V. Calhoun	10/24/2022 12:39	Alexandra J Mattheus	2362482
	10/14/2022	10/21/2022 11:19	Simonne.V. Calhoun	10/24/2022 12:44	Alexandra J Mattheus	2362483
	10/14/2022	10/21/2022 11:19	Simonne.V. Calhoun	10/24/2022 12:49	Alexandra J Mattheus	2362486
EPA 353.2 Rev. 2.0	10/14/2022			10/17/2022 09:36	Beverly Y. Sanders	2362482
	10/14/2022			10/17/2022 09:37	Beverly Y. Sanders	2362483
	10/14/2022			10/17/2022 09:38	Beverly Y. Sanders	2362486
EPA 365.1 Rev. 2.0	10/14/2022	10/19/2022 14:47	Adam P Silver	10/20/2022 11:57	Simonne.V. Calhoun	2362482
	10/14/2022	10/19/2022 14:47	Adam P Silver	10/20/2022 11:58	Simonne.V. Calhoun	2362483
	10/14/2022	10/19/2022 14:47	Adam P Silver	10/20/2022 15:04	Simonne.V. Calhoun	2362486
EPA 365.1 Rev. 2.0 dissolved	10/14/2022			10/14/2022 15:10	Elise M. Gillis	2362484
	10/14/2022			10/14/2022 15:11	Elise M. Gillis	2362485
	10/14/2022			10/14/2022 15:19	Elise M. Gillis	2362487
EPA 8321B	10/14/2022	10/14/2022 13:00	Manjita Shrestha	10/14/2022 14:57	Manjita Shrestha	2362479
	10/14/2022	10/14/2022 13:00	Manjita Shrestha	10/14/2022 15:11	Manjita Shrestha	2362480
	10/14/2022	10/14/2022 13:00	Manjita Shrestha	10/14/2022 15:25	Manjita Shrestha	2362481
	10/14/2022	10/14/2022 13:00	Manjita Shrestha	10/14/2022 18:37	Umesh Chiluwal	2362479
	10/14/2022	10/14/2022 13:00	Manjita Shrestha	10/14/2022 18:54	Umesh Chiluwal	2362480
	10/14/2022	10/14/2022 13:00	Manjita Shrestha	10/14/2022 19:10	Umesh Chiluwal	2362481