Chemical Analysis Report

WQAP-2023-02-16-03

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

Event Description: **Algal Bloom Response - CEROC**
Request ID: **RQ-2023-02-13-44**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

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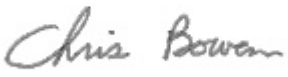
Date Certified: 13-MAR-2023 11:26



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: Lake Pearl - Woodside Village Ramp **Collection Date/Time: 02/15/2023 12:17**

Field ID: HABCE0178_LakePearl2 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2388043	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P425458	
		Cylindrospermopsin	0.10	U	ug/L	P425957	
		Desmethyl microcystin LR	0.25	U	ug/L	P425957	
		Microcystin HilR	0.25	U	ug/L	P425957	
		Microcystin HtyR	0.25	U	ug/L	P425957	
		Microcystin LA	0.16	I	ug/L	P425957	
		Microcystin LF	0.10	U	ug/L	P425957	
		Microcystin LR	0.25	U	ug/L	P425957	
		Microcystin LW	0.25	U	ug/L	P425957	
		Microcystin LY	0.10	U	ug/L	P425957	
		Microcystin RR	0.10	U	ug/L	P425957	
		Microcystin WR	0.50	U	ug/L	P425957	
		Neosaxitoxin	0.50	U	ug/L	P425458	
		Microcystin YR	0.25	U	ug/L	P425957	
		Saxitoxin	0.50	U	ug/L	P425458	
		Nodularin-R	0.10	U	ug/L	P425957	
2388046	EPA 350.1 Rev. 2.0	Ammonia-N	0.034		mg N/L	P426252	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P426716	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.057		mg N/L	P426136	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P426348	
2388049	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P425967	

Sample Location: Wood Lake - E Shore **Collection Date/Time: 02/15/2023 10:11**

Field ID: HABCE0168_WoodLake2 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2388044	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P425458	
		Cylindrospermopsin	0.10	U	ug/L	P425957	
		Desmethyl microcystin LR	0.25	U	ug/L	P425957	
		Microcystin HilR	0.25	U	ug/L	P425957	
		Microcystin HtyR	0.25	U	ug/L	P425957	
		Microcystin LA	0.37	I	ug/L	P425957	
		Microcystin LF	0.10	U	ug/L	P425957	
		Microcystin LR	0.39	I	ug/L	P425957	
		Microcystin LW	0.25	U	ug/L	P425957	
		Microcystin LY	0.10	U	ug/L	P425957	
		Microcystin RR	0.12	I	ug/L	P425957	
		Microcystin WR	0.50	U	ug/L	P425957	
		Neosaxitoxin	0.50	U	ug/L	P425458	
		Microcystin YR	0.25	U	ug/L	P425957	
		Saxitoxin	0.50	U	ug/L	P425458	
		Nodularin-R	0.10	U	ug/L	P425957	
2388047	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P426252	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P426716	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.36		mg N/L	P426136	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P426348	
2388050	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P425967	

Sample Location: Deep Lake - N Shore **Collection Date/Time: 02/15/2023 11:05**

Field ID: HABCE0149_DeepLake Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2388045	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P425458	
		Cylindrospermopsin	0.10	U	ug/L	P425957	
		Desmethyl microcystin LR	0.25	U	ug/L	P425957	
		Microcystin HilR	0.25	U	ug/L	P425957	
		Microcystin HtyR	0.25	U	ug/L	P425957	
		Microcystin LA	0.10	U	ug/L	P425957	
		Microcystin LF	0.10	U	ug/L	P425957	
		Microcystin LR	0.25	U	ug/L	P425957	
		Microcystin LW	0.25	U	ug/L	P425957	
		Microcystin LY	0.10	U	ug/L	P425957	
		Microcystin RR	0.10	U	ug/L	P425957	
		Microcystin WR	0.50	U	ug/L	P425957	
		Neosaxitoxin	0.50	U	ug/L	P425458	
		Microcystin YR	0.25	U	ug/L	P425957	
		Saxitoxin	0.50	U	ug/L	P425458	
		Nodularin-R	0.10	U	ug/L	P425957	
2388048	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P426252	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P426716	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.01	I	mg N/L	P426136	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P426348	
2388051	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P425967	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426252

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P426716

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P426136

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P426348

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P425967

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

Reference Method: EPA 8321B
Batch ID: P425458

Component	Result	Code	Units
Anatoxin-a	0.25	U	ug/L
Neosaxitoxin	0.50	U	ug/L
Saxitoxin	0.50	U	ug/L

Reference Method: EPA 8321B
Batch ID: P425957

Component	Result	Code	Units
Cylindrospermopsin	0.10	U	ug/L
Desmethyl microcystin LR	0.25	U	ug/L
Microcystin HilR	0.25	U	ug/L
Microcystin HtyR	0.25	U	ug/L
Microcystin LA	0.10	U	ug/L
Microcystin LF	0.10	U	ug/L
Microcystin LR	0.25	U	ug/L
Microcystin LW	0.25	U	ug/L
Microcystin LY	0.10	U	ug/L
Microcystin RR	0.10	U	ug/L
Microcystin WR	0.50	U	ug/L
Microcystin YR	0.25	U	ug/L
Nodularin-R	0.10	U	ug/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426252

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: P426716

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P426136

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P426348

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: P425967

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.1		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P425458

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	77.1		P	40 - 150
Neosaxitoxin	92.3		P	40 - 150
Saxitoxin	78.8		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P425957

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	93.8		P	40 - 150
Desmethyl microcystin LR	100		P	40 - 150
Microcystin HilR	89.7		P	40 - 150
Microcystin HtyR	90.6		P	40 - 150
Microcystin LA	81.9		P	40 - 150
Microcystin LF	94.8		P	40 - 150
Microcystin LR	96.8		P	40 - 150
Microcystin LW	101		P	40 - 150
Microcystin LY	77.5		P	40 - 150
Microcystin RR	84.4		P	40 - 150
Microcystin WR	93.0		P	40 - 150
Microcystin YR	88.9		P	40 - 150
Nodularin-R	89.2		P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426252

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2387990	Ammonia-N	98.4	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P426716

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2387990	Kjeldahl Nitrogen	107	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P426136

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2387938	NO2NO3-N	93.0	91.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P426348

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2387991	Total-P	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P425967

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2387979	O-Phosphate-P	98.9	99.8	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P425458

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2387977	Anatoxin-a	77.7	76.8	P/P	40 - 150
2387977	Neosaxitoxin	85.6	85.5	P/P	40 - 150
2387977	Saxitoxin	79.2	79.0	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P425957

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2387977	Cylindrospermopsin	90.9	94.8	P/P	40 - 150
2387977	Desmethyl microcystin LR	114	114	P/P	40 - 150
2387977	Microcystin HilR	101	108	P/P	40 - 150
2387977	Microcystin HtyR	102	107	P/P	40 - 150
2387977	Microcystin LA	95.3	94.7	P/P	40 - 150
2387977	Microcystin LF	104	111	P/P	40 - 150
2387977	Microcystin LR	112	112	P/P	40 - 150
2387977	Microcystin LW	91.0	101	P/P	40 - 150
2387977	Microcystin LY	95.8	97.8	P/P	40 - 150
2387977	Microcystin RR	87.8	89.4	P/P	40 - 150
2387977	Microcystin WR	106	108	P/P	40 - 150
2387977	Microcystin YR	108	103	P/P	40 - 150
2387977	Nodularin-R	110	114	P/P	40 - 150

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426252

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2387990	Ammonia-N	0.130	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P426716

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2387990	Kjeldahl Nitrogen	5.53	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P426136

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2387938	NO2NO3-N	0.948	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P426348

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2387991	Total-P	1.09	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P425967

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2387979	O-Phosphate-P	0.906	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P425458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2387977	Anatoxin-a	1.16	Spike	P	0 - 30
2387977	Neosaxitoxin	0.0888	Spike	P	0 - 30
2387977	Saxitoxin	0.320	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P425957

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2387977	Cylindrospermopsin	4.24	Spike	P	0 - 30
2387977	Desmethyl microcystin LR	0.535	Spike	P	0 - 30
2387977	Microcystin HilR	6.07	Spike	P	0 - 30
2387977	Microcystin HtyR	4.99	Spike	P	0 - 30
2387977	Microcystin LA	0.650	Spike	P	0 - 30
2387977	Microcystin LF	6.62	Spike	P	0 - 30
2387977	Microcystin LR	0.161	Spike	P	0 - 30

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P425957

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2387977	Microcystin LW	10.2	Spike	P	0 - 30
2387977	Microcystin LY	2.07	Spike	P	0 - 30
2387977	Microcystin RR	1.76	Spike	P	0 - 30
2387977	Microcystin WR	1.86	Spike	P	0 - 30
2387977	Microcystin YR	4.71	Spike	P	0 - 30
2387977	Nodularin-R	3.84	Spike	P	0 - 30

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2388043
Field Sample ID: HABCE0178_LakePearl2

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	102	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	71.1	P	30 - 160

Lab Sample ID: 2388044
Field Sample ID: HABCE0168_WoodLake2

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	98.5	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	74.4	P	30 - 160

Lab Sample ID: 2388045
Field Sample ID: HABCE0149_DeepLake

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	92.5	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	74.5	P	30 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8321B
Run ID: A117470
Included Lab Sample IDs: 2388043, 2388044, 2388045

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	71.7	71.3	P/P	50 - 160
Anatoxin-a	75.0	71.7	P/P	50 - 160
Neosaxitoxin	86.3	86.8	P/P	50 - 160
Neosaxitoxin	86.8	85.1	P/P	50 - 160
Saxitoxin	74.7	74.2	P/P	50 - 160
Saxitoxin	76.3	74.7	P/P	50 - 160

Reference Method: EPA 8321B
Run ID: A117478
Included Lab Sample IDs: 2388043, 2388044, 2388045

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	93.7	98.9	P/P	50 - 160
Cylindrospermopsin	98.9	98.4	P/P	50 - 160
Desmethyl microcystin LR	102	106	P/P	50 - 160
Desmethyl microcystin LR	106	104	P/P	50 - 160
Microcystin HilR	88.2	94.0	P/P	50 - 160
Microcystin HilR	94.0	103	P/P	50 - 160
Microcystin HtyR	93.1	95.7	P/P	50 - 160
Microcystin HtyR	95.7	105	P/P	50 - 160
Microcystin LA	105	99.7	P/P	50 - 160
Microcystin LA	99.7	100	P/P	50 - 160
Microcystin LF	103	105	P/P	50 - 160
Microcystin LF	95.0	103	P/P	50 - 160
Microcystin LR	102	99.7	P/P	50 - 160
Microcystin LR	99.7	113	P/P	50 - 160
Microcystin LW	91.4	96.0	P/P	50 - 160
Microcystin LW	96.0	98.5	P/P	50 - 160
Microcystin LY	81.9	86.8	P/P	50 - 160
Microcystin LY	86.8	86.0	P/P	50 - 160
Microcystin RR	84.9	88.9	P/P	50 - 160
Microcystin RR	88.9	91.7	P/P	50 - 160
Microcystin WR	100	110	P/P	50 - 160
Microcystin WR	94.6	100	P/P	50 - 160
Microcystin YR	90.8	92.3	P/P	50 - 160
Microcystin YR	92.3	103	P/P	50 - 160
Nodularin-R	92.2	95.1	P/P	50 - 160
Nodularin-R	95.1	103	P/P	50 - 160

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A117489
Included Lab Sample IDs: 2388049, 2388050, 2388051

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.1	97.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A117560
Included Lab Sample IDs: 2388046, 2388047, 2388048

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits

Quality Assurance Report
Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A117560
Included Lab Sample IDs: 2388046, 2388047, 2388048

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	98.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A117602
Included Lab Sample IDs: 2388046, 2388047, 2388048

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.9	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A117682
Included Lab Sample IDs: 2388046, 2388047, 2388048

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A117914
Included Lab Sample IDs: 2388046, 2388047, 2388048

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.2	92.6	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	98.4	98.2			0.130
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	107	100			5.53
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	93.0	91.5			0.948
EPA 365.1 Rev. 2.0	Total-P	101	102	103			1.09
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.1	98.9	99.8			0.906
EPA 8321B	Anatoxin-a	77.1	77.7	76.8			1.16
	Cylindrospermopsin	93.8	90.9	94.8			4.24
	Desmethyl microcystin LR	100	114	114			0.535
	Microcystin HilR	89.7	101	108			6.07
	Microcystin HtyR	90.6	102	107			4.99
	Microcystin LA	81.9	95.3	94.7			0.650
	Microcystin LF	94.8	104	111			6.62
	Microcystin LR	96.8	112	112			0.161
	Microcystin LW	101	91.0	101			10.2
	Microcystin LY	77.5	95.8	97.8			2.07
	Microcystin RR	84.4	87.8	89.4			1.76
	Microcystin WR	93.0	106	108			1.86
	Microcystin YR	88.9	108	103			4.71
	Neosaxitoxin	92.3	85.6	85.5			0.0888
	Nodularin-R	89.2	110	114			3.84
	Saxitoxin	78.8	79.2	79.0			0.320

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2388046, 2388047, 2388048
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2388046, 2388047, 2388048
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2388046, 2388047, 2388048
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2388046, 2388047, 2388048
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2388049, 2388050, 2388051
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2388043, 2388044, 2388045
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2388043, 2388044, 2388045

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	02/16/2023			02/22/2023 13:37	Ping Hua	2388046
	02/16/2023			02/22/2023 13:39	Ping Hua	2388047
	02/16/2023			02/22/2023 13:40	Ping Hua	2388048
EPA 351.2 Rev. 2.0	02/16/2023	03/07/2023 09:18	Simonne.V. Calhoun	03/09/2023 17:41	Judith K. Clark	2388046
	02/16/2023	03/07/2023 09:18	Simonne.V. Calhoun	03/09/2023 17:42	Judith K. Clark	2388047
	02/16/2023	03/07/2023 09:18	Simonne.V. Calhoun	03/09/2023 17:43	Judith K. Clark	2388048
EPA 353.2 Rev. 2.0	02/16/2023			02/20/2023 12:01	Beverly Y. Sanders	2388046
	02/16/2023			02/20/2023 12:03	Beverly Y. Sanders	2388047
	02/16/2023			02/20/2023 12:04	Beverly Y. Sanders	2388048
EPA 365.1 Rev. 2.0	02/16/2023	02/24/2023 12:02	Adam P Silver	02/27/2023 12:00	James L Waggerby	2388046
	02/16/2023	02/24/2023 12:02	Adam P Silver	02/27/2023 12:01	James L Waggerby	2388047
	02/16/2023	02/24/2023 12:02	Adam P Silver	02/27/2023 12:02	James L Waggerby	2388048
EPA 365.1 Rev. 2.0 dissolved	02/16/2023			02/16/2023 15:42	Elise M. Gillis	2388049
	02/16/2023			02/16/2023 15:43	Elise M. Gillis	2388050, 2388051
EPA 8321B	02/16/2023	02/17/2023 08:00	Manjita Shrestha	02/17/2023 10:47	Manjita Shrestha	2388043
	02/16/2023	02/17/2023 08:00	Manjita Shrestha	02/17/2023 11:04	Manjita Shrestha	2388044
	02/16/2023	02/17/2023 08:00	Manjita Shrestha	02/17/2023 11:38	Manjita Shrestha	2388045
	02/16/2023	02/17/2023 13:00	Manjita Shrestha	02/17/2023 19:09	Manjita Shrestha	2388043
	02/16/2023	02/17/2023 13:00	Manjita Shrestha	02/17/2023 19:23	Manjita Shrestha	2388044
	02/16/2023	02/17/2023 13:00	Manjita Shrestha	02/17/2023 19:51	Manjita Shrestha	2388045