

Chemical Analysis Report

CEN-DIST-2024-05-07-01

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

Event Description: **Algal Bloom Response - CEROC**
Request ID: **RQ-2024-04-08-56**
Customer: **CEN-DIST**
Project ID: **BLOOM-RESP**

Send Reports to:
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Jessie Atchison

For additional information please contact
Colin Wright, Ph.D.
Chris Bowen, B.S.
Marek Topolski, Ph.D.
Dr. rer. nat. Bettina Steinbock
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Phone (850) 245-8085

Certified by: Colin Wright, Program Administrator

Date Certified: 04-JUN-2024 15:46



NON-CONFORMANCE REPORT INCLUDED

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: East Crooked Lake - NW Shore

Collection Date/Time: 05/06/2024 10:53

Field ID: HABCE0238

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2487225	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P445309	
		Cylindrospermopsin	0.10	U	ug/L	P445308	
		Desmethyl microcystin LR	0.25	U	ug/L	P445308	
		Microcystin HILR	0.25	U	ug/L	P445308	
		Microcystin HtyR	0.25	U	ug/L	P445308	
		Microcystin LA	0.10	U	ug/L	P445308	
		Microcystin LF	0.10	U	ug/L	P445308	
		Microcystin LR	0.25	U	ug/L	P445308	
		Microcystin LW	0.25	U	ug/L	P445308	
		Microcystin LY	0.10	U	ug/L	P445308	
		Microcystin RR	0.10	U	ug/L	P445308	
		Microcystin WR	0.50	U	ug/L	P445308	
		Neosaxitoxin	0.50	U	ug/L	P445309	
		Microcystin YR	0.25	U	ug/L	P445308	
		Saxitoxin	0.50	U	ug/L	P445309	
		Nodularin-R	0.10	U	ug/L	P445308	
2487244	DEP SOP: NU-094-1	Color (true)	3.6	I	PCU	P445366	
2487246	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	IY	mg N/L	P445730	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50		mg N/L	P445406	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	UY	mg N/L	P445744	
	EPA 365.1 Rev. 2.0	Total-P	0.01	J	mg P/L	P445470	
2487248	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P445342	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

EPA 353.2 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

EPA 365.1 Rev. 2.0: Total-P: Standards expired prior to analysis.

Sample Location: Lake Formosa - Pedestrian bridge

Collection Date/Time: 05/06/2024 11:58

Field ID: HABCE0108

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2487224	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P445309	
		Cylindrospermopsin	0.10	U	ug/L	P445308	
		Desmethyl microcystin LR	0.25	U	ug/L	P445308	
		Microcystin HILR	0.25	U	ug/L	P445308	
		Microcystin HtyR	0.25	U	ug/L	P445308	
		Microcystin LA	0.10	U	ug/L	P445308	
		Microcystin LF	0.10	U	ug/L	P445308	
		Microcystin LR	0.25	U	ug/L	P445308	
		Microcystin LW	0.25	U	ug/L	P445308	
		Microcystin LY	0.10	U	ug/L	P445308	
		Microcystin RR	0.10	U	ug/L	P445308	
		Microcystin WR	0.50	U	ug/L	P445308	
		Neosaxitoxin	0.50	U	ug/L	P445309	
		Microcystin YR	0.25	U	ug/L	P445308	
		Saxitoxin	0.50	U	ug/L	P445309	
		Nodularin-R	0.10	U	ug/L	P445308	
2487243	DEP SOP: NU-094-1	Color (true)	20		PCU	P445366	
2487245	EPA 350.1 Rev. 2.0	Ammonia-N	0.006	Y	mg N/L	P445730	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P445406	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	UY	mg N/L	P445745	
	EPA 365.1 Rev. 2.0	Total-P	0.027	J	mg P/L	P445470	
2487247	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P445341	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

EPA 353.2 Rev. 2.0: Sample was stored at room temperature for multiple days because of a power failure at the laboratory.

EPA 365.1 Rev. 2.0: Total-P: Standards expired prior to analysis.

Non-Conformance Report

NCR ID: 10491

Event(s)

CEN-DIST-2024-05-07-01

Job(s)

TLH-2024-05-07-53

Sample(s)

Test(s)

NCR Type: CUSTODY

NCR Category: General

Observation: Due to power outages caused by storm damages on 05/10/2024, samples exceeded maximum allowable temperature.

Resolution: Data will be qualified as appropriate.

Authorized by/Date: Sarah A Nixon 5/30/2024

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report
Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P445366

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P445730

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P445406

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445744

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445745

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445470

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P445341

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P445342

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

Reference Method: EPA 8321B
Batch ID: P445308

Component	Result	Code	Units
Cylindrospermopsin	0.10	U	ug/L
Desmethyl microcystin LR	0.25	U	ug/L
Microcystin H11R	0.25	U	ug/L
Microcystin HtyR	0.25	U	ug/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 8321B
Batch ID: P445308

Component	Result	Code	Units
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: P445309

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: DEP SOP: NU-094-1
Batch ID: P445366

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P445730

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P445406

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445744

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445745

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445470

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P445341

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P445342

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

Reference Method: EPA 8321B
Batch ID: P445308

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	87.2		P	40 - 160
Desmethyl microcystin LR	93.8		P	40 - 160
Microcystin HILR	98.9		P	40 - 160
Microcystin HtyR	99.2		P	40 - 160

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P445308

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Microcystin LA	88.4		P	40 - 160
Microcystin LF	101		P	40 - 160
Microcystin LR	106		P	40 - 160
Microcystin LW	117		P	40 - 160
Microcystin LY	115		P	40 - 160
Microcystin RR	117		P	40 - 160
Microcystin WR	102		P	40 - 160
Microcystin YR	119		P	40 - 160
Nodularin-R	115		P	40 - 160

Reference Method: EPA 8321B
Batch ID: P445309

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	101		P	40 - 150
Neosaxitoxin	85.2		P	40 - 150
Saxitoxin	80.6		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P445730

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2487153	Ammonia-N	96.8	96.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P445406

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2487245	Kjeldahl Nitrogen	99.0	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445744

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2487151	NO2NO3-N	97.6	97.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445745

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2487245	NO2NO3-N	99.0	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445470

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2487246	Total-P	98.6	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P445341

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2487247	O-Phosphate-P	96.3	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P445342

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2487390	O-Phosphate-P	96.2	97.1	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P445308

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2486918	Cylindrospermopsin	87.7	80.8	P/P	40 - 160
2486918	Desmethyl microcystin LR	94.5	88.9	P/P	40 - 160
2486918	Microcystin HiLR	102	97.2	P/P	40 - 160
2486918	Microcystin HtyR	99.8	95.1	P/P	40 - 160
2486918	Microcystin LA	92.4	82.1	P/P	40 - 160
2486918	Microcystin LF	108	105	P/P	40 - 160
2486918	Microcystin LR	110	99.0	P/P	40 - 160
2486918	Microcystin LW	112	108	P/P	40 - 160
2486918	Microcystin LY	114	108	P/P	40 - 160
2486918	Microcystin RR	112	106	P/P	40 - 160

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P445308

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2486918	Microcystin WR	99.6	92.1	P/P	40 - 160
2486918	Microcystin YR	117	109	P/P	40 - 160
2486918	Nodularin-R	107	107	P/P	40 - 160

Reference Method: EPA 8321B
Batch ID: P445309

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2486918	Anatoxin-a	114	121	P/P	40 - 150
2486918	Neosaxitoxin	56.5	55.7	P/P	40 - 150
2486918	Saxitoxin	61.7	64.3	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P445366

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487146	Color (true)	0.848	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P445730

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487153	Ammonia-N	0.0	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P445406

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487245	Kjeldahl Nitrogen	1.42	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445744

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487151	NO2NO3-N	0.434	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P445745

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487245	NO2NO3-N	1.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P445470

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487246	Total-P	2.88	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P445341

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487247	O-Phosphate-P	0.312	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P445342

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487390	O-Phosphate-P	0.778	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P445308

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2486918	Cylindrospermopsin	8.16	Spike	P	0 - 30
2486918	Desmethyl microcystin LR	6.10	Spike	P	0 - 30
2486918	Microcystin HilR	4.36	Spike	P	0 - 30
2486918	Microcystin HtyR	4.82	Spike	P	0 - 30
2486918	Microcystin LA	11.7	Spike	P	0 - 30
2486918	Microcystin LF	3.36	Spike	P	0 - 30
2486918	Microcystin LR	10.8	Spike	P	0 - 30
2486918	Microcystin LW	4.01	Spike	P	0 - 30
2486918	Microcystin LY	5.27	Spike	P	0 - 30
2486918	Microcystin RR	4.77	Spike	P	0 - 30
2486918	Microcystin WR	7.87	Spike	P	0 - 30
2486918	Microcystin YR	6.39	Spike	P	0 - 30
2486918	Nodularin-R	0.259	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P445309

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2486918	Anatoxin-a	6.25	Spike	P	0 - 30
2486918	Neosaxitoxin	1.47	Spike	P	0 - 30
2486918	Saxitoxin	4.05	Spike	P	0 - 30

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2487224
Field Sample ID: HABCE0108

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	112	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	115	P	30 - 160

Lab Sample ID: 2487225
Field Sample ID: HABCE0238

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	113	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	106	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A125723

Included Lab Sample IDs: 2487247, 2487248

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	99.6	100	P/P	90 - 110

Reference Method: DEP SOP: NU-094-1

Run ID: A125729

Included Lab Sample IDs: 2487243, 2487244

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.1	98.6	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A125762

Included Lab Sample IDs: 2487224, 2487225

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	125	119	P/P	50 - 160
Neosaxitoxin	98.5	97.8	P/P	50 - 160
Saxitoxin	106	104	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A125787

Included Lab Sample IDs: 2487224, 2487225

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	92.9	92.3	P/P	60 - 160
Desmethyl microcystin LR	97.2	97.6	P/P	60 - 160
Microcystin H1LR	103	98.1	P/P	60 - 160
Microcystin HtyR	103	99.0	P/P	60 - 160
Microcystin LA	96.2	94.1	P/P	50 - 160
Microcystin LF	113	112	P/P	50 - 160
Microcystin LR	107	103	P/P	60 - 160
Microcystin LW	107	105	P/P	60 - 160
Microcystin LY	109	112	P/P	60 - 160
Microcystin RR	112	105	P/P	60 - 160
Microcystin WR	104	103	P/P	60 - 160
Microcystin YR	121	114	P/P	60 - 160
Nodularin-R	108	105	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A125846

Included Lab Sample IDs: 2487245, 2487246

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A125875

Included Lab Sample IDs: 2487245, 2487246

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	98.4	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A125888
Included Lab Sample IDs: 2487245, 2487246

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A125892
Included Lab Sample IDs: 2487245, 2487246

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110
NO2NO3-N	99.5	100	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
DEP SOP: NU-094-1	Color (true)	101			0.848	
EPA 350.1 Rev. 2.0	Ammonia-N	94.4	96.8	96.8		0.0
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	99.0	101		1.42
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	97.6	97.2		0.434
	NO2NO3-N	100	99.0	100		1.01
EPA 365.1 Rev. 2.0	Total-P	97.2	98.6	101		2.88
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	96.3	96.0		0.312
	O-Phosphate-P	101	96.2	97.1		0.778
EPA 8321B	Anatoxin-a	101	114	121		6.25
	Cylindrospermopsin	87.2	87.7	80.8		8.16
	Desmethyl microcystin LR	93.8	94.5	88.9		6.10
	Microcystin HiLR	98.9	102	97.2		4.36
	Microcystin HtyR	99.2	99.8	95.1		4.82
	Microcystin LA	88.4	92.4	82.1		11.7
	Microcystin LF	101	108	105		3.36
	Microcystin LR	106	110	99.0		10.8
	Microcystin LW	117	112	108		4.01
	Microcystin LY	115	114	108		5.27
	Microcystin RR	117	112	106		4.77
	Microcystin WR	102	99.6	92.1		7.87
	Microcystin YR	119	117	109		6.39
	Neosaxitoxin	85.2	56.5	55.7		1.47
	Nodularin-R	115	107	107		0.259
	Saxitoxin	80.6	61.7	64.3		4.05

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2487243, 2487244
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2487245, 2487246
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2487245, 2487246
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2487245, 2487246
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2487245, 2487246
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2487247, 2487248
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2487224, 2487225
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2487224, 2487225

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	05/07/2024			05/07/2024 14:47	Jessica K Wilks	2487243
	05/07/2024			05/07/2024 14:48	Jessica K Wilks	2487244
EPA 350.1 Rev. 2.0	05/07/2024			05/28/2024 12:53	Khloe J Berg	2487245
	05/07/2024			05/28/2024 12:54	Khloe J Berg	2487246
EPA 351.2 Rev. 2.0	05/07/2024	05/09/2024 08:03	Simonne.V. Calhoun	05/24/2024 16:14	Robyn Blevins	2487245
	05/07/2024	05/09/2024 08:03	Simonne.V. Calhoun	05/24/2024 16:19	Robyn Blevins	2487246
EPA 353.2 Rev. 2.0	05/07/2024			05/28/2024 11:44	Fadila Guebre	2487245
	05/07/2024			05/28/2024 12:45	Fadila Guebre	2487246
EPA 365.1 Rev. 2.0	05/07/2024	05/09/2024 15:27	Josephine W Gitau	05/22/2024 11:58	Simonne.V. Calhoun	2487246
	05/07/2024	05/09/2024 15:27	Josephine W Gitau	05/22/2024 12:00	Simonne.V. Calhoun	2487245
EPA 365.1 Rev. 2.0 dissolved	05/07/2024			05/07/2024 14:19	Elise M. Gillis	2487247
	05/07/2024			05/07/2024 14:44	Elise M. Gillis	2487248
EPA 8321B	05/07/2024	05/07/2024 12:00	Samatha Luckman	05/08/2024 20:28	Samatha Luckman	2487224
	05/07/2024	05/07/2024 12:00	Samatha Luckman	05/08/2024 20:42	Samatha Luckman	2487225
	05/07/2024	05/07/2024 12:00	Samatha Luckman	05/09/2024 06:43	Samatha Luckman	2487224
	05/07/2024	05/07/2024 12:00	Samatha Luckman	05/09/2024 07:00	Samatha Luckman	2487225