

Chemical Analysis Report

WQAP-2023-05-09-01

Florida DEP Laboratory
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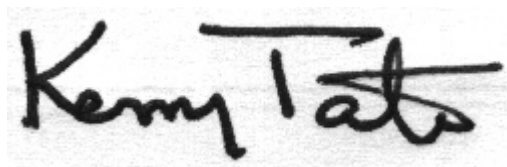
Event Description: **Algal Bloom Response -SOROC**
Request ID: **RQ-2023-04-17-44**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

Send Reports to:
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 19-MAY-2023 12:46

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line extending from the end of the name.

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: Lyons Bay Canal - Ramblin Rose Ln.

Collection Date/Time: 05/08/2023 14:00

Field ID: HAB-SD-050823-1400

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2407483	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P429587	
		Cylindrospermopsin	0.10	U	ug/L	P429586	
		Desmethyl microcystin LR	0.25	U	ug/L	P429586	
		Microcystin HILR	0.25	U	ug/L	P429586	
		Microcystin HtyR	0.25	U	ug/L	P429586	
		Microcystin LA	0.10	U	ug/L	P429586	
		Microcystin LF	0.10	U	ug/L	P429586	
		Microcystin LR	0.25	U	ug/L	P429586	
		Microcystin LW	0.25	U	ug/L	P429586	
		Microcystin LY	0.10	U	ug/L	P429586	
		Microcystin RR	0.10	U	ug/L	P429586	
		Microcystin WR	0.50	U	ug/L	P429586	
		Neosaxitoxin	0.50	U	ug/L	P429587	
		Microcystin YR	0.25	U	ug/L	P429586	
		Saxitoxin	0.50	U	ug/L	P429587	
		Nodularin-R	0.10	U	ug/L	P429586	
2407485	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P429737	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.36	I	mg N/L	P429625	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P430006	
	EPA 365.1 Rev. 2.0	Total-P	0.053		mg P/L	P429770	
2407486	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P429615	

Sample Location: Lyons Bay Canal - Ramblin Rose Ln.

Collection Date/Time: 05/08/2023 14:05

Field ID: FB_05082023

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2407484	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P429587	
		Cylindrospermopsin	0.10	U	ug/L	P429586	
		Desmethyl microcystin LR	0.25	U	ug/L	P429586	
		Microcystin HILR	0.25	U	ug/L	P429586	
		Microcystin HtyR	0.25	U	ug/L	P429586	
		Microcystin LA	0.10	U	ug/L	P429586	
		Microcystin LF	0.10	U	ug/L	P429586	
		Microcystin LR	0.25	U	ug/L	P429586	
		Microcystin LW	0.25	U	ug/L	P429586	
		Microcystin LY	0.10	U	ug/L	P429586	
		Microcystin RR	0.10	U	ug/L	P429586	
		Microcystin WR	0.50	U	ug/L	P429586	
		Neosaxitoxin	0.50	U	ug/L	P429587	
		Microcystin YR	0.25	U	ug/L	P429586	
		Saxitoxin	0.50	U	ug/L	P429587	
		Nodularin-R	0.10	U	ug/L	P429586	
2407487	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P429657	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P429627	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P429902	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P429644	
2407488	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P429614	

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.

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P429657

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P429737

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P429625

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P429627

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429902

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430006

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P429644

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P429770

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P429614

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P429615

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

Reference Method: EPA 8321B
Batch ID: P429586

Component	Result	Code	Units
Cylindrospermopsin	0.10	U	ug/L
Desmethyl microcystin LR	0.25	U	ug/L
Microcystin HIR	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

Reference Method: EPA 8321B
Batch ID: P429587

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: P429657

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P429737

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P429625

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P429627

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429902

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430006

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P429644

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P429770

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P429614

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P429615

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

Reference Method: EPA 8321B
Batch ID: P429586

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	91.4		P	40 - 150
Desmethyl microcystin LR	99.2		P	40 - 150
Microcystin HllR	97.9		P	40 - 150
Microcystin HtyR	101		P	40 - 150
Microcystin LA	102		P	40 - 150
Microcystin LF	97.5		P	40 - 150
Microcystin LR	93.6		P	40 - 150
Microcystin LW	93.4		P	40 - 150
Microcystin LY	84.6		P	40 - 150
Microcystin RR	98.5		P	40 - 150
Microcystin WR	95.4		P	40 - 150
Microcystin YR	104		P	40 - 150
Nodularin-R	94.3		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P429587

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	95.6		P	40 - 150
Neosaxitoxin	77.3		P	40 - 150
Saxitoxin	80.2		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P429657

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2407465	Ammonia-N	98.2	99.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P429737

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2407586	Ammonia-N	104	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P429625

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2405529	Kjeldahl Nitrogen	96.9	91.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429902

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2407428	NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430006

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2407485	NO2NO3-N	104	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P429644

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2407566	Total-P	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P429770

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2407586	Total-P	91.4	94.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P429614

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2407690	O-Phosphate-P	99.2	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P429615

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2407486	O-Phosphate-P	99.1	98.3	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P429586

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2407483	Cylindrospermopsin	62.5	59.3	P/P	40 - 150
2407483	Desmethyl microcystin LR	80.0	90.6	P/P	40 - 150
2407483	Microcystin HilR	84.4	87.2	P/P	40 - 150
2407483	Microcystin HtyR	83.0	93.2	P/P	40 - 150
2407483	Microcystin LA	94.8	87.9	P/P	40 - 150
2407483	Microcystin LF	67.2	71.8	P/P	40 - 150
2407483	Microcystin LR	77.5	82.5	P/P	40 - 150
2407483	Microcystin LW	58.9	74.1	P/P	40 - 150
2407483	Microcystin LY	83.5	92.2	P/P	40 - 150
2407483	Microcystin RR	87.1	92.5	P/P	40 - 150
2407483	Microcystin WR	74.7	82.9	P/P	40 - 150
2407483	Microcystin YR	91.7	91.2	P/P	40 - 150
2407483	Nodularin-R	83.4	90.2	P/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P429587

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2407483	Anatoxin-a	63.4	65.9	P/P	40 - 150
2407483	Neosaxitoxin	40.2	40.6	P/P	40 - 150
2407483	Saxitoxin	40.4	42.9	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P429657

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2407465	Ammonia-N	0.933	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P429737

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2407586	Ammonia-N	0.810	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P429625

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2405529	Kjeldahl Nitrogen	5.05	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P429627

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2407527	Kjeldahl Nitrogen	3.65	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P429902

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2407428	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430006

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2407485	NO2NO3-N	1.86	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P429644

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2407566	Total-P	0.401	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P429770

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2407586	Total-P	3.08	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P429614

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2407690	O-Phosphate-P	0.0733	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P429615

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2407486	O-Phosphate-P	0.724	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P429586

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2407483	Cylindrospermopsin	5.25	Spike	P	0 - 30
2407483	Desmethyl microcystin LR	12.5	Spike	P	0 - 30
2407483	Microcystin HiiR	3.24	Spike	P	0 - 30
2407483	Microcystin HtyR	11.6	Spike	P	0 - 30
2407483	Microcystin LA	7.51	Spike	P	0 - 30
2407483	Microcystin LF	6.56	Spike	P	0 - 30
2407483	Microcystin LR	6.21	Spike	P	0 - 30
2407483	Microcystin LW	22.8	Spike	P	0 - 30
2407483	Microcystin LY	9.82	Spike	P	0 - 30
2407483	Microcystin RR	6.05	Spike	P	0 - 30
2407483	Microcystin WR	10.4	Spike	P	0 - 30
2407483	Microcystin YR	0.622	Spike	P	0 - 30
2407483	Nodularin-R	7.83	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P429587

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2407483	Anatoxin-a	3.85	Spike	P	0 - 30
2407483	Neosaxitoxin	1.02	Spike	P	0 - 30
2407483	Saxitoxin	6.01	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2407483
Field Sample ID: HAB-SD-050823-1400

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	83.4	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	37.0	P	30 - 160

Lab Sample ID: 2407484
Field Sample ID: FB_05082023

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	82.2	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	35.3	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A119046

Included Lab Sample IDs: 2407486, 2407488

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	99.4	P/P	90 - 110
O-Phosphate-P	99.4	99.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A119067

Included Lab Sample IDs: 2407487

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.1	99.7	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A119079

Included Lab Sample IDs: 2407483, 2407484

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	91.1	89.7	P/P	50 - 160
Neosaxitoxin	75.9	77.9	P/P	50 - 160
Saxitoxin	72.5	76.9	P/P	50 - 160

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A119098

Included Lab Sample IDs: 2407485, 2407487

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	96.0	P/P	90 - 110
Kjeldahl Nitrogen	102	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A119099

Included Lab Sample IDs: 2407485

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.3	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A119112

Included Lab Sample IDs: 2407487

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A119149

Included Lab Sample IDs: 2407485

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A119186

Included Lab Sample IDs: 2407487

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A119230

Included Lab Sample IDs: 2407485

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

Reference Method: EPA 8321B

Run ID: A119446

Included Lab Sample IDs: 2407483, 2407484

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	84.7	88.6	P/P	50 - 160
Desmethyl microcystin LR	83.9	92.1	P/P	50 - 160
Microcystin HiiR	90.5	93.2	P/P	50 - 160
Microcystin HtyR	94.2	84.2	P/P	50 - 160
Microcystin LA	85.3	104	P/P	50 - 160
Microcystin LF	80.9	78.4	P/P	50 - 160
Microcystin LR	90.9	81.7	P/P	50 - 160
Microcystin LW	86.1	84.0	P/P	50 - 160
Microcystin LY	100	90.2	P/P	50 - 160
Microcystin RR	91.2	87.1	P/P	50 - 160
Microcystin WR	74.6	89.9	P/P	50 - 160
Microcystin YR	89.5	81.4	P/P	50 - 160
Nodularin-R	90.3	87.7	P/P	50 - 160

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 350.1 Rev. 2.0	Ammonia-N	98.0	98.2	99.6			0.933
	Ammonia-N	97.6	104	105			0.810
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	96.9	91.6			5.05
	Kjeldahl Nitrogen	100					3.65
EPA 353.2 Rev. 2.0	NO2NO3-N	104	99.5	99.5			0.0
	NO2NO3-N	104	104	106			1.86
EPA 365.1 Rev. 2.0	Total-P	102	102	102			0.401
	Total-P	99.7	91.4	94.3			3.08
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.2	99.2	99.3			0.0733
	O-Phosphate-P	101	99.1	98.3			0.724
EPA 8321B	Anatoxin-a	95.6	63.4	65.9			3.85
	Cylindrospermopsin	91.4	62.5	59.3			5.25
	Desmethyl microcystin LR	99.2	80.0	90.6			12.5
	Microcystin HiIR	97.9	84.4	87.2			3.24
	Microcystin HtyR	101	83.0	93.2			11.6
	Microcystin LA	102	94.8	87.9			7.51
	Microcystin LF	97.5	67.2	71.8			6.56
	Microcystin LR	93.6	77.5	82.5			6.21
	Microcystin LW	93.4	58.9	74.1			22.8
	Microcystin LY	84.6	83.5	92.2			9.82
	Microcystin RR	98.5	87.1	92.5			6.05
	Microcystin WR	95.4	74.7	82.9			10.4
	Microcystin YR	104	91.7	91.2			0.622
	Neosaxitoxin	77.3	40.2	40.6			1.02
	Nodularin-R	94.3	83.4	90.2			7.83
	Saxitoxin	80.2	40.4	42.9			6.01

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2407485, 2407487
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2407485, 2407487
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2407485, 2407487
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2407485, 2407487
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2407486, 2407488
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2407483, 2407484
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2407483, 2407484

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	05/09/2023			05/10/2023 11:54	Khloe J Berg	2407487
	05/09/2023			05/11/2023 11:50	Khloe J Berg	2407485
EPA 351.2 Rev. 2.0	05/09/2023	05/10/2023 12:06	Dana G. Hughes	05/11/2023 11:30	Ping Hua	2407485
	05/09/2023	05/10/2023 12:06	Dana G. Hughes	05/11/2023 12:07	Ping Hua	2407487
EPA 353.2 Rev. 2.0	05/09/2023			05/16/2023 09:35	Beverly Y. Sanders	2407487
	05/09/2023			05/16/2023 14:01	Anna M. Plaviak	2407485
EPA 365.1 Rev. 2.0	05/09/2023	05/10/2023 15:40	Adam P Silver	05/11/2023 14:26	Simonne.V. Calhoun	2407487
	05/09/2023	05/11/2023 15:10	Adam P Silver	05/12/2023 15:55	James L Waggerby	2407485
EPA 365.1 Rev. 2.0 dissolved	05/09/2023			05/09/2023 14:28	Elise M. Gillis	2407488
	05/09/2023			05/09/2023 14:39	Elise M. Gillis	2407486
EPA 8321B	05/09/2023	05/10/2023 09:00	Manjita Shrestha	05/10/2023 12:17	Manjita Shrestha	2407483
	05/09/2023	05/10/2023 09:00	Manjita Shrestha	05/10/2023 12:34	Manjita Shrestha	2407484
	05/09/2023	05/10/2023 13:00	Manjita Shrestha	05/10/2023 21:09	Manjita Shrestha	2407483
	05/09/2023	05/10/2023 13:00	Manjita Shrestha	05/10/2023 21:23	Manjita Shrestha	2407484