

Chemical Analysis Report

SO-DIST-2024-02-02-01

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

Event Description: **Algal Bloom Response -SOROC w/ blank**
Request ID: **RQ-2023-09-18-61**
Customer: **SO-DIST**
Project ID: **BLOOM-RESP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 314
Fort Myers, FL 33901-3381
Attn: John Barrington

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Certified by: Marek Topolski, Environmental Specialist III

Date Certified: 23-FEB-2024 10:36

A handwritten signature in black ink, appearing to read "Marek Topolski", with a stylized, flowing script.

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: Caloosahatchee River - Saturn Canal

Collection Date/Time: 02/01/2024 13:15

Field ID: HAB-SD-020120241315

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2465781	DEP SOP: NU-094-1	Color (true)	44		PCU	P440877	
2465783	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P441127	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P440985	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P440950	
	EPA 365.1 Rev. 2.0	Total-P	0.048		mg P/L	P441282	
2465785	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.018		mg P/L	P440855	
2465787	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P440771	
		Cylindrospermopsin	0.10	U	ug/L	P440770	
		Desmethyl microcystin LR	0.25	U	ug/L	P440770	
		Microcystin HiLR	0.25	U	ug/L	P440770	
		Microcystin HtyR	0.25	U	ug/L	P440770	
		Microcystin LA	0.10	U	ug/L	P440770	
		Microcystin LF	0.10	U	ug/L	P440770	
		Microcystin LR	0.25	U	ug/L	P440770	
		Microcystin LW	0.25	U	ug/L	P440770	
		Microcystin LY	0.10	U	ug/L	P440770	
		Microcystin RR	0.10	U	ug/L	P440770	
		Microcystin WR	0.50	U	ug/L	P440770	
		Neosaxitoxin	0.50	U	ug/L	P440771	
		Microcystin YR	0.25	U	ug/L	P440770	
		Saxitoxin	0.50	U	ug/L	P440771	
		Nodularin-R	0.10	U	ug/L	P440770	

Sample Location: Caloosahatchee River - Calabar Canal South

Collection Date/Time: 02/01/2024 12:30

Field ID: HAB-SD-020120241230

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2465782	DEP SOP: NU-094-1	Color (true)	18		PCU	P440877	
2465784	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P441127	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P440953	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.049		mg N/L	P440950	
	EPA 365.1 Rev. 2.0	Total-P	0.033		mg P/L	P441482	
2465786	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.01	I	mg P/L	P440855	
2465788	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P440771	
		Cylindrospermopsin	0.10	U	ug/L	P440770	
		Desmethyl microcystin LR	0.25	U	ug/L	P440770	
		Microcystin HiLR	0.25	U	ug/L	P440770	
		Microcystin HtyR	0.25	U	ug/L	P440770	
		Microcystin LA	0.10	U	ug/L	P440770	
		Microcystin LF	0.10	U	ug/L	P440770	
		Microcystin LR	0.25	U	ug/L	P440770	
		Microcystin LW	0.25	U	ug/L	P440770	
		Microcystin LY	0.10	U	ug/L	P440770	
		Microcystin RR	0.10	U	ug/L	P440770	
		Microcystin WR	0.50	U	ug/L	P440770	
		Neosaxitoxin	0.50	U	ug/L	P440771	
		Microcystin YR	0.25	U	ug/L	P440770	
		Saxitoxin	0.50	U	ug/L	P440771	
		Nodularin-R	0.10	U	ug/L	P440770	

Quality Assurance Report

Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P440877

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P441127

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P440953

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P440985

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P440950

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P441282

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P441482

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P440855

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

Reference Method: EPA 8321B
Batch ID: P440770

Component	Result	Code	Units
Cylindrospermopsin	0.10	U	ug/L
Desmethyl microcystin LR	0.25	U	ug/L
Microcystin H1R	0.25	U	ug/L
Microcystin HtyR	0.25	U	ug/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B
Batch ID: P440770

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: P440771

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: P440877

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P441127

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P440953

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P440985

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P440950

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P441282

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P441482

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: P440855

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

Reference Method: EPA 8321B
Batch ID: P440770

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	111		P	40 - 150
Desmethyl microcystin LR	98.9		P	40 - 150
Microcystin HILR	97.5		P	40 - 150
Microcystin HtyR	104		P	40 - 150

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P440770

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Microcystin LA	109		P	40 - 150
Microcystin LF	105		P	40 - 150
Microcystin LR	93.4		P	40 - 150
Microcystin LW	111		P	40 - 150
Microcystin LY	108		P	40 - 150
Microcystin RR	109		P	40 - 150
Microcystin WR	90.4		P	40 - 150
Microcystin YR	106		P	40 - 150
Nodularin-R	106		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P440771

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	91.0		P	40 - 150
Neosaxitoxin	86.7		P	40 - 150
Saxitoxin	72.0		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P441127

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2465749	Ammonia-N	97.0	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P440953

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2465863	Kjeldahl Nitrogen	96.6	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P440985

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2465864	Kjeldahl Nitrogen	105	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P440950

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2465784	NO2NO3-N	102	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P441282

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2466099	Total-P	102	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P441482

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2465990	Total-P	105	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P440855

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2465639	O-Phosphate-P	97.3	97.4	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P440770

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2465266	Cylindrospermopsin	107	110	P/P	40 - 150
2465266	Desmethyl microcystin LR	89.5	94.6	P/P	40 - 150
2465266	Microcystin H1LR	93.4	95.1	P/P	40 - 150
2465266	Microcystin HtyR	101	101	P/P	40 - 150
2465266	Microcystin LA	106	101	P/P	40 - 150
2465266	Microcystin LF	107	114	P/P	40 - 150
2465266	Microcystin LR	88.5	94.6	P/P	40 - 150
2465266	Microcystin LW	107	111	P/P	40 - 150
2465266	Microcystin LY	108	112	P/P	40 - 150
2465266	Microcystin RR	113	116	P/P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P440770

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2465266	Microcystin WR	94.0	95.7	P/P	40 - 150
2465266	Microcystin YR	106	111	P/P	40 - 150
2465266	Nodularin-R	106	108	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P440771

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2465266	Anatoxin-a	90.4	88.5	P/P	40 - 150
2465266	Neosaxitoxin	55.0	53.9	P/P	40 - 150
2465266	Saxitoxin	40.4	41.7	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P440877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2465858	Color (true)	6.20	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P441127

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2465749	Ammonia-N	1.51	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P440953

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2465863	Kjeldahl Nitrogen	2.40	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P440985

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2465864	Kjeldahl Nitrogen	1.51	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P440950

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2465784	NO2NO3-N	1.17	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P441282

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2466099	Total-P	2.93	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P441482

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2465990	Total-P	0.151	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P440855

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2465639	O-Phosphate-P	0.0969	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P440770

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2465266	Cylindrospermopsin	3.34	Spike	P	0 - 30
2465266	Desmethyl microcystin LR	5.54	Spike	P	0 - 30
2465266	Microcystin HilR	1.88	Spike	P	0 - 30
2465266	Microcystin HtyR	0.293	Spike	P	0 - 30
2465266	Microcystin LA	4.16	Spike	P	0 - 30
2465266	Microcystin LF	6.59	Spike	P	0 - 30
2465266	Microcystin LR	6.47	Spike	P	0 - 30
2465266	Microcystin LW	2.93	Spike	P	0 - 30
2465266	Microcystin LY	4.37	Spike	P	0 - 30
2465266	Microcystin RR	2.16	Spike	P	0 - 30
2465266	Microcystin WR	1.79	Spike	P	0 - 30
2465266	Microcystin YR	4.76	Spike	P	0 - 30
2465266	Nodularin-R	1.37	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P440771

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2465266	Anatoxin-a	2.14	Spike	P	0 - 30
2465266	Neosaxitoxin	1.99	Spike	P	0 - 30
2465266	Saxitoxin	3.34	Spike	P	0 - 30

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2465787
Field Sample ID: HAB-SD-020120241315

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	105	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	99.5	P	30 - 160

Lab Sample ID: 2465788
Field Sample ID: HAB-SD-020120241230

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	114	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	93.4	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: 124038

Included Lab Sample IDs: 2465784

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.2	101	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A123948

Included Lab Sample IDs: 2465787, 2465788

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	105	109	P/P	50 - 160
Desmethyl microcystin LR	89.0	91.1	P/P	50 - 160
Microcystin HILR	92.3	92.5	P/P	50 - 160
Microcystin HtyR	92.3	98.1	P/P	50 - 160
Microcystin LA	107	101	P/P	50 - 160
Microcystin LF	98.0	102	P/P	50 - 160
Microcystin LR	87.1	94.4	P/P	50 - 160
Microcystin LW	103	107	P/P	50 - 160
Microcystin LY	103	105	P/P	50 - 160
Microcystin RR	103	101	P/P	50 - 160
Microcystin WR	91.9	94.0	P/P	50 - 160
Microcystin YR	95.5	99.7	P/P	50 - 160
Nodularin-R	101	104	P/P	50 - 160

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A123971

Included Lab Sample IDs: 2465785, 2465786

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.8	98.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A123975

Included Lab Sample IDs: 2465787, 2465788

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	99.7	102	P/P	50 - 160
Neosaxitoxin	110	108	P/P	50 - 160
Saxitoxin	90.4	90.5	P/P	50 - 160

Reference Method: DEP SOP: NU-094-1

Run ID: A123978

Included Lab Sample IDs: 2465781, 2465782

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.1	98.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A124002

Included Lab Sample IDs: 2465783, 2465784

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A124060
Included Lab Sample IDs: 2465783, 2465784

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.9	97.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A124063
Included Lab Sample IDs: 2465783

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.7	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A124141
Included Lab Sample IDs: 2465783

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A124261
Included Lab Sample IDs: 2465784

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	96.5	96.8	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)	98.6			6.20	
EPA 350.1 Rev. 2.0	Ammonia-N	97.0	97.0	98.6		1.51
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	96.6	99.8		2.40
	Kjeldahl Nitrogen	99.9	105	108		1.51
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	104		1.17
EPA 365.1 Rev. 2.0	Total-P	102	102	106		2.93
	Total-P	103	105	105		0.151
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.0	97.3	97.4		0.0969
EPA 8321B	Anatoxin-a	91.0	90.4	88.5		2.14
	Cylindrospermopsin	111	107	110		3.34
	Desmethyl microcystin LR	98.9	89.5	94.6		5.54
	Microcystin HiIR	97.5	93.4	95.1		1.88
	Microcystin HtyR	104	101	101		0.293
	Microcystin LA	109	106	101		4.16
	Microcystin LF	105	107	114		6.59
	Microcystin LR	93.4	88.5	94.6		6.47
	Microcystin LW	111	107	111		2.93
	Microcystin LY	108	108	112		4.37
	Microcystin RR	109	113	116		2.16
	Microcystin WR	90.4	94.0	95.7		1.79
	Microcystin YR	106	106	111		4.76
	Neosaxitoxin	86.7	55.0	53.9		1.99
	Nodularin-R	106	106	108		1.37
	Saxitoxin	72.0	40.4	41.7		3.34

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2465781, 2465782
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2465783, 2465784
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2465783, 2465784
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2465783, 2465784
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2465783, 2465784
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2465785, 2465786
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2465787, 2465788
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2465787, 2465788

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	02/02/2024			02/02/2024 14:44	Anna M. Plaviak	2465781, 2465782
EPA 350.1 Rev. 2.0	02/02/2024			02/08/2024 11:08	Khloe J Berg	2465783
	02/02/2024			02/08/2024 11:10	Khloe J Berg	2465784
EPA 351.2 Rev. 2.0	02/02/2024	02/06/2024 11:55	Samantha L Bates	02/07/2024 10:35	Samantha L Bates	2465784
	02/02/2024	02/07/2024 11:38	Ping Hua	02/08/2024 12:50	Ping Hua	2465783
EPA 353.2 Rev. 2.0	02/02/2024			02/05/2024 15:04	Fadila Guebre	2465784
	02/02/2024			02/05/2024 15:10	Fadila Guebre	2465783
EPA 365.1 Rev. 2.0	02/02/2024	02/12/2024 15:33	Adam P Silver	02/13/2024 16:31	James L Waggeberby	2465783
	02/02/2024	02/15/2024 14:20	Adam P Silver	02/20/2024 09:36	James L Waggeberby	2465784
EPA 365.1 Rev. 2.0 dissolved	02/02/2024			02/02/2024 11:23	Elise M. Gillis	2465785
	02/02/2024			02/02/2024 11:24	Elise M. Gillis	2465786
EPA 8321B	02/02/2024	02/02/2024 12:00	Hana Lee	02/02/2024 16:25	Hana Lee	2465787
	02/02/2024	02/02/2024 12:00	Hana Lee	02/02/2024 16:42	Hana Lee	2465788
	02/02/2024	02/02/2024 12:00	Hana Lee	02/02/2024 19:10	Hana Lee	2465787
	02/02/2024	02/02/2024 12:00	Hana Lee	02/02/2024 19:24	Hana Lee	2465788