

Chemical Analysis Report

WQAP-2022-09-02-05

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-2022-08-22-52**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

Send Reports to:
FL Dept. of Environmental Protection
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Certified by: Colin Wright, Program Administrator

Date Certified: 19-SEP-2022 08:54

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light pink rectangular background.

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: Doctor`s Lake @ Mill Cove

Collection Date/Time: 09/01/2022 12:25

Field ID: NEHAB0057

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2353962	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P419013	
		Cylindrospermopsin	0.10	U	ug/L	P419012	
		Desmethyl microcystin LR	0.25	U	ug/L	P419012	
		Microcystin HILR	0.25	U	ug/L	P419012	
		Microcystin HtyR	0.25	U	ug/L	P419012	
		Microcystin LA	0.10	U	ug/L	P419012	
		Microcystin LF	0.10	U	ug/L	P419012	
		Microcystin LR	0.33	I	ug/L	P419012	
		Microcystin LW	0.25	U	ug/L	P419012	
		Microcystin LY	0.10	U	ug/L	P419012	
		Microcystin RR	0.10	U	ug/L	P419012	
		Microcystin WR	0.50	U	ug/L	P419012	
		Neosaxitoxin	0.50	U	ug/L	P419013	
		Microcystin YR	0.25	U	ug/L	P419012	
		Saxitoxin	0.50	U	ug/L	P419013	MS
		Nodularin-R	0.10	U	ug/L	P419012	
2353972	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P419143	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P419238	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P419297	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P419250	
2353978	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P419077	

Sample Location: Dr's Lake End of Lawrence Ave

Collection Date/Time: 09/01/2022 12:05

Field ID: NEHAB0073

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2353963	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P419013	
		Cylindrospermopsin	0.10	U	ug/L	P419012	
		Desmethyl microcystin LR	0.25	U	ug/L	P419012	
		Microcystin HILR	0.25	U	ug/L	P419012	
		Microcystin HtyR	0.25	U	ug/L	P419012	
		Microcystin LA	0.10	U	ug/L	P419012	
		Microcystin LF	0.10	U	ug/L	P419012	
		Microcystin LR	0.42	I	ug/L	P419012	
		Microcystin LW	0.25	U	ug/L	P419012	
		Microcystin LY	0.10	U	ug/L	P419012	
		Microcystin RR	0.10	U	ug/L	P419012	
		Microcystin WR	0.50	U	ug/L	P419012	
		Neosaxitoxin	0.50	U	ug/L	P419013	
		Microcystin YR	0.25	U	ug/L	P419012	
		Saxitoxin	0.50	U	ug/L	P419013	MS
		Nodularin-R	0.10	U	ug/L	P419012	
2353973	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P419143	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P419238	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P419297	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P419250	
2353979	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P419077	

Sample Location: Swimming Pen Cr @ Whitey`s Fish camp

Collection Date/Time: 09/01/2022 12:55

Field ID: NEHAB0074

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2353964	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P419013	
		Cylindrospermopsin	0.10	U	ug/L	P419012	
		Desmethyl microcystin LR	0.25	U	ug/L	P419012	
		Microcystin HllR	0.25	U	ug/L	P419012	
		Microcystin HtyR	0.25	U	ug/L	P419012	
		Microcystin LA	0.10	U	ug/L	P419012	
		Microcystin LF	0.10	U	ug/L	P419012	
		Microcystin LR	0.41	I	ug/L	P419012	
		Microcystin LW	0.25	U	ug/L	P419012	
		Microcystin LY	0.10	U	ug/L	P419012	
		Microcystin RR	0.10	U	ug/L	P419012	
		Microcystin WR	0.50	U	ug/L	P419012	
		Neosaxitoxin	0.50	U	ug/L	P419013	
		Microcystin YR	0.25	U	ug/L	P419012	
		Saxitoxin	0.50	U	ug/L	P419013	MS
		Nodularin-R	0.10	U	ug/L	P419012	
2353974	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P419143	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P419171	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P419297	
	EPA 365.1 Rev. 2.0	Total-P	0.076		mg P/L	P419250	
2353980	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P419078	

Ref. Method and Comment:

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

Sample Location: LSJR @ 2930 SR 13

Collection Date/Time: 09/01/2022 09:55

Field ID: NEHAB0077

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2353965	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P419013	
		Cylindrospermopsin	0.10	U	ug/L	P419012	
		Desmethyl microcystin LR	0.25	U	ug/L	P419012	
		Microcystin HILR	0.25	U	ug/L	P419012	
		Microcystin HtyR	0.25	U	ug/L	P419012	
		Microcystin LA	0.10	U	ug/L	P419012	
		Microcystin LF	0.10	U	ug/L	P419012	
		Microcystin LR	0.25	U	ug/L	P419012	
		Microcystin LW	0.25	U	ug/L	P419012	
		Microcystin LY	0.10	U	ug/L	P419012	
		Microcystin RR	0.10	U	ug/L	P419012	
		Microcystin WR	0.50	U	ug/L	P419012	
		Neosaxitoxin	0.50	U	ug/L	P419013	
		Microcystin YR	0.25	U	ug/L	P419012	
		Saxitoxin	0.50	U	ug/L	P419013	MS
		Nodularin-R	0.10	U	ug/L	P419012	
2353975	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P419143	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.95		mg N/L	P419174	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P419297	
	EPA 365.1 Rev. 2.0	Total-P	0.066		mg P/L	P419250	
2353981	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.021		mg P/L	P419078	

Sample Location: Dr's Lake at Camp Echochotee

Collection Date/Time: 09/01/2022 11:25

Field ID: NEHAB0085

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2353966	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P419013	
		Cylindrospermopsin	0.10	U	ug/L	P419012	
		Desmethyl microcystin LR	0.25	U	ug/L	P419012	
		Microcystin HILR	0.25	U	ug/L	P419012	
		Microcystin HtyR	0.25	U	ug/L	P419012	
		Microcystin LA	0.10	U	ug/L	P419012	
		Microcystin LF	0.10	U	ug/L	P419012	
		Microcystin LR	0.29	I	ug/L	P419012	
		Microcystin LW	0.25	U	ug/L	P419012	
		Microcystin LY	0.10	U	ug/L	P419012	
		Microcystin RR	0.10	U	ug/L	P419012	
		Microcystin WR	0.50	U	ug/L	P419012	
		Neosaxitoxin	0.50	U	ug/L	P419013	
		Microcystin YR	0.25	U	ug/L	P419012	
		Saxitoxin	0.50	U	ug/L	P419013	MS
		Nodularin-R	0.10	U	ug/L	P419012	
2353976	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P419143	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P419172	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P419297	
	EPA 365.1 Rev. 2.0	Total-P	0.082		mg P/L	P419250	
2353982	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P419078	

Ref. Method and Comment:

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

Sample Location: Dr's Lake Near Lucy Branch

Collection Date/Time: 09/01/2022 11:50

Field ID: NEHAB0086

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2353961	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P419013	
		Cylindrospermopsin	0.10	U	ug/L	P419012	
		Desmethyl microcystin LR	0.25	U	ug/L	P419012	
		Microcystin HILR	0.25	U	ug/L	P419012	
		Microcystin HtyR	0.25	U	ug/L	P419012	
		Microcystin LA	0.10	U	ug/L	P419012	
		Microcystin LF	0.11	I	ug/L	P419012	
		Microcystin LR	0.36	I	ug/L	P419012	
		Microcystin LW	0.25	U	ug/L	P419012	
		Microcystin LY	0.10	U	ug/L	P419012	
		Microcystin RR	0.10	U	ug/L	P419012	
		Microcystin WR	0.50	U	ug/L	P419012	
		Neosaxitoxin	0.50	U	ug/L	P419013	
		Microcystin YR	0.25	U	ug/L	P419012	
		Saxitoxin	0.50	U	ug/L	P419013	MS
		Nodularin-R	0.10	U	ug/L	P419012	
2353970	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P419143	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P419172	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P419297	
	EPA 365.1 Rev. 2.0	Total-P	0.073		mg P/L	P419249	
2353971	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P419077	

Ref. Method and Comment:

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

Sample Location: LSJR @ BB Fenders

Collection Date/Time: 09/01/2022 10:55

Field ID: NEHAB0093

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2353967	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P419013	
		Cylindrospermopsin	0.10	U	ug/L	P419012	
		Desmethyl microcystin LR	0.25	U	ug/L	P419012	
		Microcystin HILR	0.25	U	ug/L	P419012	
		Microcystin HtyR	0.25	U	ug/L	P419012	
		Microcystin LA	0.10	U	ug/L	P419012	
		Microcystin LF	0.10	U	ug/L	P419012	
		Microcystin LR	0.25	U	ug/L	P419012	
		Microcystin LW	0.25	U	ug/L	P419012	
		Microcystin LY	0.10	U	ug/L	P419012	
		Microcystin RR	0.10	U	ug/L	P419012	
		Microcystin WR	0.50	U	ug/L	P419012	
		Neosaxitoxin	0.50	U	ug/L	P419013	
		Microcystin YR	0.25	U	ug/L	P419012	
		Saxitoxin	0.50	U	ug/L	P419013	MS
		Nodularin-R	0.10	U	ug/L	P419012	
2353977	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P419143	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.86		mg N/L	P419172	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P419297	
	EPA 365.1 Rev. 2.0	Total-P	0.086		mg P/L	P419250	
2353983	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.040		mg P/L	P419078	

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: P419143

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419171

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419172

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419174

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419238

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P419297

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419249

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419250

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P419077

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: P419078

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

Reference Method: EPA 8321B
Batch ID: P419012

Component	Result	Code	Units
Cylindrospermopsin	0.10	U	ug/L
Desmethyl microcystin LR	0.25	U	ug/L
Microcystin HllR	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: P419013

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: P419143

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419171

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419172

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419174

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419238

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P419297

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	101		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419249

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: P419250

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	107		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P419077

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P419078

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

Reference Method: EPA 8321B
Batch ID: P419012

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	101		P	40 - 150
Desmethyl microcystin LR	102		P	40 - 150
Microcystin HILR	103		P	40 - 150
Microcystin HtyR	100		P	40 - 150
Microcystin LA	110		P	40 - 150
Microcystin LF	117		P	40 - 150
Microcystin LR	99.5		P	40 - 150
Microcystin LW	106		P	40 - 150
Microcystin LY	105		P	40 - 150
Microcystin RR	103		P	40 - 150
Microcystin WR	101		P	40 - 150
Microcystin YR	90.3		P	40 - 150
Nodularin-R	98.8		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P419013

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	80.4		P	40 - 150
Neosaxitoxin	76.9		P	40 - 150
Saxitoxin	73.5		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P419143

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353960	Ammonia-N	95.6	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419174

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353975	Kjeldahl Nitrogen	95.8	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419238

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2354140	Kjeldahl Nitrogen	102	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P419297

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353900	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419249

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353855	Total-P	109	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419250

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2354013	Total-P	108	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P419077

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353901	O-Phosphate-P	98.1	96.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P419078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353982	O-Phosphate-P	100	98.9	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P419012

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353848	Cylindrospermopsin	74.3	82.1	P/P	40 - 150
2353848	Desmethyl microcystin LR	85.2	90.4	P/P	40 - 150
2353848	Microcystin HtIR	87.3	93.2	P/P	40 - 150
2353848	Microcystin HtyR	83.4	84.9	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P419012

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353848	Microcystin LA	86.6	91.6	P/P	40 - 150
2353848	Microcystin LF	84.5	93.4	P/P	40 - 150
2353848	Microcystin LR	79.5	80.7	P/P	40 - 150
2353848	Microcystin LW	77.6	86.0	P/P	40 - 150
2353848	Microcystin LY	88.1	90.2	P/P	40 - 150
2353848	Microcystin RR	88.6	91.6	P/P	40 - 150
2353848	Microcystin WR	83.6	86.5	P/P	40 - 150
2353848	Microcystin YR	75.5	80.3	P/P	40 - 150
2353848	Nodularin-R	81.0	88.1	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P419013

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2353848	Anatoxin-a	99.9	105	P/P	40 - 150
2353848	Neosaxitoxin	56.0	60.7	P/P	40 - 150
2353848	Saxitoxin	34.0	32.6	F/F	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P419143

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353960	Ammonia-N	1.21	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419171

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353889	Kjeldahl Nitrogen	4.71	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419172

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353960	Kjeldahl Nitrogen	2.09	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419174

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353975	Kjeldahl Nitrogen	3.49	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419238

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2354140	Kjeldahl Nitrogen	0.904	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P419297

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353900	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419249

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353855	Total-P	1.37	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419250

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2354013	Total-P	1.15	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P419077

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353901	O-Phosphate-P	1.35	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P419078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353982	O-Phosphate-P	1.42	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P419012

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353848	Cylindrospermopsin	9.95	Spike	P	0 - 30
2353848	Desmethyl microcystin LR	5.86	Spike	P	0 - 30
2353848	Microcystin HiiR	6.58	Spike	P	0 - 30
2353848	Microcystin HtyR	1.81	Spike	P	0 - 30
2353848	Microcystin LA	5.56	Spike	P	0 - 30
2353848	Microcystin LF	10.0	Spike	P	0 - 30
2353848	Microcystin LR	1.49	Spike	P	0 - 30
2353848	Microcystin LW	10.2	Spike	P	0 - 30
2353848	Microcystin LY	2.33	Spike	P	0 - 30
2353848	Microcystin RR	3.38	Spike	P	0 - 30
2353848	Microcystin WR	3.43	Spike	P	0 - 30
2353848	Microcystin YR	6.16	Spike	P	0 - 30
2353848	Nodularin-R	8.34	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P419013

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2353848	Anatoxin-a	5.43	Spike	P	0 - 30
2353848	Neosaxitoxin	7.95	Spike	P	0 - 30
2353848	Saxitoxin	4.28	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2353961
Field Sample ID: NEHAB0086

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	87.1	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	64.1	P	30 - 160

Lab Sample ID: 2353962
Field Sample ID: NEHAB0057

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	83.3	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	57.1	P	30 - 160

Lab Sample ID: 2353963
Field Sample ID: NEHAB0073

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	90.3	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	61.0	P	30 - 160

Lab Sample ID: 2353964
Field Sample ID: NEHAB0074

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	86.2	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	57.3	P	30 - 160

Lab Sample ID: 2353965
Field Sample ID: NEHAB0077

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	87.4	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	57.9	P	30 - 160

Lab Sample ID: 2353966
Field Sample ID: NEHAB0085

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	88.6	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	57.0	P	30 - 160

Lab Sample ID: 2353967
Field Sample ID: NEHAB0093

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	50.6	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	53.7	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A114525

Included Lab Sample IDs: 2353971, 2353978, 2353979, 2353980, 2353981, 2353982, 2353983

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	98.9	P/P	90 - 110
O-Phosphate-P	99.8	98.7	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A114533

Included Lab Sample IDs: 2353961, 2353962, 2353963, 2353964, 2353965, 2353966, 2353967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	92.9	96.5	P/P	50 - 160
Neosaxitoxin	86.9	87.8	P/P	50 - 160
Saxitoxin	82.1	82.0	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A114534

Included Lab Sample IDs: 2353961, 2353962, 2353963, 2353964, 2353965, 2353966, 2353967

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	98.1	100	P/P	60 - 160
Desmethyl microcystin LR	104	112	P/P	60 - 160
Microcystin H1R	113	116	P/P	60 - 160
Microcystin HtyR	112	113	P/P	60 - 160
Microcystin LA	124	127	P/P	50 - 160
Microcystin LF	123	131	P/P	60 - 160
Microcystin LR	102	103	P/P	60 - 160
Microcystin LW	121	123	P/P	60 - 160
Microcystin LY	111	119	P/P	60 - 160
Microcystin RR	114	122	P/P	60 - 160
Microcystin WR	116	123	P/P	60 - 160
Microcystin YR	102	102	P/P	60 - 160
Nodularin-R	103	107	P/P	60 - 160

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A114549

Included Lab Sample IDs: 2353970, 2353972, 2353973, 2353974, 2353975, 2353976, 2353977

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.1	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A114607

Included Lab Sample IDs: 2353970, 2353972, 2353973, 2353974, 2353975, 2353976, 2353977

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A114608

Included Lab Sample IDs: 2353970, 2353974, 2353976, 2353977

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	104	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A114608

Included Lab Sample IDs: 2353970, 2353974, 2353976, 2353977

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.4	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A114624

Included Lab Sample IDs: 2353975

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A114641

Included Lab Sample IDs: 2353970, 2353972, 2353973, 2353974, 2353975, 2353976, 2353977

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A114645

Included Lab Sample IDs: 2353972, 2353973

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.7	102	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		LCS	Precision	MS
						SMP	
EPA 350.1 Rev. 2.0	Ammonia-N	97.8	95.6	97.0			1.21
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100					4.71
	Kjeldahl Nitrogen	100					2.09
	Kjeldahl Nitrogen	99.9	95.8	102			3.49
	Kjeldahl Nitrogen	102	102	103			0.904
	Kjeldahl Nitrogen	101	102	102			0.0
EPA 353.2 Rev. 2.0	NO2NO3-N	101	102	102			0.0
EPA 365.1 Rev. 2.0	Total-P	106	109	107			1.37
	Total-P	107	108	107			1.15
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	98.1	96.7			1.35
	O-Phosphate-P	100	100	98.9			1.42
EPA 8321B	Anatoxin-a	80.4	99.9	105			5.43
	Cylindrospermopsin	101	74.3	82.1			9.95
	Desmethyl microcystin LR	102	85.2	90.4			5.86
	Microcystin HiLR	103	87.3	93.2			6.58
	Microcystin HtyR	100	83.4	84.9			1.81
	Microcystin LA	110	86.6	91.6			5.56
	Microcystin LF	117	84.5	93.4			10.0
	Microcystin LR	99.5	79.5	80.7			1.49
	Microcystin LW	106	77.6	86.0			10.2
	Microcystin LY	105	88.1	90.2			2.33
	Microcystin RR	103	88.6	91.6			3.38
	Microcystin WR	101	83.6	86.5			3.43
	Microcystin YR	90.3	75.5	80.3			6.16
	Neosaxitoxin	76.9	56.0	60.7			7.95
	Nodularin-R	98.8	81.0	88.1			8.34
	Saxitoxin	73.5	34.0	32.6			4.28

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2353970, 2353972, 2353973, 2353974, 2353975, 2353976, 2353977
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2353970, 2353972, 2353973, 2353974, 2353975, 2353976, 2353977
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2353970, 2353972, 2353973, 2353974, 2353975, 2353976, 2353977
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2353970, 2353972, 2353973, 2353974, 2353975, 2353976, 2353977
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2353971, 2353978, 2353979, 2353980, 2353981, 2353982, 2353983
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2353961, 2353962, 2353963, 2353964, 2353965, 2353966, 2353967
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2353961, 2353962, 2353963, 2353964, 2353965, 2353966, 2353967

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	09/02/2022			09/06/2022 12:08	Ping Hua	2353970
	09/02/2022			09/06/2022 12:09	Ping Hua	2353972
	09/02/2022			09/06/2022 12:11	Ping Hua	2353973
	09/02/2022			09/06/2022 12:12	Ping Hua	2353974
	09/02/2022			09/06/2022 12:13	Ping Hua	2353975
	09/02/2022			09/06/2022 12:15	Ping Hua	2353976
	09/02/2022			09/06/2022 12:16	Ping Hua	2353977
	09/02/2022			09/06/2022 12:16	Ping Hua	2353977
EPA 351.2 Rev. 2.0	09/02/2022	09/07/2022 13:36	Samantha L Bates	09/08/2022 10:38	Samantha L Bates	2353974
	09/02/2022	09/07/2022 13:36	Samantha L Bates	09/08/2022 11:10	Samantha L Bates	2353970
	09/02/2022	09/07/2022 13:36	Samantha L Bates	09/08/2022 11:12	Samantha L Bates	2353976
	09/02/2022	09/07/2022 13:36	Samantha L Bates	09/08/2022 11:14	Samantha L Bates	2353977
	09/02/2022	09/07/2022 13:36	Samantha L Bates	09/08/2022 14:41	Samantha L Bates	2353975
	09/02/2022	09/08/2022 10:30	Alexandra J Mattheus	09/09/2022 09:57	Alexandra J Mattheus	2353972
EPA 353.2 Rev. 2.0	09/02/2022	09/08/2022 10:30	Alexandra J Mattheus	09/09/2022 09:59	Alexandra J Mattheus	2353973
	09/02/2022			09/08/2022 11:25	Beverly Y. Sanders	2353970
	09/02/2022			09/08/2022 11:27	Beverly Y. Sanders	2353972
	09/02/2022			09/08/2022 11:28	Beverly Y. Sanders	2353973
	09/02/2022			09/08/2022 11:29	Beverly Y. Sanders	2353974
	09/02/2022			09/08/2022 11:30	Beverly Y. Sanders	2353975
	09/02/2022			09/08/2022 11:31	Beverly Y. Sanders	2353976
	09/02/2022			09/08/2022 11:32	Beverly Y. Sanders	2353977
EPA 365.1 Rev. 2.0	09/02/2022	09/08/2022 16:33	Adam P Silver	09/09/2022 12:29	James L Waggeberby	2353970
	09/02/2022	09/08/2022 16:33	Adam P Silver	09/09/2022 12:35	James L Waggeberby	2353972
	09/02/2022	09/08/2022 16:33	Adam P Silver	09/09/2022 12:36	James L Waggeberby	2353973
	09/02/2022	09/08/2022 16:33	Adam P Silver	09/09/2022 12:40	James L Waggeberby	2353974
	09/02/2022	09/08/2022 16:33	Adam P Silver	09/09/2022 12:41	James L Waggeberby	2353975
	09/02/2022	09/08/2022 16:33	Adam P Silver	09/09/2022 12:42	James L Waggeberby	2353976
	09/02/2022	09/08/2022 16:33	Adam P Silver	09/09/2022 12:43	James L Waggeberby	2353977
	09/02/2022			09/02/2022 14:49	Elise M. Gillis	2353971
EPA 365.1 Rev. 2.0 dissolved	09/02/2022			09/02/2022 14:50	Elise M. Gillis	2353978
	09/02/2022			09/02/2022 14:51	Elise M. Gillis	2353979
	09/02/2022			09/02/2022 15:04	Elise M. Gillis	2353982
	09/02/2022			09/02/2022 15:06	Elise M. Gillis	2353980
	09/02/2022			09/02/2022 15:07	Elise M. Gillis	2353981
	09/02/2022			09/02/2022 15:08	Elise M. Gillis	2353983
	09/02/2022	09/02/2022 12:00	Umesh Chiluwal	09/02/2022 16:36	Umesh Chiluwal	2353961
	09/02/2022	09/02/2022 12:00	Umesh Chiluwal	09/02/2022 16:53	Umesh Chiluwal	2353962
EPA 8321B	09/02/2022	09/02/2022 12:00	Umesh Chiluwal	09/02/2022 17:10	Umesh Chiluwal	2353963
	09/02/2022	09/02/2022 12:00	Umesh Chiluwal	09/02/2022 17:27	Umesh Chiluwal	2353964
	09/02/2022	09/02/2022 12:00	Umesh Chiluwal	09/02/2022 17:44	Umesh Chiluwal	2353965

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	09/02/2022	09/02/2022 12:00	Umesh Chiluwal	09/02/2022 18:00	Umesh Chiluwal	2353966
	09/02/2022	09/02/2022 12:00	Umesh Chiluwal	09/02/2022 18:17	Umesh Chiluwal	2353967
	09/02/2022	09/02/2022 13:00	Manjita Shrestha	09/02/2022 16:20	Manjita Shrestha	2353961
	09/02/2022	09/02/2022 13:00	Manjita Shrestha	09/02/2022 16:34	Manjita Shrestha	2353962
	09/02/2022	09/02/2022 13:00	Manjita Shrestha	09/02/2022 16:48	Manjita Shrestha	2353963
	09/02/2022	09/02/2022 13:00	Manjita Shrestha	09/02/2022 17:02	Manjita Shrestha	2353964
	09/02/2022	09/02/2022 13:00	Manjita Shrestha	09/02/2022 17:16	Manjita Shrestha	2353965
	09/02/2022	09/02/2022 13:00	Manjita Shrestha	09/02/2022 17:30	Manjita Shrestha	2353966
	09/02/2022	09/02/2022 13:00	Manjita Shrestha	09/02/2022 17:44	Manjita Shrestha	2353967