

Chemical Analysis Report

WQAP-2022-11-04-02

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

Event Description: **Algae Bloom Response NEROC-as needed**
Request ID: **RQ-2022-09-26-35**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

Send Reports to:
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Date Certified: 28-NOV-2022 15:53



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: Dr's Lake at Camp Echockotee

Collection Date/Time: 11/03/2022 10:15

Field ID: NEHAB0085

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2367630	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P421930	
		Cylindrospermopsin	0.10	U	ug/L	P421929	
		Desmethyl microcystin LR	0.25	U	ug/L	P421929	
		Microcystin HILR	0.25	U	ug/L	P421929	
		Microcystin HtyR	0.25	U	ug/L	P421929	
		Microcystin LA	0.10	U	ug/L	P421929	
		Microcystin LF	0.10	U	ug/L	P421929	
		Microcystin LR	0.25	U	ug/L	P421929	
		Microcystin LW	0.25	U	ug/L	P421929	
		Microcystin LY	0.10	U	ug/L	P421929	
		Microcystin RR	0.10	U	ug/L	P421929	
		Microcystin WR	0.50	U	ug/L	P421929	
		Neosaxitoxin	0.50	U	ug/L	P421930	
		Microcystin YR	0.25	U	ug/L	P421929	
		Saxitoxin	0.50	U	ug/L	P421930	
		Nodularin-R	0.10	U	ug/L	P421929	
2367634	EPA 350.1 Rev. 2.0	Ammonia-N	0.096		mg N/L	P422437	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P422243	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P422144	
	EPA 365.1 Rev. 2.0	Total-P	0.081		mg P/L	P422193	
2367638	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.027		mg P/L	P421942	

Sample Location: Black Creek @ SR 17

Collection Date/Time: 11/03/2022 12:40

Field ID: NEHAB0035

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2367628	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P421930	
		Cylindrospermopsin	0.10	U	ug/L	P421929	
		Desmethyl microcystin LR	0.25	U	ug/L	P421929	
		Microcystin HILR	0.25	U	ug/L	P421929	
		Microcystin HtyR	0.25	U	ug/L	P421929	
		Microcystin LA	0.10	U	ug/L	P421929	
		Microcystin LF	0.10	U	ug/L	P421929	
		Microcystin LR	0.25	U	ug/L	P421929	
		Microcystin LW	0.25	U	ug/L	P421929	
		Microcystin LY	0.10	U	ug/L	P421929	
		Microcystin RR	0.10	U	ug/L	P421929	
		Microcystin WR	0.50	U	ug/L	P421929	
		Neosaxitoxin	0.50	U	ug/L	P421930	
		Microcystin YR	0.25	U	ug/L	P421929	
		Saxitoxin	0.50	U	ug/L	P421930	
		Nodularin-R	0.10	U	ug/L	P421929	
2367632	EPA 350.1 Rev. 2.0	Ammonia-N	0.055		mg N/L	P422436	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P422242	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P422144	
	EPA 365.1 Rev. 2.0	Total-P	0.078		mg P/L	P422193	
2367636	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.043		mg P/L	P421941	

Sample Location: Doctor's Lake @ Mill Cove

Collection Date/Time: 11/03/2022 10:45

Field ID: NEHAB0057

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2367629	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P421930	
		Cylindrospermopsin	0.10	U	ug/L	P421929	
		Desmethyl microcystin LR	0.25	U	ug/L	P421929	
		Microcystin HILR	0.25	U	ug/L	P421929	
		Microcystin HtyR	0.25	U	ug/L	P421929	
		Microcystin LA	0.10	U	ug/L	P421929	
		Microcystin LF	0.10	U	ug/L	P421929	
		Microcystin LR	0.25	U	ug/L	P421929	
		Microcystin LW	0.25	U	ug/L	P421929	
		Microcystin LY	0.10	U	ug/L	P421929	
		Microcystin RR	0.10	U	ug/L	P421929	
		Microcystin WR	0.50	U	ug/L	P421929	
		Neosaxitoxin	0.50	U	ug/L	P421930	
		Microcystin YR	0.25	U	ug/L	P421929	
		Saxitoxin	0.50	U	ug/L	P421930	
		Nodularin-R	0.10	U	ug/L	P421929	
2367633	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P422437	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P422244	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P422144	
	EPA 365.1 Rev. 2.0	Total-P	0.055		mg P/L	P422193	
2367637	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P421941	

Sample Location: Swimming Pen CR @ Whitey's Fish Camp

Collection Date/Time: 11/03/2022 11:25

Field ID: NEHAB0074

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2367627	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P421930	
		Cylindrospermopsin	0.10	U	ug/L	P421929	
		Desmethyl microcystin LR	0.25	U	ug/L	P421929	
		Microcystin HILR	0.25	U	ug/L	P421929	
		Microcystin HtyR	0.25	U	ug/L	P421929	
		Microcystin LA	0.10	U	ug/L	P421929	
		Microcystin LF	0.10	U	ug/L	P421929	
		Microcystin LR	0.25	U	ug/L	P421929	
		Microcystin LW	0.25	U	ug/L	P421929	
		Microcystin LY	0.10	U	ug/L	P421929	
		Microcystin RR	0.10	U	ug/L	P421929	
		Microcystin WR	0.50	U	ug/L	P421929	
		Neosaxitoxin	0.50	U	ug/L	P421930	
		Microcystin YR	0.25	U	ug/L	P421929	
		Saxitoxin	0.50	U	ug/L	P421930	
		Nodularin-R	0.10	U	ug/L	P421929	
2367631	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P422436	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.91		mg N/L	P422244	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P422143	
	EPA 365.1 Rev. 2.0	Total-P	0.062		mg P/L	P422440	
2367635	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.018		mg P/L	P421941	

Sample Location: Doctor's Lake @ Mill Cove

Collection Date/Time: 11/03/2022 10:50

Field ID: FB_11032022

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2367596	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P421930	
		Cylindrospermopsin	0.10	U	ug/L	P421929	
		Desmethyl microcystin LR	0.25	U	ug/L	P421929	
		Microcystin HILR	0.25	U	ug/L	P421929	
		Microcystin HtyR	0.25	U	ug/L	P421929	
		Microcystin LA	0.10	U	ug/L	P421929	
		Microcystin LF	0.10	U	ug/L	P421929	
		Microcystin LR	0.25	U	ug/L	P421929	
		Microcystin LW	0.25	U	ug/L	P421929	
		Microcystin LY	0.10	U	ug/L	P421929	
		Microcystin RR	0.10	U	ug/L	P421929	
		Microcystin WR	0.50	U	ug/L	P421929	
		Neosaxitoxin	0.50	U	ug/L	P421930	
		Microcystin YR	0.25	U	ug/L	P421929	
		Saxitoxin	0.50	U	ug/L	P421930	
		Nodularin-R	0.10	U	ug/L	P421929	
2367597	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P422436	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P422244	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P422480	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P422192	
2367598	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P421941	

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422436

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422437

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422242

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422243

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422244

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422143

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422144

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422480

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422192

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422193

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422440

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P421941

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P421942

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

Reference Method: EPA 8321B
Batch ID: P421929

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

Reference Method: EPA 8321B
Batch ID: P421930

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: P422436

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422437

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: P422242

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422243

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422244

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422143

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422144

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422480

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: P422192

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422193

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422440

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P421941

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P421942

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

Reference Method: EPA 8321B
Batch ID: P421929

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	123		P	40 - 150
Desmethyl microcystin LR	124		P	40 - 150
Microcystin HILR	124		P	40 - 150
Microcystin HtyR	126		P	40 - 150
Microcystin LA	118		P	40 - 150
Microcystin LF	121		P	40 - 150
Microcystin LR	108		P	40 - 150
Microcystin LW	108		P	40 - 150
Microcystin LY	121		P	40 - 150
Microcystin RR	104		P	40 - 150
Microcystin WR	122		P	40 - 150
Microcystin YR	103		P	40 - 150
Nodularin-R	115		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P421930

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	81.2		P	40 - 150
Neosaxitoxin	93.0		P	40 - 150
Saxitoxin	86.9		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422436

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2367581	Ammonia-N	98.6	99.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422437

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2367777	Ammonia-N	98.6	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422242

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2367475	Kjeldahl Nitrogen	93.4	95.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422243

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2367676	Kjeldahl Nitrogen	99.0	95.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422244

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2367582	Kjeldahl Nitrogen	102	96.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422143

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2367569	NO2NO3-N	107	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422144

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2367641	NO2NO3-N	99.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422480

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2367178	NO2NO3-N	100	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422192

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2367605	Total-P	104	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422193

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2367634	Total-P	105	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422440

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2367631	Total-P	101	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P421941

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2367570	O-Phosphate-P	99.0	99.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P421942

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2367781	O-Phosphate-P	98.1	98.9	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P421929

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2367568	Cylindrospermopsin	119	113	P/P	40 - 150
2367568	Desmethyl microcystin LR	126	119	P/P	40 - 150
2367568	Microcystin HilR	122	119	P/P	40 - 150
2367568	Microcystin HtyR	132	129	P/P	40 - 150
2367568	Microcystin LA	128	131	P/P	40 - 150
2367568	Microcystin LF	129	122	P/P	40 - 150
2367568	Microcystin LR	117	111	P/P	40 - 150
2367568	Microcystin LW	96.7	125	P/P	40 - 150
2367568	Microcystin LY	125	109	P/P	40 - 150
2367568	Microcystin RR	104	102	P/P	40 - 150
2367568	Microcystin WR	117	119	P/P	40 - 150
2367568	Microcystin YR	113	109	P/P	40 - 150
2367568	Nodularin-R	116	115	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P421930

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2367568	Anatoxin-a	92.6	89.6	P/P	40 - 150
2367568	Neosaxitoxin	77.4	75.7	P/P	40 - 150
2367568	Saxitoxin	82.2	82.0	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422436

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2367581	Ammonia-N	0.610	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P422437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2367777	Ammonia-N	0.188	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2367475	Kjeldahl Nitrogen	1.56	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422243

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2367676	Kjeldahl Nitrogen	2.41	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P422244

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2367582	Kjeldahl Nitrogen	4.12	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422143

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2367569	NO2NO3-N	0.432	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2367641	NO2NO3-N	0.667	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P422480

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2367178	NO2NO3-N	0.157	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422192

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2367605	Total-P	1.53	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422193

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2367634	Total-P	0.418	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P422440

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2367631	Total-P	3.99	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P421941

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2367570	O-Phosphate-P	0.905	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P421942

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2367781	O-Phosphate-P	0.715	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P421929

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2367568	Cylindrospermopsin	4.95	Spike	P	0 - 30
2367568	Desmethyl microcystin LR	5.90	Spike	P	0 - 30
2367568	Microcystin H1LR	2.00	Spike	P	0 - 30
2367568	Microcystin HtyR	2.81	Spike	P	0 - 30
2367568	Microcystin LA	2.53	Spike	P	0 - 30
2367568	Microcystin LF	5.13	Spike	P	0 - 30
2367568	Microcystin LR	5.12	Spike	P	0 - 30
2367568	Microcystin LW	25.3	Spike	P	0 - 30
2367568	Microcystin LY	14.0	Spike	P	0 - 30
2367568	Microcystin RR	2.45	Spike	P	0 - 30
2367568	Microcystin WR	2.08	Spike	P	0 - 30
2367568	Microcystin YR	4.23	Spike	P	0 - 30
2367568	Nodularin-R	1.59	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P421930

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2367568	Anatoxin-a	3.22	Spike	P	0 - 30
2367568	Neosaxitoxin	2.27	Spike	P	0 - 30
2367568	Saxitoxin	0.269	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2367596
Field Sample ID: FB_11032022

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	103	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	64.8	P	30 - 160

Lab Sample ID: 2367627
Field Sample ID: NEHAB0074

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	129	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	61.6	P	30 - 160

Lab Sample ID: 2367628
Field Sample ID: NEHAB0035

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	125	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	57.3	P	30 - 160

Lab Sample ID: 2367629
Field Sample ID: NEHAB0057

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	116	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	64.2	P	30 - 160

Lab Sample ID: 2367630
Field Sample ID: NEHAB0085

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	119	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	60.7	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A115753

Included Lab Sample IDs: 2367598, 2367635, 2367636, 2367637, 2367638

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	102	P/P	90 - 110
O-Phosphate-P	102	100	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A115761

Included Lab Sample IDs: 2367596, 2367627, 2367628, 2367629, 2367630

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	88.3	80.6	P/P	50 - 160
Neosaxitoxin	102	89.4	P/P	50 - 160
Saxitoxin	94.7	89.0	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A115764

Included Lab Sample IDs: 2367596, 2367627, 2367628, 2367629, 2367630

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	121	122	P/P	50 - 160
Desmethyl microcystin LR	115	124	P/P	50 - 160
Microcystin H1R	120	132	P/P	50 - 160
Microcystin HtyR	128	139	P/P	50 - 160
Microcystin LA	112	136	P/P	50 - 160
Microcystin LF	123	104	P/P	50 - 160
Microcystin LR	109	109	P/P	50 - 160
Microcystin LW	122	124	P/P	50 - 160
Microcystin LY	121	128	P/P	50 - 160
Microcystin RR	104	109	P/P	50 - 160
Microcystin WR	118	135	P/P	50 - 160
Microcystin YR	108	109	P/P	50 - 160
Nodularin-R	116	120	P/P	50 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A115831

Included Lab Sample IDs: 2367631, 2367632, 2367633, 2367634

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	105	106	P/P	90 - 110
NO2NO3-N	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A115889

Included Lab Sample IDs: 2367632, 2367633, 2367634

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A115901

Included Lab Sample IDs: 2367597

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A115901

Included Lab Sample IDs: 2367597

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A115946

Included Lab Sample IDs: 2367632

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.2	94.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A115956

Included Lab Sample IDs: 2367597

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A115958

Included Lab Sample IDs: 2367597, 2367631, 2367633, 2367634

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A115966

Included Lab Sample IDs: 2367597, 2367631, 2367632, 2367633, 2367634

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.0	98.2	P/P	90 - 110
Ammonia-N	98.2	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A116022

Included Lab Sample IDs: 2367631

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.7	98.6	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	MS
EPA 350.1 Rev. 2.0	Ammonia-N	97.6	98.6	99.8		0.610
	Ammonia-N	98.6	98.6	98.8		0.188
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.6	93.4	95.1		1.56
	Kjeldahl Nitrogen	101	99.0	95.3		2.41
	Kjeldahl Nitrogen	99.8	102	96.0		4.12
EPA 353.2 Rev. 2.0	NO2NO3-N	106	107	106		0.432
	NO2NO3-N	106	99.5			0.667
	NO2NO3-N	104	100	99.8		0.157
EPA 365.1 Rev. 2.0	Total-P	105	104	102		1.53
	Total-P	106	105	106		0.418
	Total-P	103	101	105		3.99
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.8	99.0	99.9		0.905
	O-Phosphate-P	102	98.1	98.9		0.715
EPA 8321B	Anatoxin-a	81.2	92.6	89.6		3.22
	Cylindrospermopsin	123	119	113		4.95
	Desmethyl microcystin LR	124	126	119		5.90
	Microcystin HilR	124	122	119		2.00
	Microcystin HtyR	126	132	129		2.81
	Microcystin LA	118	128	131		2.53
	Microcystin LF	121	129	122		5.13
	Microcystin LR	108	117	111		5.12
	Microcystin LW	108	96.7	125		25.3
	Microcystin LY	121	125	109		14.0
	Microcystin RR	104	104	102		2.45
	Microcystin WR	122	117	119		2.08
	Microcystin YR	103	113	109		4.23
	Neosaxitoxin	93.0	77.4	75.7		2.27
	Nodularin-R	115	116	115		1.59
	Saxitoxin	86.9	82.2	82.0		0.269

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2367597, 2367631, 2367632, 2367633, 2367634
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2367597, 2367631, 2367632, 2367633, 2367634
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2367597, 2367631, 2367632, 2367633, 2367634
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2367597, 2367631, 2367632, 2367633, 2367634
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2367598, 2367635, 2367636, 2367637, 2367638
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2367596, 2367627, 2367628, 2367629, 2367630
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2367596, 2367627, 2367628, 2367629, 2367630

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	11/04/2022			11/16/2022 14:42	Ping Hua	2367597
	11/04/2022			11/16/2022 14:47	Ping Hua	2367631
	11/04/2022			11/16/2022 14:49	Ping Hua	2367632
	11/04/2022			11/16/2022 15:05	Ping Hua	2367633
	11/04/2022			11/16/2022 15:06	Ping Hua	2367634
EPA 351.2 Rev. 2.0	11/04/2022	11/14/2022 12:38	Alexandra J Mattheus	11/15/2022 16:37	Alexandra J Mattheus	2367632
	11/04/2022	11/14/2022 12:45	Alexandra J Mattheus	11/16/2022 12:18	Samantha L Bates	2367634
	11/04/2022	11/14/2022 12:45	Alexandra J Mattheus	11/16/2022 12:44	Samantha L Bates	2367597
	11/04/2022	11/14/2022 12:45	Alexandra J Mattheus	11/16/2022 12:48	Samantha L Bates	2367631
	11/04/2022	11/14/2022 12:45	Alexandra J Mattheus	11/16/2022 12:50	Samantha L Bates	2367633
EPA 353.2 Rev. 2.0	11/04/2022			11/09/2022 10:57	Beverly Y. Sanders	2367631
	11/04/2022			11/09/2022 11:10	Beverly Y. Sanders	2367632
	11/04/2022			11/09/2022 11:12	Beverly Y. Sanders	2367633
	11/04/2022			11/09/2022 11:13	Beverly Y. Sanders	2367634
	11/04/2022			11/16/2022 10:24	Beverly Y. Sanders	2367597
EPA 365.1 Rev. 2.0	11/04/2022	11/10/2022 11:40	Simonne.V. Calhoun	11/14/2022 11:53	Simonne.V. Calhoun	2367634
	11/04/2022	11/10/2022 11:40	Simonne.V. Calhoun	11/14/2022 11:57	Simonne.V. Calhoun	2367632
	11/04/2022	11/10/2022 11:40	Simonne.V. Calhoun	11/14/2022 11:58	Simonne.V. Calhoun	2367633
	11/04/2022	11/10/2022 11:40	Simonne.V. Calhoun	11/14/2022 16:09	James L Waggeberby	2367597
	11/04/2022	11/17/2022 13:57	Adam P Silver	11/18/2022 09:25	James L Waggeberby	2367631
EPA 365.1 Rev. 2.0 dissolved	11/04/2022			11/04/2022 13:12	Elise M. Gillis	2367598
	11/04/2022			11/04/2022 13:14	Elise M. Gillis	2367635
	11/04/2022			11/04/2022 13:15	Elise M. Gillis	2367636
	11/04/2022			11/04/2022 13:16	Elise M. Gillis	2367637
	11/04/2022			11/04/2022 13:26	Elise M. Gillis	2367638
EPA 8321B	11/04/2022	11/04/2022 13:27	Manjita Shrestha	11/04/2022 16:29	Manjita Shrestha	2367596
	11/04/2022	11/04/2022 13:27	Manjita Shrestha	11/04/2022 16:46	Manjita Shrestha	2367627
	11/04/2022	11/04/2022 13:27	Manjita Shrestha	11/04/2022 17:03	Manjita Shrestha	2367628
	11/04/2022	11/04/2022 13:27	Manjita Shrestha	11/04/2022 17:20	Manjita Shrestha	2367629
	11/04/2022	11/04/2022 13:27	Manjita Shrestha	11/04/2022 17:37	Manjita Shrestha	2367630
	11/04/2022	11/04/2022 13:27	Manjita Shrestha	11/04/2022 21:15	Manjita Shrestha	2367596
	11/04/2022	11/04/2022 13:27	Manjita Shrestha	11/04/2022 21:29	Manjita Shrestha	2367627
	11/04/2022	11/04/2022 13:27	Manjita Shrestha	11/04/2022 21:43	Manjita Shrestha	2367628
	11/04/2022	11/04/2022 13:27	Manjita Shrestha	11/04/2022 21:57	Manjita Shrestha	2367629
	11/04/2022	11/04/2022 13:27	Manjita Shrestha	11/04/2022 22:11	Manjita Shrestha	2367630