

Chemical Analysis Report

WQAP-2021-11-19-01

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-2021-10-25-41**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

Send Reports to:
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Date Certified: 08-DEC-2021 18:21



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: COJ St Johns Marina

Collection Date/Time: 11/18/2021 15:15

Field ID: NEHAB0037

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2290723	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P406568	
		Cylindrospermopsin	0.10	U	ug/L	P406568	
		Desmethyl microcystin LR	0.25	U	ug/L	P406568	
		Microcystin HilR**	0.25	U	ug/L	P406568	
		Microcystin HtyR**	0.25	U	ug/L	P406568	
		Microcystin LA	0.10	U	ug/L	P406568	
		Microcystin LF	0.10	U	ug/L	P406568	
		Microcystin LR	0.25	U	ug/L	P406568	
		Microcystin LW	0.25	U	ug/L	P406568	
		Microcystin LY	0.10	U	ug/L	P406568	
		Microcystin RR	0.10	U	ug/L	P406568	
		Microcystin WR	0.50	U	ug/L	P406568	
		Microcystin YR	0.25	U	ug/L	P406568	
		Nodularin-R**	0.10	U	ug/L	P406568	
2290727	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P406849	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P406922	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.28		mg N/L	P406677	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P406649	
2290731	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.048		mg P/L	P406587	

Sample Location: LSJR @ Worth Dr S

Collection Date/Time: 11/18/2021 14:00

Field ID: NEHAB0041

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2290725	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P406568	
		Cylindrospermopsin	0.10	U	ug/L	P406568	
		Desmethyl microcystin LR	0.25	U	ug/L	P406568	
		Microcystin HIR**	0.25	U	ug/L	P406568	
		Microcystin HtyR**	0.25	U	ug/L	P406568	
		Microcystin LA	0.10	U	ug/L	P406568	
		Microcystin LF	0.10	U	ug/L	P406568	
		Microcystin LR	0.25	U	ug/L	P406568	
		Microcystin LW	0.25	U	ug/L	P406568	
		Microcystin LY	0.10	U	ug/L	P406568	
		Microcystin RR	0.10	U	ug/L	P406568	
		Microcystin WR	0.50	U	ug/L	P406568	
		Microcystin YR	0.25	U	ug/L	P406568	
		Nodularin-R**	0.10	U	ug/L	P406568	
2290729	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P406853	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.68		mg N/L	P406922	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.28		mg N/L	P406677	
	EPA 365.1 Rev. 2.0	Total-P	0.075		mg P/L	P406649	
2290733	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.046		mg P/L	P406587	

Sample Location: Canal to Marco Lake

Collection Date/Time: 11/18/2021 14:40

Field ID: NEHAB0038

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2290724	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P406568	
		Cylindrospermopsin	0.10	U	ug/L	P406568	
		Desmethyl microcystin LR	0.25	U	ug/L	P406568	
		Microcystin HilR**	0.25	U	ug/L	P406568	
		Microcystin HtyR**	0.25	U	ug/L	P406568	
		Microcystin LA	0.10	U	ug/L	P406568	
		Microcystin LF	0.10	U	ug/L	P406568	
		Microcystin LR	0.25	U	ug/L	P406568	
		Microcystin LW	0.25	U	ug/L	P406568	
		Microcystin LY	0.10	U	ug/L	P406568	
		Microcystin RR	0.10	U	ug/L	P406568	
		Microcystin WR	0.50	U	ug/L	P406568	
		Microcystin YR	0.25	U	ug/L	P406568	
		Nodularin-R**	0.10	U	ug/L	P406568	
2290728	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P406849	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P406922	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.28		mg N/L	P406677	
	EPA 365.1 Rev. 2.0	Total-P	0.092		mg P/L	P406649	
2290732	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.047		mg P/L	P406587	

Sample Location: Doctor's Lake @ Mill Cove

Collection Date/Time: 11/18/2021 12:00

Field ID: NEHAB0057

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2290726	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P406568	
		Cylindrospermopsin	0.10	U	ug/L	P406568	
		Desmethyl microcystin LR	0.25	U	ug/L	P406568	
		Microcystin HIR**	0.25	U	ug/L	P406568	
		Microcystin HtyR**	0.25	U	ug/L	P406568	
		Microcystin LA	0.10	U	ug/L	P406568	
		Microcystin LF	0.10	U	ug/L	P406568	
		Microcystin LR	0.25	U	ug/L	P406568	
		Microcystin LW	0.25	U	ug/L	P406568	
		Microcystin LY	0.10	U	ug/L	P406568	
		Microcystin RR	0.10	U	ug/L	P406568	
		Microcystin WR	0.50	U	ug/L	P406568	
		Microcystin YR	0.25	U	ug/L	P406568	
		Nodularin-R**	0.10	U	ug/L	P406568	
2290730	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P406852	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.97		mg N/L	P406866	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P406644	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P406625	
2290734	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P406586	

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P406849

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P406852

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P406853

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P406866

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P406922

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406644

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406677

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406625

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406649

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P406586

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P406587

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

Reference Method: EPA 8321B
Batch ID: P406568

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 HiiR	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: P406849

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P406852

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P406853

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: P406866

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P406922

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.3		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406644

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406677

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: P406625

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: P406649

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P406586

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P406587

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.5		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P406568

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	87.1		P	40 - 150
Cylindrospermopsin	87.2		P	40 - 150
Desmethyl microcystin LR	97.5		P	40 - 150
Microcystin HiiR	89.4		P	40 - 150
Microcystin HtyR	75.5		P	40 - 150
Microcystin LA	89.2		P	40 - 150
Microcystin LF	125		P	40 - 150
Microcystin LR	91.3		P	40 - 150
Microcystin LW	111		P	40 - 150
Microcystin LY	98.9		P	40 - 150
Microcystin RR	71.5		P	40 - 150
Microcystin WR	65.7		P	40 - 150
Microcystin YR	76.7		P	40 - 150
Nodularin-R	90.8		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P406849

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2290047	Ammonia-N	102	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P406852

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2290730	Ammonia-N	92.4	94.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P406853

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2290935	Ammonia-N	95.8	95.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P406866

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2290699	Kjeldahl Nitrogen	98.0	94.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P406922

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2290317	Kjeldahl Nitrogen	96.8	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406644

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2290694	NO2NO3-N	97.5	97.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406677

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2290727	NO2NO3-N	95.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406625

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2290117	Total-P	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406649

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2289951	Total-P	103	104	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P406586

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2290768	O-Phosphate-P	95.8	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P406587

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2290844	O-Phosphate-P	97.9	99.4	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P406568

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2290710	Anatoxin-a	113	119	P/P	40 - 150
2290710	Cylindrospermopsin	101	107	P/P	40 - 150
2290710	Desmethyl microcystin LR	123	128	P/P	40 - 150
2290710	Microcystin H1LR	109	116	P/P	40 - 150
2290710	Microcystin HtyR	92.1	94.4	P/P	40 - 150
2290710	Microcystin LA	102	105	P/P	40 - 150
2290710	Microcystin LF	136	140	P/P	40 - 150
2290710	Microcystin LR	110	121	P/P	40 - 150
2290710	Microcystin LW	119	130	P/P	40 - 150
2290710	Microcystin LY	109	120	P/P	40 - 150
2290710	Microcystin RR	83.2	89.2	P/P	40 - 150
2290710	Microcystin WR	81.9	86.7	P/P	40 - 150
2290710	Microcystin YR	96.5	99.5	P/P	40 - 150
2290710	Nodularin-R	120	125	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P406849

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2290047	Ammonia-N	1.72	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P406852

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2290730	Ammonia-N	2.14	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P406853

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2290935	Ammonia-N	0.730	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P406866

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2290699	Kjeldahl Nitrogen	3.25	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P406922

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2290317	Kjeldahl Nitrogen	4.80	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406644

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2290694	NO2NO3-N	0.514	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P406677

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2290727	NO2NO3-N	0.419	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P406625

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2290117	Total-P	0.140	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P406649

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2289951	Total-P	0.412	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P406586

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2290768	O-Phosphate-P	1.16	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P406587

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2290844	O-Phosphate-P	1.43	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P406568

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2290710	Anatoxin-a	5.45	Spike	P	0 - 30
2290710	Cylindrospermopsin	5.30	Spike	P	0 - 30
2290710	Desmethyl microcystin LR	4.05	Spike	P	0 - 30
2290710	Microcystin H1LR	6.14	Spike	P	0 - 30
2290710	Microcystin HtyR	2.48	Spike	P	0 - 30
2290710	Microcystin LA	3.76	Spike	P	0 - 30
2290710	Microcystin LF	2.89	Spike	P	0 - 30
2290710	Microcystin LR	9.29	Spike	P	0 - 30
2290710	Microcystin LW	9.27	Spike	P	0 - 30
2290710	Microcystin LY	9.40	Spike	P	0 - 30
2290710	Microcystin RR	7.04	Spike	P	0 - 30
2290710	Microcystin WR	5.68	Spike	P	0 - 30
2290710	Microcystin YR	3.00	Spike	P	0 - 30
2290710	Nodularin-R	3.90	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2290723
Field Sample ID: NEHAB0037

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	89.6	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	112	P	30 - 160

Lab Sample ID: 2290724
Field Sample ID: NEHAB0038

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	79.5	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	106	P	30 - 160

Lab Sample ID: 2290725
Field Sample ID: NEHAB0041

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	88.7	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	107	P	30 - 160

Lab Sample ID: 2290726
Field Sample ID: NEHAB0057

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	89.0	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	112	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A109002

Included Lab Sample IDs: 2290731, 2290732, 2290733, 2290734

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.3	P/P	90 - 110
O-Phosphate-P	99.1	99.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A109030

Included Lab Sample IDs: 2290730

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.0	97.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A109045

Included Lab Sample IDs: 2290727, 2290728, 2290729

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A109064

Included Lab Sample IDs: 2290727, 2290730

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A109066

Included Lab Sample IDs: 2290728, 2290729

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	99.0	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A109067

Included Lab Sample IDs: 2290723, 2290724, 2290725, 2290726

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	103	106	P/P	50 - 160
Cylindrospermopsin	101	105	P/P	60 - 160
Desmethyl microcystin LR	112	114	P/P	60 - 160
Microcystin HiIR	107	105	P/P	60 - 160
Microcystin HtyR	88.8	88.7	P/P	60 - 160
Microcystin LA	101	101	P/P	50 - 160
Microcystin LF	141	148	P/P	60 - 160
Microcystin LR	112	109	P/P	60 - 160
Microcystin LW	134	133	P/P	60 - 160
Microcystin LY	119	108	P/P	60 - 160
Microcystin RR	80.1	87.0	P/P	60 - 160
Microcystin WR	88.4	82.3	P/P	60 - 160
Microcystin YR	86.2	81.4	P/P	60 - 160
Nodularin-R	109	108	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A109129

Included Lab Sample IDs: 2290727, 2290728, 2290729, 2290730

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.0	97.1	P/P	90 - 110
Ammonia-N	97.6	98.3	P/P	90 - 110
Ammonia-N	98.3	95.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A109176

Included Lab Sample IDs: 2290727, 2290728, 2290729

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.5	94.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A109193

Included Lab Sample IDs: 2290730

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.3	98.2	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	95.8	102	104			1.72
	Ammonia-N	97.8	92.4	94.8			2.14
	Ammonia-N	96.8	95.8	95.0			0.730
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.7	98.0	94.4			3.25
	Kjeldahl Nitrogen	96.3	96.8	103			4.80
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	97.5	97.0			0.514
	NO2NO3-N	101	95.2				0.419
EPA 365.1 Rev. 2.0	Total-P	104	106	106			0.140
	Total-P	102	103	104			0.412
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.0	95.8	97.0			1.16
	O-Phosphate-P	99.5	97.9	99.4			1.43
EPA 8321B	Anatoxin-a	87.1	113	119			5.45
	Cylindrospermopsin	87.2	101	107			5.30
	Desmethyl microcystin LR	97.5	123	128			4.05
	Microcystin HiLR	89.4	109	116			6.14
	Microcystin HtyR	75.5	92.1	94.4			2.48
	Microcystin LA	89.2	102	105			3.76
	Microcystin LF	125	136	140			2.89
	Microcystin LR	91.3	110	121			9.29
	Microcystin LW	111	119	130			9.27
	Microcystin LY	98.9	109	120			9.40
	Microcystin RR	71.5	83.2	89.2			7.04
	Microcystin WR	65.7	81.9	86.7			5.68
	Microcystin YR	76.7	96.5	99.5			3.00
	Nodularin-R	90.8	120	125			3.90

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2290727, 2290728, 2290729, 2290730
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2290727, 2290728, 2290729, 2290730
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2290727, 2290728, 2290729, 2290730
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2290727, 2290728, 2290729, 2290730
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2290731, 2290732, 2290733, 2290734
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2290723, 2290724, 2290725, 2290726

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	11/19/2021			11/30/2021 13:07	Ping Hua	2290727
	11/19/2021			11/30/2021 13:08	Ping Hua	2290728
	11/19/2021			11/30/2021 14:50	Ping Hua	2290729
	11/19/2021			11/30/2021 15:32	Ping Hua	2290730
EPA 351.2 Rev. 2.0	11/19/2021	11/30/2021 13:45	Benjamin T. Nordmann	12/02/2021 13:52	Alexandra J Mattheus	2290727
	11/19/2021	11/30/2021 13:45	Benjamin T. Nordmann	12/02/2021 13:53	Alexandra J Mattheus	2290728
	11/19/2021	11/30/2021 13:45	Benjamin T. Nordmann	12/02/2021 13:55	Alexandra J Mattheus	2290729
	11/19/2021	12/01/2021 12:54	Benjamin T. Nordmann	12/03/2021 09:57	Alexandra J Mattheus	2290730
EPA 353.2 Rev. 2.0	11/19/2021			11/22/2021 09:34	Beverly Y. Sanders	2290730
	11/19/2021			11/23/2021 09:25	Beverly Y. Sanders	2290727
	11/19/2021			11/23/2021 09:36	Beverly Y. Sanders	2290728
	11/19/2021			11/23/2021 09:37	Beverly Y. Sanders	2290729
EPA 365.1 Rev. 2.0	11/19/2021	11/22/2021 17:50	Simonne.V. Calhoun	11/23/2021 13:00	Sarah A Nixon	2290730
	11/19/2021	11/22/2021 17:50	Simonne.V. Calhoun	11/23/2021 13:15	Sarah A Nixon	2290727
	11/19/2021	11/22/2021 17:50	Simonne.V. Calhoun	11/23/2021 16:25	Sarah A Nixon	2290728
	11/19/2021	11/22/2021 17:50	Simonne.V. Calhoun	11/23/2021 16:26	Sarah A Nixon	2290729
EPA 365.1 Rev. 2.0 dissolved	11/19/2021			11/19/2021 14:01	James L Waggeberby	2290734
	11/19/2021			11/19/2021 14:23	James L Waggeberby	2290731
	11/19/2021			11/19/2021 14:24	James L Waggeberby	2290732
	11/19/2021			11/19/2021 14:25	James L Waggeberby	2290733
EPA 8321B	11/19/2021	11/23/2021 11:00	Manjita Shrestha	11/23/2021 16:55	Manjita Shrestha	2290723
	11/19/2021	11/23/2021 11:00	Manjita Shrestha	11/23/2021 17:11	Manjita Shrestha	2290724
	11/19/2021	11/23/2021 11:00	Manjita Shrestha	11/23/2021 17:28	Manjita Shrestha	2290725
	11/19/2021	11/23/2021 11:00	Manjita Shrestha	11/23/2021 17:45	Manjita Shrestha	2290726