Chemical Analysis Report

WQAP-2023-03-02-02

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

Event Description: **Algal Bloom Response - Orange Co**
Request ID: **RQ-2023-02-27-58**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

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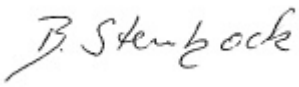
Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 23-MAR-2023 18:10



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 Martha - NE Shore **Collection Date/Time: 03/01/2023 11:55**

Field ID: HABOC0014_LakeMartha Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2391213	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P426536	
		Cylindrospermopsin	0.10	U	ug/L	P426524	
		Desmethyl microcystin LR	0.25	U	ug/L	P426524	
		Microcystin HilR	0.25	U	ug/L	P426524	
		Microcystin HtyR	0.25	U	ug/L	P426524	
		Microcystin LA	0.26	I	ug/L	P426524	
		Microcystin LF	0.10	U	ug/L	P426524	
		Microcystin LR	0.25	U	ug/L	P426524	
		Microcystin LW	0.25	U	ug/L	P426524	
		Microcystin LY	0.10	U	ug/L	P426524	
		Microcystin RR	0.10	U	ug/L	P426524	
		Microcystin WR	0.50	U	ug/L	P426524	
		Neosaxitoxin	0.50	U	ug/L	P426536	
		Microcystin YR	0.25	U	ug/L	P426524	
		Saxitoxin	0.50	U	ug/L	P426536	
		Nodularin-R	0.10	U	ug/L	P426524	
2391230	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P426734	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P427158	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P426858	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P426997	
2391232	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P426618	

Sample Location: Lake Burkett - Center **Collection Date/Time: 03/01/2023 11:40**

Field ID: HABOC0013_LakeBurkett Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2391214	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P426536	
		Cylindrospermopsin	0.10	U	ug/L	P426524	
		Desmethyl microcystin LR	0.25	U	ug/L	P426524	
		Microcystin HilR	0.25	U	ug/L	P426524	
		Microcystin HtyR	0.25	U	ug/L	P426524	
		Microcystin LA	0.18	I	ug/L	P426524	
		Microcystin LF	0.10	U	ug/L	P426524	
		Microcystin LR	0.30	I	ug/L	P426524	
		Microcystin LW	0.25	U	ug/L	P426524	
		Microcystin LY	0.10	U	ug/L	P426524	
		Microcystin RR	0.10	U	ug/L	P426524	
		Microcystin WR	0.50	U	ug/L	P426524	
		Neosaxitoxin	0.50	U	ug/L	P426536	
		Microcystin YR	0.25	U	ug/L	P426524	
		Saxitoxin	0.50	U	ug/L	P426536	
		Nodularin-R	0.10	U	ug/L	P426524	
2391231	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P426732	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.53		mg N/L	P426908	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P426858	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P426997	
2391233	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P426618	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426732

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426734

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P426908

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P427158

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P426858

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P426997

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P426618

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

Reference Method: EPA 8321B
Batch ID: P426524

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 8321B
Batch ID: P426524

Component	Result	Code	Units
Microcystin WR	0.50	U	ug/L
Microcystin YR	0.25	U	ug/L
Nodularin-R	0.10	U	ug/L

Reference Method: EPA 8321B
Batch ID: P426536

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426732

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426734

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: P426908

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P427158

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	104		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P426858

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P426997

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P426618

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

Reference Method: EPA 8321B
Batch ID: P426524

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	92.6		P	40 - 150
Desmethyl microcystin LR	75.5		P	40 - 150
Microcystin HilR	82.5		P	40 - 150
Microcystin HtyR	85.3		P	40 - 150
Microcystin LA	86.9		P	40 - 150
Microcystin LF	93.1		P	40 - 150
Microcystin LR	74.6		P	40 - 150
Microcystin LW	81.1		P	40 - 150
Microcystin LY	82.3		P	40 - 150
Microcystin RR	92.0		P	40 - 150

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P426524

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Microcystin WR	80.6		P	40 - 150
Microcystin YR	88.8		P	40 - 150
Nodularin-R	88.8		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P426536

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	69.8		P	40 - 150
Neosaxitoxin	81.5		P	40 - 150
Saxitoxin	75.6		P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426732

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2391231	Ammonia-N	97.4	97.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426734

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2391221	Ammonia-N	100	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P426908

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2391265	Kjeldahl Nitrogen	94.7	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P427158

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2393191	Kjeldahl Nitrogen	105	97.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P426858

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2391230	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P426997

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2391221	Total-P	103	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P426618

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2391232	O-Phosphate-P	97.2	97.3	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P426524

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2390709	Cylindrospermopsin	95.0	91.7	P/P	40 - 150
2390709	Desmethyl microcystin LR	97.6	99.0	P/P	40 - 150
2390709	Microcystin HilR	104	109	P/P	40 - 150
2390709	Microcystin HtyR	103	110	P/P	40 - 150
2390709	Microcystin LA	88.7	98.0	P/P	40 - 150
2390709	Microcystin LF	86.4	90.5	P/P	40 - 150
2390709	Microcystin LR	94.3	101	P/P	40 - 150
2390709	Microcystin LW	76.8	95.6	P/P	40 - 150
2390709	Microcystin LY	92.0	101	P/P	40 - 150
2390709	Microcystin RR	92.9	96.8	P/P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P426524

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2390709	Microcystin WR	97.8	101	P/P	40 - 150
2390709	Microcystin YR	108	112	P/P	40 - 150
2390709	Nodularin-R	107	112	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P426536

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2390709	Anatoxin-a	68.1	65.7	P/P	40 - 150
2390709	Neosaxitoxin	71.1	72.2	P/P	40 - 150
2390709	Saxitoxin	72.6	69.1	P/P	40 - 150

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426732

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2391231	Ammonia-N	0.193	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P426734

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2391221	Ammonia-N	0.907	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P426908

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2391265	Kjeldahl Nitrogen	4.16	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P427158

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393191	Kjeldahl Nitrogen	4.38	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P426858

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2391230	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P426997

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2391221	Total-P	1.83	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P426618

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2391232	O-Phosphate-P	0.103	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P426524

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2390709	Cylindrospermopsin	3.51	Spike	P	0 - 30
2390709	Desmethyl microcystin LR	1.40	Spike	P	0 - 30

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P426524

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2390709	Microcystin HilR	4.50	Spike	P	0 - 30
2390709	Microcystin HtyR	7.18	Spike	P	0 - 30
2390709	Microcystin LA	9.91	Spike	P	0 - 30
2390709	Microcystin LF	4.56	Spike	P	0 - 30
2390709	Microcystin LR	7.07	Spike	P	0 - 30
2390709	Microcystin LW	21.9	Spike	P	0 - 30
2390709	Microcystin LY	9.15	Spike	P	0 - 30
2390709	Microcystin RR	4.10	Spike	P	0 - 30
2390709	Microcystin WR	3.58	Spike	P	0 - 30
2390709	Microcystin YR	3.54	Spike	P	0 - 30
2390709	Nodularin-R	4.74	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P426536

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2390709	Anatoxin-a	3.53	Spike	P	0 - 30
2390709	Neosaxitoxin	1.57	Spike	P	0 - 30
2390709	Saxitoxin	4.94	Spike	P	0 - 30

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2391213
Field Sample ID: HABOC0014_LakeMartha

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	75.0	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	57.0	P	30 - 160

Lab Sample ID: 2391214
Field Sample ID: HABOC0013_LakeBurkett

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	82.2	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	58.1	P	30 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8321B
Run ID: A117764
Included Lab Sample IDs: 2391213, 2391214

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	63.5	61.7	P/P	50 - 160
Neosaxitoxin	76.7	76.2	P/P	50 - 160
Saxitoxin	67.1	67.2	P/P	50 - 160

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A117766
Included Lab Sample IDs: 2391232, 2391233

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.2	98.2	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A117770
Included Lab Sample IDs: 2391213, 2391214

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	102	101	P/P	50 - 160
Desmethyl microcystin LR	90.0	85.0	P/P	50 - 160
Microcystin HilR	93.5	89.4	P/P	50 - 160
Microcystin HtyR	98.2	90.7	P/P	50 - 160
Microcystin LA	98.0	96.7	P/P	50 - 160
Microcystin LF	102	102	P/P	50 - 160
Microcystin LR	84.2	82.5	P/P	50 - 160
Microcystin LW	102	87.7	P/P	50 - 160
Microcystin LY	87.6	102	P/P	50 - 160
Microcystin RR	93.3	91.8	P/P	50 - 160
Microcystin WR	95.2	92.1	P/P	50 - 160
Microcystin YR	96.5	96.7	P/P	50 - 160
Nodularin-R	97.1	93.5	P/P	50 - 160

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A117821
Included Lab Sample IDs: 2391230, 2391231

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	100	P/P	90 - 110
Ammonia-N	99.7	99.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A117872
Included Lab Sample IDs: 2391230, 2391231

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A117978
Included Lab Sample IDs: 2391231

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.3	97.8	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A117983
Included Lab Sample IDs: 2391230, 2391231

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A118079
Included Lab Sample IDs: 2391230

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.4	95.8	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	99.6	97.4	97.2			0.193
	Ammonia-N	98.6	100	99.0			0.907
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	94.7	100			4.16
	Kjeldahl Nitrogen	104	105	97.7			4.38
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	102			0.0
EPA 365.1 Rev. 2.0	Total-P	100	103	105			1.83
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.3	97.2	97.3			0.103
EPA 8321B	Anatoxin-a	69.8	68.1	65.7			3.53
	Cylindrospermopsin	92.6	95.0	91.7			3.51
	Desmethyl microcystin LR	75.5	97.6	99.0			1.40
	Microcystin HilR	82.5	104	109			4.50
	Microcystin HtyR	85.3	103	110			7.18
	Microcystin LA	86.9	88.7	98.0			9.91
	Microcystin LF	93.1	86.4	90.5			4.56
	Microcystin LR	74.6	94.3	101			7.07
	Microcystin LW	81.1	76.8	95.6			21.9
	Microcystin LY	82.3	92.0	101			9.15
	Microcystin RR	92.0	92.9	96.8			4.10
	Microcystin WR	80.6	97.8	101			3.58
	Microcystin YR	88.8	108	112			3.54
	Neosaxitoxin	81.5	71.1	72.2			1.57
	Nodularin-R	88.8	107	112			4.74
	Saxitoxin	75.6	72.6	69.1			4.94

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2391230, 2391231
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2391230, 2391231
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2391230, 2391231
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2391230, 2391231
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2391232, 2391233
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2391213, 2391214
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2391213, 2391214

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	03/02/2023			03/06/2023 12:19	Khloe J Berg	2391231
	03/02/2023			03/06/2023 13:38	Khloe J Berg	2391230
EPA 351.2 Rev. 2.0	03/02/2023	03/09/2023 14:00	Simonne.V. Calhoun	03/14/2023 12:09	Samantha L Bates	2391231
	03/02/2023	03/15/2023 13:00	Simonne.V. Calhoun	03/20/2023 11:15	Samantha L Bates	2391230
EPA 353.2 Rev. 2.0	03/02/2023			03/08/2023 10:14	Beverly Y. Sanders	2391230
	03/02/2023			03/08/2023 10:23	Beverly Y. Sanders	2391231
EPA 365.1 Rev. 2.0	03/02/2023	03/10/2023 13:50	Adam P Silver	03/14/2023 14:26	James L Waggerby	2391230
	03/02/2023	03/10/2023 13:50	Adam P Silver	03/14/2023 14:27	James L Waggerby	2391231
EPA 365.1 Rev. 2.0 dissolved	03/02/2023			03/02/2023 14:40	Elise M. Gillis	2391232
	03/02/2023			03/02/2023 14:45	Elise M. Gillis	2391233
EPA 8321B	03/02/2023	03/02/2023 11:10	Manjita Shrestha	03/02/2023 14:41	Manjita Shrestha	2391213
	03/02/2023	03/02/2023 11:10	Manjita Shrestha	03/02/2023 14:55	Manjita Shrestha	2391214
	03/02/2023	03/02/2023 11:10	Manjita Shrestha	03/02/2023 22:56	Manjita Shrestha	2391213
	03/02/2023	03/02/2023 11:10	Manjita Shrestha	03/02/2023 23:13	Manjita Shrestha	2391214