

Chemical Analysis Report

WQAP-2022-07-29-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Algal Bloom Response - CEROC**
Request ID: **RQ-2022-07-18-32**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 17-AUG-2022 09:14

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored 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: Lake Mann - McQueen Park

Collection Date/Time: 07/28/2022 12:55

Field ID: HABCE0112_LakeMann

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2344537	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P417373	
		Cylindrospermopsin	0.71		ug/L	P417374	
		Desmethyl microcystin LR	0.25	U	ug/L	P417374	
		Microcystin HILR	0.25	U	ug/L	P417374	
		Microcystin HtyR	0.25	U	ug/L	P417374	
		Microcystin LA	0.10	U	ug/L	P417374	
		Microcystin LF	0.10	U	ug/L	P417374	
		Microcystin LR	0.25	U	ug/L	P417374	
		Microcystin LW	0.25	U	ug/L	P417374	
		Microcystin LY	0.10	U	ug/L	P417374	
		Microcystin RR	0.10	U	ug/L	P417374	
		Microcystin WR	0.50	U	ug/L	P417374	
		Microcystin YR	0.25	U	ug/L	P417374	
		Nodularin-R	0.10	U	ug/L	P417374	
2344567	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P417421	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P417786	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P417487	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P417578	
2344570	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P417424	

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: Lake Ivanhoe - Center of Eastern Lobe

Collection Date/Time: 07/28/2022 11:02

Field ID: HABCE0118_LakeIvanhoe1

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2344538	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P417373	
		Cylindrospermopsin	0.18	I	ug/L	P417374	
		Desmethyl microcystin LR	0.25	U	ug/L	P417374	
		Microcystin HIR	0.25	U	ug/L	P417374	
		Microcystin HtyR	0.25	U	ug/L	P417374	
		Microcystin LA	0.10	U	ug/L	P417374	
		Microcystin LF	0.10	U	ug/L	P417374	
		Microcystin LR	0.25	U	ug/L	P417374	
		Microcystin LW	0.25	U	ug/L	P417374	
		Microcystin LY	0.10	U	ug/L	P417374	
		Microcystin RR	0.10	U	ug/L	P417374	
		Microcystin WR	0.50	U	ug/L	P417374	
		Microcystin YR	0.25	U	ug/L	P417374	
		Nodularin-R	0.10	U	ug/L	P417374	
2344568	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P417421	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.53		mg N/L	P417465	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P417487	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P417578	
2344571	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P417424	

Sample Location: Lake Sue - Fawsett Ramp

Collection Date/Time: 07/28/2022 11:37

Field ID: HABCE0128_LakeSue2

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2344539	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P417373	
		Cylindrospermopsin	0.27	I	ug/L	P417374	
		Desmethyl microcystin LR	0.25	U	ug/L	P417374	
		Microcystin HILR	0.25	U	ug/L	P417374	
		Microcystin HtyR	0.25	U	ug/L	P417374	
		Microcystin LA	0.10	U	ug/L	P417374	
		Microcystin LF	0.10	U	ug/L	P417374	
		Microcystin LR	0.25	U	ug/L	P417374	
		Microcystin LW	0.25	U	ug/L	P417374	
		Microcystin LY	0.10	U	ug/L	P417374	
		Microcystin RR	0.10	U	ug/L	P417374	
		Microcystin WR	0.50	U	ug/L	P417374	
		Microcystin YR	0.25	U	ug/L	P417374	
		Nodularin-R	0.10	U	ug/L	P417374	
2344569	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P417421	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P417786	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P417487	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P417578	
2344572	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P417424	

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: P417421

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417465

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417786

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417487

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417578

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P417424

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

Reference Method: EPA 8321B
Batch ID: P417373

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

Reference Method: EPA 8321B
Batch ID: P417374

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P417374

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417421

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417465

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417786

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: P417487

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417578

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P417424

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

Reference Method: EPA 8321B
Batch ID: P417373

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	96.0		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P417374

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	99.4		P	40 - 150
Desmethyl microcystin LR	84.7		P	40 - 150
Microcystin HILR	89.5		P	40 - 150
Microcystin HtyR	89.8		P	40 - 150
Microcystin LA	88.0		P	40 - 150
Microcystin LF	74.6		P	40 - 150
Microcystin LR	87.4		P	40 - 150
Microcystin LW	80.1		P	40 - 150
Microcystin LY	77.0		P	40 - 150
Microcystin RR	97.2		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P417374

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Microcystin WR	86.8		P	40 - 150
Microcystin YR	83.1		P	40 - 150
Nodularin-R	91.6		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P417421

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344567	Ammonia-N	102	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P417465

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344528	Kjeldahl Nitrogen	108	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P417487

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344529	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P417578

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344564	Total-P	103	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P417424

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344572	O-Phosphate-P	98.0	100	P/P	90 - 110

Reference Method: EPA 8321B

Batch ID: P417373

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344452	Anatoxin-a	112	137	P/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P417374

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2344452	Cylindrospermopsin	90.7	99.9	P/P	40 - 150
2344452	Desmethyl microcystin LR	82.8	85.7	P/P	40 - 150
2344452	Microcystin HILR	86.0	92.7	P/P	40 - 150
2344452	Microcystin HtyR	84.7	90.6	P/P	40 - 150
2344452	Microcystin LA	78.6	77.1	P/P	40 - 150
2344452	Microcystin LF	74.3	79.5	P/P	40 - 150
2344452	Microcystin LR	80.9	81.3	P/P	40 - 150
2344452	Microcystin LW	74.4	76.4	P/P	40 - 150
2344452	Microcystin LY	69.3	75.1	P/P	40 - 150
2344452	Microcystin RR	87.9	92.3	P/P	40 - 150
2344452	Microcystin WR	82.1	84.3	P/P	40 - 150
2344452	Microcystin YR	77.9	83.9	P/P	40 - 150
2344452	Nodularin-R	85.5	92.5	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417421

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344567	Ammonia-N	2.17	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417465

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344528	Kjeldahl Nitrogen	0.422	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P417786

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344531	Kjeldahl Nitrogen	1.97	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417487

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344529	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P417578

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344564	Total-P	0.801	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P417424

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344572	O-Phosphate-P	2.42	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P417373

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344452	Anatoxin-a	20.1	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P417374

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344452	Cylindrospermopsin	9.68	Spike	P	0 - 30
2344452	Desmethyl microcystin LR	3.50	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P417374

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2344452	Microcystin HllR	7.49	Spike	P	0 - 30
2344452	Microcystin HtyR	6.64	Spike	P	0 - 30
2344452	Microcystin LA	0.544	Spike	P	0 - 30
2344452	Microcystin LF	6.74	Spike	P	0 - 30
2344452	Microcystin LR	0.526	Spike	P	0 - 30
2344452	Microcystin LW	2.70	Spike	P	0 - 30
2344452	Microcystin LY	8.00	Spike	P	0 - 30
2344452	Microcystin RR	4.93	Spike	P	0 - 30
2344452	Microcystin WR	2.61	Spike	P	0 - 30
2344452	Microcystin YR	7.36	Spike	P	0 - 30
2344452	Nodularin-R	7.77	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2344537

Field Sample ID: HABCE0112_LakeMann

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	81.6	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	120	P	30 - 160

Lab Sample ID: 2344538

Field Sample ID: HABCE0118_LakeIvanhoe1

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	79.2	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	130	P	30 - 160

Lab Sample ID: 2344539

Field Sample ID: HABCE0128_LakeSue2

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	77.5	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	138	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A113773

Included Lab Sample IDs: 2344537, 2344538, 2344539

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	92.9	111	P/P	60 - 160
Desmethyl microcystin LR	77.8	89.5	P/P	60 - 160
Microcystin HILR	79.2	92.8	P/P	60 - 160
Microcystin HtyR	82.2	95.3	P/P	60 - 160
Microcystin LA	78.2	89.0	P/P	50 - 160
Microcystin LF	65.5	87.7	P/P	60 - 160
Microcystin LR	75.9	84.3	P/P	60 - 160
Microcystin LW	62.5	84.6	P/P	60 - 160
Microcystin LY	71.6	86.1	P/P	60 - 160
Microcystin RR	84.7	97.2	P/P	60 - 160
Microcystin WR	74.7	90.6	P/P	60 - 160
Microcystin YR	73.7	85.0	P/P	60 - 160
Nodularin-R	84.0	95.0	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A113774

Included Lab Sample IDs: 2344537, 2344538, 2344539

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	112	113	P/P	50 - 160

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A113803

Included Lab Sample IDs: 2344567, 2344568, 2344569

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.8	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A113804

Included Lab Sample IDs: 2344570, 2344571, 2344572

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A113846

Included Lab Sample IDs: 2344567, 2344568, 2344569

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A113880

Included Lab Sample IDs: 2344568

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.8	97.3	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A113911

Included Lab Sample IDs: 2344567, 2344568, 2344569

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A114055

Included Lab Sample IDs: 2344567, 2344569

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	94.0	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	94.0	102	100		2.17
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	110	108	108		0.422
	Kjeldahl Nitrogen	102				1.97
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5	100	100		0.0
EPA 365.1 Rev. 2.0	Total-P	102	103	101		0.801
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.9	98.0	100		2.42
EPA 8321B	Anatoxin-a	96.0	112	137		20.1
	Cylindrospermopsin	99.4	90.7	99.9		9.68
	Desmethyl microcystin LR	84.7	82.8	85.7		3.50
	Microcystin H ₁ LR	89.5	86.0	92.7		7.49
	Microcystin H ₂ YR	89.8	84.7	90.6		6.64
	Microcystin LA	88.0	78.6	77.1		0.544
	Microcystin LF	74.6	74.3	79.5		6.74
	Microcystin LR	87.4	80.9	81.3		0.526
	Microcystin LW	80.1	74.4	76.4		2.70
	Microcystin LY	77.0	69.3	75.1		8.00
	Microcystin RR	97.2	87.9	92.3		4.93
	Microcystin WR	86.8	82.1	84.3		2.61
	Microcystin YR	83.1	77.9	83.9		7.36
	Nodularin-R	91.6	85.5	92.5		7.77

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2344567, 2344568, 2344569
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2344567, 2344568, 2344569
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2344567, 2344568, 2344569
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2344567, 2344568, 2344569
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2344570, 2344571, 2344572
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2344537, 2344538, 2344539
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2344537, 2344538, 2344539

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	07/29/2022			07/29/2022 12:26	Ping Hua	2344567
	07/29/2022			07/29/2022 12:39	Ping Hua	2344568
	07/29/2022			07/29/2022 12:40	Ping Hua	2344569
EPA 351.2 Rev. 2.0	07/29/2022	08/02/2022 13:37	Samantha L Bates	08/03/2022 12:04	Samantha L Bates	2344568
	07/29/2022	08/09/2022 15:02	Alexandra J Mattheus	08/12/2022 10:04	Alexandra J Mattheus	2344567
	07/29/2022	08/09/2022 15:02	Alexandra J Mattheus	08/12/2022 10:05	Alexandra J Mattheus	2344569
EPA 353.2 Rev. 2.0	07/29/2022			08/02/2022 09:31	Beverly Y. Sanders	2344567
	07/29/2022			08/02/2022 09:32	Beverly Y. Sanders	2344568
	07/29/2022			08/02/2022 09:34	Beverly Y. Sanders	2344569
EPA 365.1 Rev. 2.0	07/29/2022	08/03/2022 17:35	Adam P Silver	08/04/2022 14:04	James L Waggeberby	2344567
	07/29/2022	08/03/2022 17:35	Adam P Silver	08/04/2022 14:05	James L Waggeberby	2344568
	07/29/2022	08/03/2022 17:35	Adam P Silver	08/04/2022 14:06	James L Waggeberby	2344569
EPA 365.1 Rev. 2.0 dissolved	07/29/2022			07/29/2022 14:34	Chandler E Cox	2344572
	07/29/2022			07/29/2022 14:39	Chandler E Cox	2344570
	07/29/2022			07/29/2022 14:40	Chandler E Cox	2344571
EPA 8321B	07/29/2022	07/29/2022 12:00	Manjita Shrestha	07/29/2022 16:51	Manjita Shrestha	2344537
	07/29/2022	07/29/2022 12:00	Manjita Shrestha	07/29/2022 17:05	Manjita Shrestha	2344538
	07/29/2022	07/29/2022 12:00	Manjita Shrestha	07/29/2022 17:19	Manjita Shrestha	2344539
	07/29/2022	07/29/2022 12:00	Umesh Chiluwal	07/29/2022 16:22	Umesh Chiluwal	2344537
	07/29/2022	07/29/2022 12:00	Umesh Chiluwal	07/29/2022 16:39	Umesh Chiluwal	2344538
	07/29/2022	07/29/2022 12:00	Umesh Chiluwal	07/29/2022 16:56	Umesh Chiluwal	2344539