

Chemical Analysis Report

NE-DIST-2021-10-15-02

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

Event Description: **Algae Bloom Response-as needed**

Request ID: **RQ-2021-10-11-62**

Customer: **NE-DIST**

Project ID: **BLOOM-RESP**

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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 09-NOV-2021 15:44



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: Trout R @ BM ramp

Collection Date/Time: 10/14/2021 09:45

Field ID: NEHAB0050

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2283768	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P405096	
		Cylindrospermopsin	0.10	U	ug/L	P405096	
		Desmethyl microcystin LR	0.25	U	ug/L	P405096	
		Microcystin HilR**	0.25	U	ug/L	P405096	
		Microcystin HtyR**	0.25	U	ug/L	P405096	
		Microcystin LA	0.10	U	ug/L	P405096	
		Microcystin LF	0.10	U	ug/L	P405096	
		Microcystin LR	0.25	U	ug/L	P405096	
		Microcystin LW	0.25	U	ug/L	P405096	
		Microcystin LY	0.10	U	ug/L	P405096	
		Microcystin RR	0.10	U	ug/L	P405096	
		Microcystin WR	0.50	U	ug/L	P405096	
		Microcystin YR	0.25	U	ug/L	P405096	
		Nodularin-R**	0.10	U	ug/L	P405096	
2283773	EPA 350.1 Rev. 2.0	Ammonia-N	0.043		mg N/L	P405559	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.76		mg N/L	P405193	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.065		mg N/L	P405325	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P405306	
2283778	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.075		mg P/L	P405128	

Sample Location: Lions Club Boat Ramp

Collection Date/Time: 10/14/2021 10:10

Field ID: NEHAB0036

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2283769	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P405096	
		Cylindrospermopsin	0.10	U	ug/L	P405096	
		Desmethyl microcystin LR	0.25	U	ug/L	P405096	
		Microcystin HilR**	0.25	U	ug/L	P405096	
		Microcystin HtyR**	0.25	U	ug/L	P405096	
		Microcystin LA	0.10	U	ug/L	P405096	
		Microcystin LF	0.10	U	ug/L	P405096	
		Microcystin LR	0.25	U	ug/L	P405096	
		Microcystin LW	0.25	U	ug/L	P405096	
		Microcystin LY	0.10	U	ug/L	P405096	
		Microcystin RR	0.10	U	ug/L	P405096	
		Microcystin WR	0.50	U	ug/L	P405096	
		Microcystin YR	0.25	U	ug/L	P405096	
		Nodularin-R**	0.10	U	ug/L	P405096	
2283774	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P405559	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P405193	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P405326	
	EPA 365.1 Rev. 2.0	Total-P	0.087		mg P/L	P405306	
2283779	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.065		mg P/L	P405128	

Sample Location: Ortega River @ Imperial Cove Rd

Collection Date/Time: 10/14/2021 12:45

Field ID: NEHAB0059

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2283770	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P405096	
		Cylindrospermopsin	0.10	U	ug/L	P405096	
		Desmethyl microcystin LR	0.25	U	ug/L	P405096	
		Microcystin HilR**	0.25	U	ug/L	P405096	
		Microcystin HtyR**	0.25	U	ug/L	P405096	
		Microcystin LA	0.10	U	ug/L	P405096	
		Microcystin LF	0.10	U	ug/L	P405096	
		Microcystin LR	0.25	U	ug/L	P405096	
		Microcystin LW	0.25	U	ug/L	P405096	
		Microcystin LY	0.10	U	ug/L	P405096	
		Microcystin RR	0.10	U	ug/L	P405096	
		Microcystin WR	0.50	U	ug/L	P405096	
		Microcystin YR	0.25	U	ug/L	P405096	
		Nodularin-R**	0.10	U	ug/L	P405096	
2283775	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P405561	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.75		mg N/L	P405321	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.042		mg N/L	P405317	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P405330	
2283780	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.060		mg P/L	P405126	

Sample Location: Pottsburg Creek @ River Hills Cr E

Collection Date/Time: 10/14/2021 12:05

Field ID: NEHAB0032

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2283771	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P405096	
		Cylindrospermopsin	0.10	U	ug/L	P405096	
		Desmethyl microcystin LR	0.25	U	ug/L	P405096	
		Microcystin HilR**	0.25	U	ug/L	P405096	
		Microcystin HtyR**	0.25	U	ug/L	P405096	
		Microcystin LA	0.10	U	ug/L	P405096	
		Microcystin LF	0.10	U	ug/L	P405096	
		Microcystin LR	0.26	I	ug/L	P405096	
		Microcystin LW	0.25	U	ug/L	P405096	
		Microcystin LY	0.10	U	ug/L	P405096	
		Microcystin RR	0.10	U	ug/L	P405096	
		Microcystin WR	0.50	U	ug/L	P405096	
		Microcystin YR	0.25	U	ug/L	P405096	
		Nodularin-R**	0.10	U	ug/L	P405096	
2283776	EPA 350.1 Rev. 2.0	Ammonia-N	0.031		mg N/L	P405559	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P405193	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P405326	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P405306	
2283781	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.056		mg P/L	P405128	

Sample Location: LSJR @ Arlington Boat Ramp

Collection Date/Time: 10/14/2021 10:40

Field ID: NEHAB0031

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2283772	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P405096	
		Cylindrospermopsin	0.10	U	ug/L	P405096	
		Desmethyl microcystin LR	0.25	U	ug/L	P405096	
		Microcystin HIR**	0.25	U	ug/L	P405096	
		Microcystin HtyR**	0.25	U	ug/L	P405096	
		Microcystin LA	0.10	U	ug/L	P405096	
		Microcystin LF	0.10	U	ug/L	P405096	
		Microcystin LR	0.26	I	ug/L	P405096	
		Microcystin LW	0.25	U	ug/L	P405096	
		Microcystin LY	0.10	U	ug/L	P405096	
		Microcystin RR	0.10	U	ug/L	P405096	
		Microcystin WR	0.50	U	ug/L	P405096	
		Microcystin YR	0.25	U	ug/L	P405096	
		Nodularin-R**	0.10	U	ug/L	P405096	
2283777	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P405589	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P405517	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P405326	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P405466	
2283782	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.056		mg P/L	P405128	

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405559

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405561

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405589

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405193

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405321

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405517

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405317

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405325

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405326

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405306

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405330

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405466

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P405126

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P405128

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

Reference Method: EPA 8321B
Batch ID: P405096

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 H1R	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: P405559

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405561

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405589

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405193

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405321

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405517

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405317

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405325

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405326

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405306

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405330

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P405466

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P405126

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P405128

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

Reference Method: EPA 8321B
Batch ID: P405096

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	104		P	40 - 150
Cylindrospermopsin	76.8		P	40 - 150
Desmethyl microcystin LR	81.6		P	40 - 150
Microcystin HIR	92.3		P	40 - 150
Microcystin HtyR	96.1		P	40 - 150
Microcystin LA	93.7		P	40 - 150
Microcystin LF	98.9		P	40 - 150
Microcystin LR	78.8		P	40 - 150
Microcystin LW	87.3		P	40 - 150
Microcystin LY	90.7		P	40 - 150
Microcystin RR	94.2		P	40 - 150
Microcystin WR	86.3		P	40 - 150
Microcystin YR	89.0		P	40 - 150
Nodularin-R	92.5		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405559

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283497	Ammonia-N	96.6	95.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405561

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283719	Ammonia-N	95.2	95.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405589

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2284372	Ammonia-N	97.8	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405193

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283885	Kjeldahl Nitrogen	90.2	90.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405321

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2282622	Kjeldahl Nitrogen	89.9	98.0	F/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405517

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283451	Kjeldahl Nitrogen	99.8	98.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405317

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283775	NO2NO3-N	98.6	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405325

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283497	NO2NO3-N	96.3	96.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405326

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283774	NO2NO3-N	100	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P405306

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283500	Total-P	99.7	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P405330

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2282260	Total-P	105	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P405466

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2284390	Total-P	107	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P405126

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283867	O-Phosphate-P	97.0	96.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P405128

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283889	O-Phosphate-P	101	99.3	P/P	90 - 110

Reference Method: EPA 8321B

Batch ID: P405096

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2283729	Anatoxin-a	117	114	P/P	40 - 150
2283729	Cylindrospermopsin	87.0	84.7	P/P	40 - 150
2283729	Desmethyl microcystin LR	105	109	P/P	40 - 150
2283729	Microcystin HiLR	113	113	P/P	40 - 150
2283729	Microcystin HtyR	118	120	P/P	40 - 150
2283729	Microcystin LA	98.6	96.5	P/P	40 - 150
2283729	Microcystin LF	102	104	P/P	40 - 150
2283729	Microcystin LR	105	111	P/P	40 - 150
2283729	Microcystin LW	91.1	90.3	P/P	40 - 150
2283729	Microcystin LY	102	98.3	P/P	40 - 150
2283729	Microcystin RR	117	116	P/P	40 - 150
2283729	Microcystin WR	93.2	97.3	P/P	40 - 150
2283729	Microcystin YR	112	113	P/P	40 - 150
2283729	Nodularin-R	128	129	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405559

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283497	Ammonia-N	0.701	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405561

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283719	Ammonia-N	0.584	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P405589

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2284372	Ammonia-N	1.14	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405193

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283885	Kjeldahl Nitrogen	0.464	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405321

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282622	Kjeldahl Nitrogen	4.58	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P405517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283451	Kjeldahl Nitrogen	0.741	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405317

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283775	NO2NO3-N	0.418	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P405325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283497	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P405326

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283774	NO2NO3-N	0.298	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P405306

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283500	Total-P	0.873	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P405330

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282260	Total-P	1.17	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P405466

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2284390	Total-P	3.16	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P405126

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283867	O-Phosphate-P	0.542	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P405128

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283889	O-Phosphate-P	1.03	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P405096

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283729	Anatoxin-a	2.51	Spike	P	0 - 30
2283729	Cylindrospermopsin	2.72	Spike	P	0 - 30
2283729	Desmethyl microcystin LR	4.20	Spike	P	0 - 30
2283729	Microcystin HtLR	0.271	Spike	P	0 - 30
2283729	Microcystin HtyR	1.67	Spike	P	0 - 30
2283729	Microcystin LA	2.09	Spike	P	0 - 30
2283729	Microcystin LF	1.78	Spike	P	0 - 30
2283729	Microcystin LR	5.72	Spike	P	0 - 30
2283729	Microcystin LW	0.825	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B

Batch ID: P405096

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2283729	Microcystin LY	3.72	Spike	P	0 - 30
2283729	Microcystin RR	1.38	Spike	P	0 - 30
2283729	Microcystin WR	4.30	Spike	P	0 - 30
2283729	Microcystin YR	0.559	Spike	P	0 - 30
2283729	Nodularin-R	0.493	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2283768
Field Sample ID: NEHAB0050

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	87.5	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	77.2	P	30 - 160

Lab Sample ID: 2283769
Field Sample ID: NEHAB0036

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	86.7	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	79.1	P	30 - 160

Lab Sample ID: 2283770
Field Sample ID: NEHAB0059

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	97.9	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	89.1	P	30 - 160

Lab Sample ID: 2283771
Field Sample ID: NEHAB0032

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	89.3	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	93.2	P	30 - 160

Lab Sample ID: 2283772
Field Sample ID: NEHAB0031

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	98.5	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	80.1	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A108361

Included Lab Sample IDs: 2283778, 2283779, 2283780, 2283781, 2283782

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	97.6	P/P	90 - 110
O-Phosphate-P	98.6	98.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A108408

Included Lab Sample IDs: 2283773, 2283774, 2283776

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.5	99.2	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A108419

Included Lab Sample IDs: 2283768, 2283769, 2283770, 2283771, 2283772

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	108	98.2	P/P	50 - 160
Cylindrospermopsin	91.5	87.9	P/P	50 - 160
Desmethyl microcystin LR	96.7	101	P/P	50 - 160
Microcystin H1R	109	110	P/P	50 - 160
Microcystin HtyR	115	119	P/P	50 - 160
Microcystin LA	107	109	P/P	50 - 160
Microcystin LF	108	112	P/P	50 - 160
Microcystin LR	109	102	P/P	50 - 160
Microcystin LW	102	110	P/P	50 - 160
Microcystin LY	108	110	P/P	50 - 160
Microcystin RR	104	97.2	P/P	50 - 160
Microcystin WR	107	102	P/P	50 - 160
Microcystin YR	105	96.0	P/P	50 - 160
Nodularin-R	102	98.9	P/P	50 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A108437

Included Lab Sample IDs: 2283775

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A108439

Included Lab Sample IDs: 2283773, 2283774, 2283776, 2283777

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A108465

Included Lab Sample IDs: 2283775

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.5	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A108481

Included Lab Sample IDs: 2283773, 2283775

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	104	102	P/P	90 - 110
Total-P	105	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A108494

Included Lab Sample IDs: 2283774, 2283776

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A108519

Included Lab Sample IDs: 2283773, 2283774, 2283775, 2283776

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.4	98.5	P/P	90 - 110
Ammonia-N	99.3	97.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A108529

Included Lab Sample IDs: 2283777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	107	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A108536

Included Lab Sample IDs: 2283777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.2	98.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A108537

Included Lab Sample IDs: 2283777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.6	97.2	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		Precision LCS	SMP	MS
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	96.6	95.8			0.701
	Ammonia-N	96.6	95.2	95.8			0.584
	Ammonia-N	99.2	97.8	99.0			1.14
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	93.8	90.2	90.7			0.464
	Kjeldahl Nitrogen	100	89.9	98.0			4.58
	Kjeldahl Nitrogen	98.9	99.8	98.9			0.741
EPA 353.2 Rev. 2.0	NO2NO3-N	102	98.6	99.0			0.418
	NO2NO3-N	100	96.3	96.3			0.0
	NO2NO3-N	101	100	100			0.298
EPA 365.1 Rev. 2.0	Total-P	98.7	99.7	98.8			0.873
	Total-P	103	105	104			1.17
	Total-P	106	107	103			3.16
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.9	97.0	96.2			0.542
	O-Phosphate-P	103	101	99.3			1.03
EPA 8321B	Anatoxin-a	104	117	114			2.51
	Cylindrospermopsin	76.8	87.0	84.7			2.72
	Desmethyl microcystin LR	81.6	105	109			4.20
	Microcystin HilR	92.3	113	113			0.271
	Microcystin HtyR	96.1	118	120			1.67
	Microcystin LA	93.7	98.6	96.5			2.09
	Microcystin LF	98.9	102	104			1.78
	Microcystin LR	78.8	105	111			5.72
	Microcystin LW	87.3	91.1	90.3			0.825
	Microcystin LY	90.7	102	98.3			3.72
	Microcystin RR	94.2	117	116			1.38
	Microcystin WR	86.3	93.2	97.3			4.30
	Microcystin YR	89.0	112	113			0.559
	Nodularin-R	92.5	128	129			0.493

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2283773, 2283774, 2283775, 2283776, 2283777
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2283773, 2283774, 2283775, 2283776, 2283777
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2283773, 2283774, 2283775, 2283776, 2283777
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2283773, 2283774, 2283775, 2283776, 2283777
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2283778, 2283779, 2283780, 2283781, 2283782
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2283768, 2283769, 2283770, 2283771, 2283772

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	10/15/2021			10/22/2021 11:41	Ping Hua	2283773
	10/15/2021			10/22/2021 11:42	Ping Hua	2283774
	10/15/2021			10/22/2021 11:44	Ping Hua	2283776
	10/15/2021			10/22/2021 14:14	Ping Hua	2283775
	10/15/2021			10/26/2021 12:55	Ping Hua	2283777
EPA 351.2 Rev. 2.0	10/15/2021	10/18/2021 13:10	Benjamin T. Nordmann	10/19/2021 10:20	Alexandra J Mattheus	2283773
	10/15/2021	10/18/2021 13:10	Benjamin T. Nordmann	10/19/2021 10:22	Alexandra J Mattheus	2283774
	10/15/2021	10/18/2021 13:10	Benjamin T. Nordmann	10/19/2021 10:23	Alexandra J Mattheus	2283776
	10/15/2021	10/20/2021 12:20	Benjamin T. Nordmann	10/21/2021 11:13	Alexandra J Mattheus	2283775
	10/15/2021	10/25/2021 12:30	Benjamin T. Nordmann	10/26/2021 12:24	Alexandra J Mattheus	2283777
EPA 353.2 Rev. 2.0	10/15/2021			10/19/2021 11:10	Beverly Y. Sanders	2283773
	10/15/2021			10/19/2021 11:18	Beverly Y. Sanders	2283774
	10/15/2021			10/19/2021 11:23	Beverly Y. Sanders	2283776
	10/15/2021			10/19/2021 11:25	Beverly Y. Sanders	2283777
	10/15/2021			10/20/2021 11:52	Beverly Y. Sanders	2283775
EPA 365.1 Rev. 2.0	10/15/2021	10/20/2021 14:17	Simonne.V. Calhoun	10/22/2021 10:34	Lipi Saha	2283773
	10/15/2021	10/20/2021 14:17	Simonne.V. Calhoun	10/22/2021 11:02	Lipi Saha	2283775
	10/15/2021	10/20/2021 14:17	Simonne.V. Calhoun	10/22/2021 14:22	Lipi Saha	2283774
	10/15/2021	10/20/2021 14:17	Simonne.V. Calhoun	10/22/2021 14:23	Lipi Saha	2283776
	10/15/2021	10/22/2021 12:26	Simonne.V. Calhoun	10/26/2021 10:58	Lipi Saha	2283777
EPA 365.1 Rev. 2.0 dissolved	10/15/2021			10/15/2021 14:30	James L Waggeberby	2283780
	10/15/2021			10/15/2021 15:08	James L Waggeberby	2283778
	10/15/2021			10/15/2021 15:09	James L Waggeberby	2283779
	10/15/2021			10/15/2021 15:10	James L Waggeberby	2283781
	10/15/2021			10/15/2021 15:11	James L Waggeberby	2283782
EPA 8321B	10/15/2021	10/19/2021 12:00	Manjita Shrestha	10/19/2021 17:56	Manjita Shrestha	2283768
	10/15/2021	10/19/2021 12:00	Manjita Shrestha	10/19/2021 18:12	Manjita Shrestha	2283769
	10/15/2021	10/19/2021 12:00	Manjita Shrestha	10/19/2021 18:29	Manjita Shrestha	2283770
	10/15/2021	10/19/2021 12:00	Manjita Shrestha	10/19/2021 18:46	Manjita Shrestha	2283771
	10/15/2021	10/19/2021 12:00	Manjita Shrestha	10/19/2021 19:02	Manjita Shrestha	2283772