

Chemical Analysis Report

WQAP-2022-06-10-02

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**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256
Attn: Jeremy Parrish

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Environmental Consultant

Date Certified: 05-JUL-2022 17:20



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: Dr's Lake end of Lawrence Rd

Collection Date/Time: 06/09/2022 11:10

Field ID: NEHAB0073

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2333742	EPA 8321B	Cylindrospermopsin	0.10	U	ug/L	P415083	
		Desmethyl microcystin LR	0.25	U	ug/L	P415083	
		Microcystin HIR**	0.25	U	ug/L	P415083	
		Microcystin HtyR**	0.25	U	ug/L	P415083	
		Microcystin LA	0.10	U	ug/L	P415083	
		Microcystin LF	0.10	U	ug/L	P415083	
		Microcystin LR	0.25	U	ug/L	P415083	
		Microcystin LW	0.25	U	ug/L	P415083	
		Microcystin LY	0.10	U	ug/L	P415083	
		Microcystin RR	0.10	U	ug/L	P415083	
		Microcystin WR	0.50	U	ug/L	P415083	
		Neosaxitoxin**	0.50	U	ug/L	P414932	MS
		Microcystin YR	0.25	U	ug/L	P415083	
		Saxitoxin	0.50	U	ug/L	P414932	MS
		Nodularin-R**	0.10	U	ug/L	P415083	
2333745	EPA 350.1 Rev. 2.0	Ammonia-N	0.095		mg N/L	P415678	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P415404	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P415832	
	EPA 365.1 Rev. 2.0	Total-P	0.088		mg P/L	P415467	
2333748	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.032		mg P/L	P415058	

Sample Location: Swimming Pen Cr @ Whitey's Fish Camp

Collection Date/Time: 06/09/2022 10:35

Field ID: NEHAB0074

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2333743	EPA 8321B	Cylindrospermopsin	0.10	U	ug/L	P415083	
		Desmethyl microcystin LR	0.25	U	ug/L	P415083	
		Microcystin HIR**	0.25	U	ug/L	P415083	
		Microcystin HtyR**	0.25	U	ug/L	P415083	
		Microcystin LA	0.10	U	ug/L	P415083	
		Microcystin LF	0.10	U	ug/L	P415083	
		Microcystin LR	0.39	I	ug/L	P415083	
		Microcystin LW	0.25	U	ug/L	P415083	
		Microcystin LY	0.10	U	ug/L	P415083	
		Microcystin RR	0.10	U	ug/L	P415083	
		Microcystin WR	0.50	U	ug/L	P415083	
		Neosaxitoxin**	0.50	U	ug/L	P414932	MS
		Microcystin YR	0.25	U	ug/L	P415083	
		Saxitoxin	0.50	U	ug/L	P414932	MS
		Nodularin-R**	0.10	U	ug/L	P415083	
2333746	EPA 350.1 Rev. 2.0	Ammonia-N	0.028		mg N/L	P415588	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P415160	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P415832	
	EPA 365.1 Rev. 2.0	Total-P	0.087		mg P/L	P415467	
2333749	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.033		mg P/L	P415058	

Sample Location: LSJR @ 2930 SR 13

Collection Date/Time: 06/09/2022 09:25

Field ID: NEHAB0077

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2333744	EPA 8321B	Cylindrospermopsin	0.10	U	ug/L	P415083	
		Desmethyl microcystin LR	0.25	U	ug/L	P415083	
		Microcystin HIR**	0.25	U	ug/L	P415083	
		Microcystin HtyR**	0.25	U	ug/L	P415083	
		Microcystin LA	0.10	U	ug/L	P415083	
		Microcystin LF	0.10	U	ug/L	P415083	
		Microcystin LR	0.26	I	ug/L	P415083	
		Microcystin LW	0.25	U	ug/L	P415083	
		Microcystin LY	0.10	U	ug/L	P415083	
		Microcystin RR	0.10	U	ug/L	P415083	
		Microcystin WR	0.50	U	ug/L	P415083	
		Neosaxitoxin**	0.50	U	ug/L	P414932	MS
		Microcystin YR	0.25	U	ug/L	P415083	
		Saxitoxin	0.50	U	ug/L	P414932	MS
		Nodularin-R**	0.10	U	ug/L	P415083	
2333747	EPA 350.1 Rev. 2.0	Ammonia-N	0.036		mg N/L	P415587	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P415160	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.055		mg N/L	P415832	
	EPA 365.1 Rev. 2.0	Total-P	0.078		mg P/L	P415467	
2333750	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.036		mg P/L	P415058	

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415587

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415588

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415678

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P415160

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P415404

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P415832

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P415467

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P415058

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

Reference Method: EPA 8321B
Batch ID: P414932

Component	Result	Code	Units
Neosaxitoxin	0.50	U	ug/L
Saxitoxin	0.50	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P415083

Component	Result	Code	Units
Cylindrospermopsin	0.10	U	ug/L
Desmethyl microcystin LR	0.25	U	ug/L
Microcystin HllR	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 Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415587

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415588

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415678

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P415160

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: P415404

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P415832

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	96.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P415467

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P415058

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

Reference Method: EPA 8321B
Batch ID: P414932

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Neosaxitoxin	96.5		P	40 - 150
Saxitoxin	82.8		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P415083

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	99.4		P	40 - 150
Desmethyl microcystin LR	125		P	40 - 150
Microcystin HllR	104		P	40 - 150
Microcystin HtyR	110		P	40 - 150
Microcystin LA	108		P	40 - 150
Microcystin LF	131		P	40 - 150
Microcystin LR	117		P	40 - 150
Microcystin LW	125		P	40 - 150
Microcystin LY	136		P	40 - 150
Microcystin RR	92.4		P	40 - 150
Microcystin WR	100		P	40 - 150
Microcystin YR	113		P	40 - 150
Nodularin-R	94.9		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415587

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2333006	Ammonia-N	104	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415588

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2334810	Ammonia-N	104	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415678

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2334144	Ammonia-N	106	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P415160

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2333485	Kjeldahl Nitrogen	108	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P415404

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2333621	Kjeldahl Nitrogen	102	109	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P415832

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2334290	NO2NO3-N	95.7	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P415467

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2334683	Total-P	102	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P415058

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2333749	O-Phosphate-P	98.3	99.8	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P414932

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2332975	Neosaxitoxin	37.7	33.5	F/F	40 - 150
2332975	Saxitoxin	31.5	30.0	F/F	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P415083

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2333668	Cylindrospermopsin	105	103	P/P	40 - 150
2333668	Desmethyl microcystin LR	135	131	P/P	40 - 150
2333668	Microcystin HilR	108	109	P/P	40 - 150
2333668	Microcystin HtyR	115	119	P/P	40 - 150
2333668	Microcystin LA	115	103	P/P	40 - 150
2333668	Microcystin LF	137	149	P/P	40 - 150
2333668	Microcystin LR	129	130	P/P	40 - 150
2333668	Microcystin LW	111	118	P/P	40 - 150
2333668	Microcystin LY	147	124	P/P	40 - 150
2333668	Microcystin RR	94.9	89.7	P/P	40 - 150
2333668	Microcystin WR	105	103	P/P	40 - 150
2333668	Microcystin YR	108	115	P/P	40 - 150
2333668	Nodularin-R	99.8	101	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415587

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2333006	Ammonia-N	3.41	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415588

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2334810	Ammonia-N	1.01	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P415678

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2334144	Ammonia-N	0.129	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P415160

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2333485	Kjeldahl Nitrogen	8.81	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P415404

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2333621	Kjeldahl Nitrogen	4.85	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P415832

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2334290	NO2NO3-N	3.47	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P415467

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2334683	Total-P	1.85	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P415058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2333749	O-Phosphate-P	1.14	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P414932

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2332975	Neosaxitoxin	11.8	Spike	P	0 - 30
2332975	Saxitoxin	5.05	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P415083

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2333668	Cylindrospermopsin	2.40	Spike	P	0 - 30
2333668	Desmethyl microcystin LR	3.06	Spike	P	0 - 30
2333668	Microcystin H1R	1.30	Spike	P	0 - 30
2333668	Microcystin HtyR	3.20	Spike	P	0 - 30
2333668	Microcystin LA	10.6	Spike	P	0 - 30
2333668	Microcystin LF	8.16	Spike	P	0 - 30
2333668	Microcystin LR	1.43	Spike	P	0 - 30
2333668	Microcystin LW	5.77	Spike	P	0 - 30
2333668	Microcystin LY	16.6	Spike	P	0 - 30
2333668	Microcystin RR	5.58	Spike	P	0 - 30
2333668	Microcystin WR	1.86	Spike	P	0 - 30
2333668	Microcystin YR	6.15	Spike	P	0 - 30
2333668	Nodularin-R	1.41	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2333742
Field Sample ID: NEHAB0073

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	82.7	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	35.3	P	30 - 160

Lab Sample ID: 2333743
Field Sample ID: NEHAB0074

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	82.7	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	36.0	P	30 - 160

Lab Sample ID: 2333744
Field Sample ID: NEHAB0077

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	81.8	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	41.6	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A112739

Included Lab Sample IDs: 2333742, 2333743, 2333744

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Neosaxitoxin	93.5	101	P/P	50 - 160
Saxitoxin	88.4	91.6	P/P	50 - 160

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A112747

Included Lab Sample IDs: 2333748, 2333749, 2333750

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	98.7	P/P	90 - 110
O-Phosphate-P	99.3	100	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A112825

Included Lab Sample IDs: 2333742, 2333743, 2333744

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	96.5	98.8	P/P	50 - 160
Cylindrospermopsin	97.2	96.5	P/P	50 - 160
Desmethyl microcystin LR	128	129	P/P	50 - 160
Desmethyl microcystin LR	129	128	P/P	50 - 160
Microcystin H1R	110	109	P/P	50 - 160
Microcystin H1R	111	110	P/P	50 - 160
Microcystin HtyR	113	115	P/P	50 - 160
Microcystin HtyR	115	114	P/P	50 - 160
Microcystin LA	124	134	P/P	50 - 160
Microcystin LA	134	125	P/P	50 - 160
Microcystin LF	124	131	P/P	50 - 160
Microcystin LF	131	145	P/P	50 - 160
Microcystin LR	119	126	P/P	50 - 160
Microcystin LR	121	119	P/P	50 - 160
Microcystin LW	127	130	P/P	50 - 160
Microcystin LW	130	129	P/P	50 - 160
Microcystin LY	134	133	P/P	50 - 160
Microcystin LY	144	134	P/P	50 - 160
Microcystin RR	89.6	95.2	P/P	50 - 160
Microcystin RR	95.2	98.5	P/P	50 - 160
Microcystin WR	100	107	P/P	50 - 160
Microcystin WR	101	100	P/P	50 - 160
Microcystin YR	108	110	P/P	50 - 160
Microcystin YR	110	110	P/P	50 - 160
Nodularin-R	100	103	P/P	50 - 160
Nodularin-R	98.4	100	P/P	50 - 160

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A112990

Included Lab Sample IDs: 2333746, 2333747

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.0	99.0	P/P	90 - 110
Ammonia-N	99.0	98.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A112994

Included Lab Sample IDs: 2333746, 2333747

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A113005

Included Lab Sample IDs: 2333745

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A113015

Included Lab Sample IDs: 2333745, 2333746, 2333747

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A113018

Included Lab Sample IDs: 2333745

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.6	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A113114

Included Lab Sample IDs: 2333745, 2333746, 2333747

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	98.0	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		Precision	
					LCS	SMP
EPA 350.1 Rev. 2.0	Ammonia-N	101	104	100		3.41
	Ammonia-N	100	104	105		1.01
	Ammonia-N	94.4	105	106		0.129
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	108	97.2		8.81
	Kjeldahl Nitrogen	102	102	109		4.85
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	96.5	95.7	99.2		3.47
EPA 365.1 Rev. 2.0	Total-P	107	102	100		1.85
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	98.3	99.8		1.14
EPA 8321B	Cylindrospermopsin	99.4	105	103		2.40
	Desmethyl microcystin LR	125	135	131		3.06
	Microcystin HiIR	104	108	109		1.30
	Microcystin HtyR	110	115	119		3.20
	Microcystin LA	108	115	103		10.6
	Microcystin LF	131	137	149		8.16
	Microcystin LR	117	129	130		1.43
	Microcystin LW	125	111	118		5.77
	Microcystin LY	136	147	124		16.6
	Microcystin RR	92.4	94.9	89.7		5.58
	Microcystin WR	100	105	103		1.86
	Microcystin YR	113	108	115		6.15
	Neosaxitoxin	96.5	37.7	33.5		11.8
	Nodularin-R	94.9	99.8	101		1.41
	Saxitoxin	82.8	31.5	30.0		5.05

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2333745, 2333746, 2333747
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2333745, 2333746, 2333747
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2333745, 2333746, 2333747
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2333745, 2333746, 2333747
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2333748, 2333749, 2333750
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2333742, 2333743, 2333744
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2333742, 2333743, 2333744

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	06/10/2022			06/22/2022 15:44	Judith K. Clark	2333747
	06/10/2022			06/22/2022 16:12	Judith K. Clark	2333746
	06/10/2022			06/23/2022 16:17	Judith K. Clark	2333745
EPA 351.2 Rev. 2.0	06/10/2022	06/16/2022 09:51	Samantha L Bates	06/20/2022 13:26	Alexandra J Mattheus	2333746
	06/10/2022	06/16/2022 09:51	Samantha L Bates	06/20/2022 13:28	Alexandra J Mattheus	2333747
	06/10/2022	06/22/2022 15:49	Samantha L Bates	06/23/2022 11:42	Alexandra J Mattheus	2333745
EPA 353.2 Rev. 2.0	06/10/2022			06/27/2022 14:25	Touraj Touran	2333745
	06/10/2022			06/27/2022 14:26	Touraj Touran	2333746
	06/10/2022			06/27/2022 14:27	Touraj Touran	2333747
EPA 365.1 Rev. 2.0	06/10/2022	06/22/2022 17:36	Adam P Silver	06/23/2022 14:02	James L Waggeberby	2333745
	06/10/2022	06/22/2022 17:36	Adam P Silver	06/23/2022 14:03	James L Waggeberby	2333746
	06/10/2022	06/22/2022 17:36	Adam P Silver	06/23/2022 14:04	James L Waggeberby	2333747
EPA 365.1 Rev. 2.0 dissolved	06/10/2022			06/10/2022 14:34	James L Waggeberby	2333749
	06/10/2022			06/10/2022 14:36	James L Waggeberby	2333748
	06/10/2022			06/10/2022 14:41	James L Waggeberby	2333750
EPA 8321B	06/10/2022	06/10/2022 11:30	Manjita Shrestha	06/10/2022 16:20	Manjita Shrestha	2333742
	06/10/2022	06/10/2022 11:30	Manjita Shrestha	06/10/2022 16:34	Manjita Shrestha	2333743
	06/10/2022	06/10/2022 11:30	Manjita Shrestha	06/10/2022 16:48	Manjita Shrestha	2333744
	06/10/2022	06/14/2022 09:30	Manjita Shrestha	06/14/2022 13:50	Manjita Shrestha	2333742
	06/10/2022	06/14/2022 09:30	Manjita Shrestha	06/14/2022 14:23	Manjita Shrestha	2333743
	06/10/2022	06/14/2022 09:30	Manjita Shrestha	06/14/2022 14:40	Manjita Shrestha	2333744
	06/10/2022	06/14/2022 09:30	Manjita Shrestha	06/14/2022 14:40	Manjita Shrestha	2333744