

Chemical Analysis Report

SO-DIST-2024-04-04-02

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

Event Description: **Algal Bloom Response -SOROC**
Request ID: **RQ-2023-07-24-40**
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 Administrator

Date Certified: 16-APR-2024 11:44

A handwritten signature in black ink, appearing to read "Marek Topolski", with a stylized flourish at the end.

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 - Davis Boat Ramp

Collection Date/Time: 04/03/2024 08:40

Field ID: HAB-SD-040324-0840

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2479943	DEP SOP: NU-094-1	Color (true)	60	A	PCU	P443797	
2479945	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P443847	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P443808	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P444106	
	EPA 365.1 Rev. 2.0	Total-P	0.067		mg P/L	P443909	
2479947	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P443788	
2479949	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P443749	
		Cylindrospermopsin	0.10	U	ug/L	P443748	
		Desmethyl microcystin LR	0.25	U	ug/L	P443748	
		Microcystin HilR	0.25	U	ug/L	P443748	
		Microcystin HtyR	0.25	U	ug/L	P443748	
		Microcystin LA	0.10	U	ug/L	P443748	
		Microcystin LF	0.10	U	ug/L	P443748	
		Microcystin LR	0.25	U	ug/L	P443748	
		Microcystin LW	0.25	U	ug/L	P443748	
		Microcystin LY	0.10	U	ug/L	P443748	
		Microcystin RR	0.10	U	ug/L	P443748	
		Microcystin WR	0.50	U	ug/L	P443748	
		Neosaxitoxin	0.50	U	ug/L	P443749	
		Microcystin YR	0.25	U	ug/L	P443748	
		Saxitoxin	0.50	U	ug/L	P443749	
		Nodularin-R	0.10	U	ug/L	P443748	

Sample Location: Caloosahatchee River - Telegraph Creek Collection Date/Time: 04/03/2024 09:15

Field ID: HAB-SD-040324-0915 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2479944	DEP SOP: NU-094-1	Color (true)	170		PCU	P443797	
2479946	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P443847	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P443808	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P444106	
	EPA 365.1 Rev. 2.0	Total-P	0.043		mg P/L	P443909	
2479948	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.015		mg P/L	P443788	
2479950	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P443749	
		Cylindrospermopsin	0.10	U	ug/L	P443748	
		Desmethyl microcystin LR	0.25	U	ug/L	P443748	
		Microcystin HilR	0.25	U	ug/L	P443748	
		Microcystin HtyR	0.25	U	ug/L	P443748	
		Microcystin LA	0.10	U	ug/L	P443748	
		Microcystin LF	0.10	U	ug/L	P443748	
		Microcystin LR	0.25	U	ug/L	P443748	
		Microcystin LW	0.25	U	ug/L	P443748	
		Microcystin LY	0.10	U	ug/L	P443748	
		Microcystin RR	0.10	U	ug/L	P443748	
		Microcystin WR	0.50	U	ug/L	P443748	
		Neosaxitoxin	0.50	U	ug/L	P443749	
		Microcystin YR	0.25	U	ug/L	P443748	
		Saxitoxin	0.50	U	ug/L	P443749	
		Nodularin-R	0.10	U	ug/L	P443748	

Sample Location: FB_04032024

Collection Date/Time: 04/03/2024 08:40

Field ID: FB_04032024

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2480097	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P443749	
		Cylindrospermopsin	0.10	U	ug/L	P443748	
		Desmethyl microcystin LR	0.25	U	ug/L	P443748	
		Microcystin HILR	0.25	U	ug/L	P443748	
		Microcystin HtyR	0.25	U	ug/L	P443748	
		Microcystin LA	0.10	U	ug/L	P443748	
		Microcystin LF	0.10	U	ug/L	P443748	
		Microcystin LR	0.25	U	ug/L	P443748	
		Microcystin LW	0.25	U	ug/L	P443748	
		Microcystin LY	0.10	U	ug/L	P443748	
		Microcystin RR	0.10	U	ug/L	P443748	
		Microcystin WR	0.50	U	ug/L	P443748	
		Neosaxitoxin	0.50	U	ug/L	P443749	
		Microcystin YR	0.25	U	ug/L	P443748	
		Saxitoxin	0.50	U	ug/L	P443749	
		Nodularin-R	0.10	U	ug/L	P443748	
2480098	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P443942	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P443808	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P444106	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P443962	
2480099	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P443789	MS

Quality Assurance Report
Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P443797

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443847

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443942

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P443808

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444106

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443909

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443962

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P443788

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P443789

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P443748

Component	Result	Code	Units
Cylindrospermopsin	0.10	U	ug/L
Desmethyl microcystin LR	0.25	U	ug/L
Microcystin HilR	0.25	U	ug/L
Microcystin HtyR	0.25	U	ug/L
Microcystin LA	0.10	U	ug/L
Microcystin LF	0.10	U	ug/L
Microcystin LR	0.25	U	ug/L
Microcystin LW	0.25	U	ug/L
Microcystin LY	0.10	U	ug/L
Microcystin RR	0.10	U	ug/L
Microcystin WR	0.50	U	ug/L
Microcystin YR	0.25	U	ug/L
Nodularin-R	0.10	U	ug/L

Reference Method: EPA 8321B

Batch ID: P443749

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: P443797

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	96.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443847

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443942

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P443808

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444106

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443909

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443962

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P443788

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P443789

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P443748

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	96.1		P	40 - 150
Desmethyl microcystin LR	112		P	40 - 150
Microcystin HilR	122		P	40 - 150
Microcystin HtyR	130		P	40 - 150
Microcystin LA	107		P	40 - 150
Microcystin LF	103		P	40 - 150
Microcystin LR	125		P	40 - 150
Microcystin LW	116		P	40 - 150
Microcystin LY	122		P	40 - 150
Microcystin RR	99.0		P	40 - 150
Microcystin WR	128		P	40 - 150
Microcystin YR	121		P	40 - 150
Nodularin-R	109		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P443749

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	98.1		P	40 - 150
Neosaxitoxin	79.8		P	40 - 150
Saxitoxin	96.8		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443847

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2479847	Ammonia-N	97.4	97.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443942

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2480005	Ammonia-N	94.0	94.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P443808

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2479686	Kjeldahl Nitrogen	107	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444106

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2479945	NO2NO3-N	96.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443909

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2479945	Total-P	100	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443962

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2480063	Total-P	106	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P443788

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2479947	O-Phosphate-P	101	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P443789

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2480007	O-Phosphate-P	82.5	83.2	F/F	90 - 110

Reference Method: EPA 8321B
Batch ID: P443748

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2479738	Cylindrospermopsin	103	110	P/P	40 - 150
2479738	Desmethyl microcystin LR	117	136	P/P	40 - 150
2479738	Microcystin HtIR	138	136	P/P	40 - 150
2479738	Microcystin HtyR	142	147	P/P	40 - 150

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P443748

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2479738	Microcystin LA	105	114	P/P	40 - 150
2479738	Microcystin LF	120	122	P/P	40 - 150
2479738	Microcystin LR	109	121	P/P	40 - 150
2479738	Microcystin LW	122	128	P/P	40 - 150
2479738	Microcystin LY	128	127	P/P	40 - 150
2479738	Microcystin RR	105	104	P/P	40 - 150
2479738	Microcystin WR	137	142	P/P	40 - 150
2479738	Microcystin YR	129	134	P/P	40 - 150
2479738	Nodularin-R	118	115	P/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P443749

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2479738	Anatoxin-a	91.1	94.8	P/P	40 - 150
2479738	Neosaxitoxin	80.8	79.2	P/P	40 - 150
2479738	Saxitoxin	103	101	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P443797

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2479943	Color (true)	5.85	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443847

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2479847	Ammonia-N	0.0	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443942

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480005	Ammonia-N	0.138	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P443808

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2479686	Kjeldahl Nitrogen	1.47	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444106

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2479945	NO2NO3-N	3.06	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443909

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2479945	Total-P	1.40	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443962

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480063	Total-P	1.08	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P443788

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2479947	O-Phosphate-P	1.08	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P443789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480007	O-Phosphate-P	0.845	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P443748

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2479738	Cylindrospermopsin	7.14	Spike	P	0 - 30
2479738	Desmethyl microcystin LR	14.9	Spike	P	0 - 30
2479738	Microcystin HILR	1.27	Spike	P	0 - 30
2479738	Microcystin HtyR	3.59	Spike	P	0 - 30
2479738	Microcystin LA	7.04	Spike	P	0 - 30
2479738	Microcystin LF	1.85	Spike	P	0 - 30
2479738	Microcystin LR	9.32	Spike	P	0 - 30
2479738	Microcystin LW	4.87	Spike	P	0 - 30
2479738	Microcystin LY	0.671	Spike	P	0 - 30
2479738	Microcystin RR	0.920	Spike	P	0 - 30
2479738	Microcystin WR	3.62	Spike	P	0 - 30
2479738	Microcystin YR	4.19	Spike	P	0 - 30
2479738	Nodularin-R	2.64	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P443749

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2479738	Anatoxin-a	3.94	Spike	P	0 - 30
2479738	Neosaxitoxin	1.98	Spike	P	0 - 30
2479738	Saxitoxin	1.89	Spike	P	0 - 30

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

Quality Assurance Report

Surrogates

Lab Sample ID: 2479949

Field Sample ID: HAB-SD-040324-0840

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	107	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	126	P	30 - 160

Lab Sample ID: 2479950

Field Sample ID: HAB-SD-040324-0915

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	99.6	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	104	P	30 - 160

Lab Sample ID: 2480097

Field Sample ID: FB_04032024

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	61.7	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	104	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A125155

Included Lab Sample IDs: 2479949, 2479950, 2480097

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	103	101	P/P	50 - 160
Cylindrospermopsin	103	103	P/P	50 - 160
Desmethyl microcystin LR	124	127	P/P	50 - 160
Desmethyl microcystin LR	127	138	P/P	50 - 160
Microcystin HiiR	133	142	P/P	50 - 160
Microcystin HiiR	142	141	P/P	50 - 160
Microcystin HtyR	142	148	P/P	50 - 160
Microcystin HtyR	148	147	P/P	50 - 160
Microcystin LA	116	116	P/P	50 - 160
Microcystin LA	116	112	P/P	50 - 160
Microcystin LF	118	119	P/P	50 - 160
Microcystin LF	119	117	P/P	50 - 160
Microcystin LR	129	129	P/P	50 - 160
Microcystin LR	129	129	P/P	50 - 160
Microcystin LW	122	122	P/P	50 - 160
Microcystin LW	122	127	P/P	50 - 160
Microcystin LY	129	132	P/P	50 - 160
Microcystin LY	129	129	P/P	50 - 160
Microcystin RR	107	107	P/P	50 - 160
Microcystin RR	107	107	P/P	50 - 160
Microcystin WR	132	138	P/P	50 - 160
Microcystin WR	138	143	P/P	50 - 160
Microcystin YR	130	140	P/P	50 - 160
Microcystin YR	133	130	P/P	50 - 160
Nodularin-R	118	119	P/P	50 - 160
Nodularin-R	119	119	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A125170

Included Lab Sample IDs: 2479949, 2479950, 2480097

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	94.9	95.5	P/P	50 - 160
Anatoxin-a	97.6	94.9	P/P	50 - 160
Neosaxitoxin	100	104	P/P	50 - 160
Neosaxitoxin	104	100	P/P	50 - 160
Saxitoxin	114	117	P/P	50 - 160
Saxitoxin	117	114	P/P	50 - 160

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A125174

Included Lab Sample IDs: 2479947, 2479948, 2480099

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.4	98.2	P/P	90 - 110
O-Phosphate-P	99.1	99.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A125175

Included Lab Sample IDs: 2479943, 2479944

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.0	97.8	P/P	90 - 110
Color (true)	98.6	99.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A125191

Included Lab Sample IDs: 2479945, 2479946

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A125220

Included Lab Sample IDs: 2480098

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.6	98.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A125222

Included Lab Sample IDs: 2479945, 2479946, 2480098

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A125232

Included Lab Sample IDs: 2479945

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	98.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A125234

Included Lab Sample IDs: 2479946

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: A125274

Included Lab Sample IDs: 2480098

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A125279

Included Lab Sample IDs: 2479945, 2479946, 2480098

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110

Quality Assurance Report

Calibration Verification

* 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	
DEP SOP: NU-094-1	Color (true)	96.9				5.85	
EPA 350.1 Rev. 2.0	Ammonia-N	97.8	97.4	97.4			0.0
	Ammonia-N	95.0	94.0	94.2			0.138
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	107	105			1.47
EPA 353.2 Rev. 2.0	NO2NO3-N	98.0	96.5	99.5			3.06
EPA 365.1 Rev. 2.0	Total-P	103	100	98.4			1.40
	Total-P	105	106	107			1.08
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	101	99.6			1.08
	O-Phosphate-P	101	82.5	83.2			0.845
EPA 8321B	Anatoxin-a	98.1	91.1	94.8			3.94
	Cylindrospermopsin	96.1	103	110			7.14
	Desmethyl microcystin LR	112	117	136			14.9
	Microcystin HiIR	122	138	136			1.27
	Microcystin HtyR	130	142	147			3.59
	Microcystin LA	107	105	114			7.04
	Microcystin LF	103	120	122			1.85
	Microcystin LR	125	109	121			9.32
	Microcystin LW	116	122	128			4.87
	Microcystin LY	122	128	127			0.671
	Microcystin RR	99.0	105	104			0.920
	Microcystin WR	128	137	142			3.62
	Microcystin YR	121	129	134			4.19
	Neosaxitoxin	79.8	80.8	79.2			1.98
	Nodularin-R	109	118	115			2.64
	Saxitoxin	96.8	103	101			1.89

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2479943, 2479944
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2479945, 2479946, 2480098
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2479945, 2479946, 2480098
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2479945, 2479946, 2480098
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2479945, 2479946, 2480098
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2479947, 2479948, 2480099
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2479949, 2479950, 2480097
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2479949, 2479950, 2480097

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	04/04/2024			04/04/2024 15:13	Jessica K Wilks	2479943
	04/04/2024			04/04/2024 15:36	Jessica K Wilks	2479944
	04/04/2024			04/05/2024 14:07	Kenneth H Lee	2479945
EPA 350.1 Rev. 2.0	04/04/2024			04/05/2024 14:08	Kenneth H Lee	2479946
	04/04/2024			04/08/2024 12:45	Kenneth H Lee	2480098
	04/04/2024	04/05/2024 08:07	Robyn Blevins	04/08/2024 16:25	Robyn Blevins	2479945
EPA 351.2 Rev. 2.0	04/04/2024	04/05/2024 08:07	Robyn Blevins	04/08/2024 16:27	Robyn Blevins	2479946
	04/04/2024	04/05/2024 08:07	Robyn Blevins	04/08/2024 16:30	Robyn Blevins	2480098
	04/04/2024			04/08/2024 15:56	Fadila Guebre	2479945
EPA 353.2 Rev. 2.0	04/04/2024			04/08/2024 16:03	Fadila Guebre	2479946
	04/04/2024			04/08/2024 16:09	Fadila Guebre	2480098
	04/04/2024	04/08/2024 11:35	Josephine W Gitau	04/09/2024 11:23	Simonne.V. Calhoun	2479945
EPA 365.1 Rev. 2.0	04/04/2024	04/08/2024 11:35	Josephine W Gitau	04/09/2024 12:53	Simonne.V. Calhoun	2479946
	04/04/2024	04/09/2024 11:06	Adam P Silver	04/10/2024 13:27	Simonne.V. Calhoun	2480098
	04/04/2024			04/04/2024 14:15	Chandler E Cox	2479947
EPA 365.1 Rev. 2.0 dissolved	04/04/2024			04/04/2024 14:17	Chandler E Cox	2479948
	04/04/2024			04/04/2024 14:42	Chandler E Cox	2480099
	04/04/2024	04/04/2024 13:30	Hana Lee	04/04/2024 16:14	Hana Lee	2479949
EPA 8321B	04/04/2024	04/04/2024 13:30	Hana Lee	04/04/2024 16:28	Hana Lee	2479950
	04/04/2024	04/04/2024 13:30	Hana Lee	04/04/2024 17:09	Hana Lee	2480097
	04/04/2024	04/04/2024 14:00	Hana Lee	04/04/2024 22:03	Hana Lee	2479949
	04/04/2024	04/04/2024 14:00	Hana Lee	04/04/2024 22:20	Hana Lee	2479950
	04/04/2024	04/04/2024 14:00	Hana Lee	04/04/2024 23:10	Hana Lee	2480097