Chemical Analysis Report

WQAP-2022-04-07-02

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

Event Description: **Algal Bloom Response - CEROC**
Request ID: **RQ-2022-03-21-11**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

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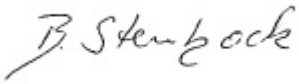
Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 29-APR-2022 15:19



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: Tiger Lake - East Shore **Collection Date/Time: 04/06/2022 11:53**

Field ID: HABCE0105_TigerLake Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2317450	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P412049	
		Cylindrospermopsin	0.10	U	ug/L	P412049	
		Desmethyl microcystin LR	0.25	U	ug/L	P412049	
		Microcystin HilR**	0.25	U	ug/L	P412049	
		Microcystin HtyR**	0.25	U	ug/L	P412049	
		Microcystin LA	0.12	I	ug/L	P412049	
		Microcystin LF	0.10	U	ug/L	P412049	
		Microcystin LR	0.80	I	ug/L	P412049	
		Microcystin LW	0.25	U	ug/L	P412049	
		Microcystin LY	0.10	U	ug/L	P412049	
		Microcystin RR	0.28	I	ug/L	P412049	
		Microcystin WR	0.50	U	ug/L	P412049	
		Microcystin YR	0.25	U	ug/L	P412049	
		Nodularin-R**	0.10	U	ug/L	P412049	
2317457	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P412246	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.7		mg N/L	P412763	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P412125	
	EPA 365.1 Rev. 2.0	Total-P	0.20		mg P/L	P412313	
2317460	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P412102	

Ref. Method and Comment:
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Lake Mann - McQueen Park **Collection Date/Time: 04/06/2022 14:40**

Field ID: HABCE0112_LakeMann Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2317451	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P412049	
		Cylindrospermopsin	0.10	U	ug/L	P412049	
		Desmethyl microcystin LR	0.25	U	ug/L	P412049	
		Microcystin HilR**	0.25	U	ug/L	P412049	
		Microcystin HtyR**	0.25	U	ug/L	P412049	
		Microcystin LA	1.2		ug/L	P412049	
		Microcystin LF	0.10	U	ug/L	P412049	
		Microcystin LR	1.4		ug/L	P412049	
		Microcystin LW	0.25	U	ug/L	P412049	
		Microcystin LY	0.10	U	ug/L	P412049	
		Microcystin RR	0.10	U	ug/L	P412049	
		Microcystin WR	0.50	U	ug/L	P412049	
		Microcystin YR	0.25	U	ug/L	P412049	
		Nodularin-R**	0.10	U	ug/L	P412049	
2317458	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P412246	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.96		mg N/L	P412319	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P412125	
	EPA 365.1 Rev. 2.0	Total-P	0.042		mg P/L	P412313	
2317461	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P412103	

Sample Location: Lake Mann - RMP cove **Collection Date/Time: 04/06/2022 14:32**

Field ID: HABCE0114_LakeMann1 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2317452	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P412049	
		Cylindrospermopsin	0.10	U	ug/L	P412049	
		Desmethyl microcystin LR	0.25	U	ug/L	P412049	
		Microcystin HilR**	0.25	U	ug/L	P412049	
		Microcystin HtyR**	0.25	U	ug/L	P412049	
		Microcystin LA	1.1		ug/L	P412049	
		Microcystin LF	0.10	U	ug/L	P412049	
		Microcystin LR	1.3		ug/L	P412049	
		Microcystin LW	0.25	U	ug/L	P412049	
		Microcystin LY	0.10	U	ug/L	P412049	
		Microcystin RR	0.10	U	ug/L	P412049	
		Microcystin WR	0.50	U	ug/L	P412049	
		Microcystin YR	0.25	U	ug/L	P412049	
		Nodularin-R**	0.10	U	ug/L	P412049	
2317459	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P412246	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P412319	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P412125	
	EPA 365.1 Rev. 2.0	Total-P	0.043		mg P/L	P412314	
2317462	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P412103	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P412246

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412319

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412763

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P412125

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P412313

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P412314

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P412102

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P412103

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

Reference Method: EPA 8321B
Batch ID: P412049

Component	Result	Code	Units
Anatoxin-a	0.25	U	ug/L
Cylindrospermopsin	0.10	U	ug/L
Desmethyl microcystin LR	0.25	U	ug/L
Microcystin HilR	0.25	U	ug/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 8321B
Batch ID: P412049

Component	Result	Code	Units
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: P412246

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412319

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412763

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P412125

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P412313

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P412314

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P412102

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P412103

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

Reference Method: EPA 8321B
Batch ID: P412049

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	99.9		P	40 - 150
Cylindrospermopsin	102		P	40 - 150
Desmethyl microcystin LR	106		P	40 - 150
Microcystin HilR	110		P	40 - 150

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P412049

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Microcystin HtyR	112		P	40 - 150
Microcystin LA	110		P	40 - 150
Microcystin LF	113		P	40 - 150
Microcystin LR	122		P	40 - 150
Microcystin LW	105		P	40 - 150
Microcystin LY	110		P	40 - 150
Microcystin RR	108		P	40 - 150
Microcystin WR	105		P	40 - 150
Microcystin YR	111		P	40 - 150
Nodularin-R	109		P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P412246

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2317458	Ammonia-N	98.0	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412319

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2317377	Kjeldahl Nitrogen	99.6	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P412125

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2317417	NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P412313

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2317442	Total-P	105	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P412314

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2317498	Total-P	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P412102

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2317460	O-Phosphate-P	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P412103

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2317502	O-Phosphate-P	91.9	94.5	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P412049

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2317277	Anatoxin-a	99.8	101	P/P	40 - 150
2317277	Cylindrospermopsin	91.4	100	P/P	40 - 150
2317277	Desmethyl microcystin LR	99.5	99.3	P/P	40 - 150
2317277	Microcystin HilR	93.2	101	P/P	40 - 150
2317277	Microcystin HtyR	103	102	P/P	40 - 150
2317277	Microcystin LA	103	102	P/P	40 - 150
2317277	Microcystin LF	100	105	P/P	40 - 150
2317277	Microcystin LR	99.6	108	P/P	40 - 150
2317277	Microcystin LW	92.0	102	P/P	40 - 150
2317277	Microcystin LY	99.4	104	P/P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P412049

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2317277	Microcystin RR	101	105	P/P	40 - 150
2317277	Microcystin WR	90.2	91.8	P/P	40 - 150
2317277	Microcystin YR	105	96.0	P/P	40 - 150
2317277	Nodularin-R	100	105	P/P	40 - 150

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P412246

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2317458	Ammonia-N	0.714	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412319

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2317377	Kjeldahl Nitrogen	4.23	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P412763

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2317457	Kjeldahl Nitrogen	1.79	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P412125

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2317417	NO2NO3-N	1.49	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P412313

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2317442	Total-P	0.981	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P412314

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2317498	Total-P	0.0225	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P412102

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2317460	O-Phosphate-P	0.482	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P412103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2317502	O-Phosphate-P	2.24	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P412049

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2317277	Anatoxin-a	1.19	Spike	P	0 - 30
2317277	Cylindrospermopsin	9.05	Spike	P	0 - 30
2317277	Desmethyl microcystin LR	0.125	Spike	P	0 - 30
2317277	Microcystin HilR	7.77	Spike	P	0 - 30
2317277	Microcystin HtyR	0.280	Spike	P	0 - 30
2317277	Microcystin LA	0.260	Spike	P	0 - 30
2317277	Microcystin LF	4.34	Spike	P	0 - 30
2317277	Microcystin LR	7.71	Spike	P	0 - 30
2317277	Microcystin LW	10.7	Spike	P	0 - 30
2317277	Microcystin LY	4.10	Spike	P	0 - 30
2317277	Microcystin RR	3.63	Spike	P	0 - 30
2317277	Microcystin WR	1.79	Spike	P	0 - 30
2317277	Microcystin YR	8.79	Spike	P	0 - 30
2317277	Nodularin-R	4.12	Spike	P	0 - 30

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2317450
Field Sample ID: HABCE0105_TigerLake

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	129	P	30 - 160

Lab Sample ID: 2317451
Field Sample ID: HABCE0112_LakeMann

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	126	P	30 - 160

Lab Sample ID: 2317452
Field Sample ID: HABCE0114_LakeMann1

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	122	P	30 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A111370
Included Lab Sample IDs: 2317460, 2317461, 2317462

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.0	P/P	90 - 110
O-Phosphate-P	99.7	99.1	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A111372
Included Lab Sample IDs: 2317450, 2317451, 2317452

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	104	137	P/P	50 - 160
Cylindrospermopsin	97.4	130	P/P	60 - 160
Desmethyl microcystin LR	98.4	141	P/P	60 - 160
Microcystin HilR	104	152	P/P	60 - 160
Microcystin HtyR	112	155	P/P	60 - 160
Microcystin LA	106	149	P/P	50 - 160
Microcystin LF	109	153	P/P	60 - 160
Microcystin LR	104	139	P/P	60 - 160
Microcystin LW	106	150	P/P	60 - 160
Microcystin LY	115	156	P/P	60 - 160
Microcystin RR	108	150	P/P	60 - 160
Microcystin WR	93.5	144	P/P	60 - 160
Microcystin YR	104	153	P/P	60 - 160
Nodularin-R	110	149	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A111384
Included Lab Sample IDs: 2317457, 2317458, 2317459

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A111429
Included Lab Sample IDs: 2317457, 2317458, 2317459

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A111516
Included Lab Sample IDs: 2317457

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A111530
Included Lab Sample IDs: 2317458, 2317459

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	98.5	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A111645
Included Lab Sample IDs: 2317458, 2317459

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A111752
Included Lab Sample IDs: 2317457

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.3	100	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	98.0	98.8			0.714
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.5	99.6	107			4.23
	Kjeldahl Nitrogen	98.4					1.79
EPA 353.2 Rev. 2.0	NO2NO3-N	100	100	102			1.49
EPA 365.1 Rev. 2.0	Total-P	105	105	104			0.981
	Total-P	101	104	104			0.0225
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.5	104	104			0.482
	O-Phosphate-P	100	91.9	94.5			2.24
EPA 8321B	Anatoxin-a	99.9	99.8	101			1.19
	Cylindrospermopsin	102	91.4	100			9.05
	Desmethyl microcystin LR	106	99.5	99.3			0.125
	Microcystin HilR	110	93.2	101			7.77
	Microcystin HtyR	112	103	102			0.280
	Microcystin LA	110	103	102			0.260
	Microcystin LF	113	100	105			4.34
	Microcystin LR	122	99.6	108			7.71
	Microcystin LW	105	92.0	102			10.7
	Microcystin LY	110	99.4	104			4.10
	Microcystin RR	108	101	105			3.63
	Microcystin WR	105	90.2	91.8			1.79
	Microcystin YR	111	105	96.0			8.79
	Nodularin-R	109	100	105			4.12

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2317457, 2317458, 2317459
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2317457, 2317458, 2317459
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2317457, 2317458, 2317459
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2317457, 2317458, 2317459
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2317460, 2317461, 2317462
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2317450, 2317451, 2317452

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	04/07/2022			04/12/2022 10:39	Ping Hua	2317458
	04/07/2022			04/12/2022 10:47	Ping Hua	2317457
	04/07/2022			04/12/2022 10:48	Ping Hua	2317459
EPA 351.2 Rev. 2.0	04/07/2022	04/21/2022 14:20	Samantha L Bates	04/22/2022 14:27	Alexandra J Mattheus	2317458
	04/07/2022	04/21/2022 14:20	Samantha L Bates	04/22/2022 14:29	Alexandra J Mattheus	2317459
	04/07/2022	04/26/2022 10:58	Samantha L Bates	04/27/2022 14:36	Samantha L Bates	2317457
EPA 353.2 Rev. 2.0	04/07/2022			04/08/2022 10:13	Beverly Y. Sanders	2317457
	04/07/2022			04/08/2022 10:14	Beverly Y. Sanders	2317458
	04/07/2022			04/08/2022 10:15	Beverly Y. Sanders	2317459
EPA 365.1 Rev. 2.0	04/07/2022	04/14/2022 14:00	Simonne.V. Calhoun	04/15/2022 16:27	Sarah A Nixon	2317457
	04/07/2022	04/14/2022 14:00	Simonne.V. Calhoun	04/18/2022 15:38	James L Waggerby	2317458
	04/07/2022	04/14/2022 14:00	Simonne.V. Calhoun	04/18/2022 15:42	James L Waggerby	2317459
EPA 365.1 Rev. 2.0 dissolved	04/07/2022			04/07/2022 16:50	Nathaniel J Jones	2317460
	04/07/2022			04/07/2022 17:12	Nathaniel J Jones	2317461, 2317462
EPA 8321B	04/07/2022	04/07/2022 12:00	Manjita Shrestha	04/07/2022 19:36	Manjita Shrestha	2317450
	04/07/2022	04/07/2022 12:00	Manjita Shrestha	04/07/2022 19:53	Manjita Shrestha	2317451
	04/07/2022	04/07/2022 12:00	Manjita Shrestha	04/07/2022 20:09	Manjita Shrestha	2317452