

Chemical Analysis Report

SE-DIST-2024-04-17-01

Florida DEP Laboratory
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Tallahassee, FL 32399-2400
DOH Accreditation E31780

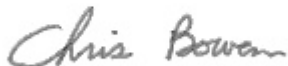
Event Description: **Algal Bloom Response - SE ROC**
Request ID: **RQ-2024-03-04-71**
Customer: **SE-DIST**
Project ID: **BLOOM-RESP**

Send Reports to:
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Certified by: Chris Bowen, Environmental Administrator

Date Certified: 10-MAY-2024 08:31



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: St. Lucie Canal - 96th Street Bridge

Collection Date/Time: 04/16/2024 09:40

Field ID: SEHAB0111

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2482847	DEP SOP: NU-094-1	Color (true)	43		PCU	P444375	
2482852	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P444482	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.94		mg N/L	P444467	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P444722	
	EPA 365.1 Rev. 2.0	Total-P	0.070		mg P/L	P444601	
2482857	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.039		mg P/L	P444409	
2482873	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P444287	
		Cylindrospermopsin	0.10	U	ug/L	P444286	
		Desmethyl microcystin LR	0.25	U	ug/L	P444286	
		Microcystin HilR	0.25	U	ug/L	P444286	
		Microcystin HtyR	0.25	U	ug/L	P444286	
		Microcystin LA	0.10	U	ug/L	P444286	
		Microcystin LF	0.10	U	ug/L	P444286	
		Microcystin LR	0.25	U	ug/L	P444286	
		Microcystin LW	0.25	U	ug/L	P444286	
		Microcystin LY	0.10	U	ug/L	P444286	
		Microcystin RR	0.10	U	ug/L	P444286	
		Microcystin WR	0.50	U	ug/L	P444286	
		Neosaxitoxin	0.50	U	ug/L	P444287	
		Microcystin YR	0.25	U	ug/L	P444286	
		Saxitoxin	0.50	U	ug/L	P444287	
		Nodularin-R	0.10	U	ug/L	P444286	

Sample Location: St. Lucie River - at Palm City Bridge

Collection Date/Time: 04/16/2024 10:20

Field ID: SEHAB0113

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2482849	DEP SOP: NU-094-1	Color (true)	22		PCU	P444375	
2482854	EPA 350.1 Rev. 2.0	Ammonia-N	0.054		mg N/L	P444478	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.76		mg N/L	P444703	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.030		mg N/L	P444605	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P444619	
2482859	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P444411	MS
2482875	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P444287	
		Cylindrospermopsin	0.10	U	ug/L	P444286	
		Desmethyl microcystin LR	0.25	U	ug/L	P444286	
		Microcystin HilR	0.25	U	ug/L	P444286	
		Microcystin HtyR	0.25	U	ug/L	P444286	
		Microcystin LA	0.10	U	ug/L	P444286	
		Microcystin LF	0.10	U	ug/L	P444286	
		Microcystin LR	0.25	U	ug/L	P444286	
		Microcystin LW	0.25	U	ug/L	P444286	
		Microcystin LY	0.10	U	ug/L	P444286	
		Microcystin RR	0.10	U	ug/L	P444286	
		Microcystin WR	0.50	U	ug/L	P444286	
		Neosaxitoxin	0.50	U	ug/L	P444287	
		Microcystin YR	0.25	U	ug/L	P444286	
		Saxitoxin	0.50	U	ug/L	P444287	
		Nodularin-R	0.10	U	ug/L	P444286	

Sample Location: St. Lucie River - Harborage

Collection Date/Time: 04/16/2024 12:10

Field ID: SEHAB0115

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2482850	DEP SOP: NU-094-1	Color (true)	14	A	PCU	P444375	
2482855	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P444478	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P444973	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P444605	
	EPA 365.1 Rev. 2.0	Total-P	0.096		mg P/L	P444619	
2482860	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.063		mg P/L	P444411	MS
2482876	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P444287	
		Cylindrospermopsin	0.10	U	ug/L	P444286	
		Desmethyl microcystin LR	0.25	U	ug/L	P444286	
		Microcystin HilR	0.25	U	ug/L	P444286	
		Microcystin HtyR	0.25	U	ug/L	P444286	
		Microcystin LA	0.10	U	ug/L	P444286	
		Microcystin LF	0.10	U	ug/L	P444286	
		Microcystin LR	0.25	U	ug/L	P444286	
		Microcystin LW	0.25	U	ug/L	P444286	
		Microcystin LY	0.10	U	ug/L	P444286	
		Microcystin RR	0.10	U	ug/L	P444286	
		Microcystin WR	0.50	U	ug/L	P444286	
		Neosaxitoxin	0.50	U	ug/L	P444287	
		Microcystin YR	0.25	U	ug/L	P444286	
		Saxitoxin	0.50	U	ug/L	P444287	
		Nodularin-R	0.10	U	ug/L	P444286	

Sample Location: St. Lucie Canal - Army Corps Campground

Collection Date/Time: 04/16/2024 11:00

Field ID: SEHAB0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2482851	DEP SOP: NU-094-1	Color (true)	56	A	PCU	P444376	
2482856	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P444483	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.90		mg N/L	P444467	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.24		mg N/L	P444722	
	EPA 365.1 Rev. 2.0	Total-P	0.086		mg P/L	P444601	
2482861	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.056		mg P/L	P444409	
2482877	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P444287	
		Cylindrospermopsin	0.10	U	ug/L	P444286	
		Desmethyl microcystin LR	0.25	U	ug/L	P444286	
		Microcystin HilR	0.25	U	ug/L	P444286	
		Microcystin HtyR	0.25	U	ug/L	P444286	
		Microcystin LA	0.10	U	ug/L	P444286	
		Microcystin LF	0.10	U	ug/L	P444286	
		Microcystin LR	0.25	U	ug/L	P444286	
		Microcystin LW	0.25	U	ug/L	P444286	
		Microcystin LY	0.10	U	ug/L	P444286	
		Microcystin RR	0.10	U	ug/L	P444286	
		Microcystin WR	0.50	U	ug/L	P444286	
		Neosaxitoxin	0.50	U	ug/L	P444287	
		Microcystin YR	0.25	U	ug/L	P444286	
		Saxitoxin	0.50	U	ug/L	P444287	
		Nodularin-R	0.10	U	ug/L	P444286	

Sample Location: St. Lucie Rivers - at Four Rivers

Collection Date/Time: 04/16/2024 11:30

Field ID: SEHAB0112				Matrix: W-SURF-FRH			
Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2482848	DEP SOP: NU-094-1	Color (true)	36		PCU	P444375	
2482853	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P444478	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P444973	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022		mg N/L	P444605	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P444619	
2482858	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.055		mg P/L	P444411	MS
2482874	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P444287	
		Cylindrospermopsin	0.10	U	ug/L	P444286	
		Desmethyl microcystin LR	0.25	U	ug/L	P444286	
		Microcystin HilR	0.25	U	ug/L	P444286	
		Microcystin HtyR	0.25	U	ug/L	P444286	
		Microcystin LA	0.10	U	ug/L	P444286	
		Microcystin LF	0.10	U	ug/L	P444286	
		Microcystin LR	0.25	U	ug/L	P444286	
		Microcystin LW	0.25	U	ug/L	P444286	
		Microcystin LY	0.10	U	ug/L	P444286	
		Microcystin RR	0.10	U	ug/L	P444286	
		Microcystin WR	0.50	U	ug/L	P444286	
		Neosaxitoxin	0.50	U	ug/L	P444287	
		Microcystin YR	0.25	U	ug/L	P444286	
		Saxitoxin	0.50	U	ug/L	P444287	
		Nodularin-R	0.10	U	ug/L	P444286	

Quality Assurance Report
Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P444375

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P444376

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P444478

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P444482

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P444483

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444467

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444703

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444973

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444605

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444722

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P444601

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P444619

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P444409

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P444411

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

Reference Method: EPA 8321B
Batch ID: P444286

Component	Result	Code	Units
Cylindrospermopsin	0.10	U	ug/L
Desmethyl microcystin LR	0.25	U	ug/L
Microcystin H1LR	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: P444287

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: P444375

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	94.5		P	90 - 110

Reference Method: DEP SOP: NU-094-1
Batch ID: P444376

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	93.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P444478

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P444482

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P444483

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444467

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444703

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444973

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: P444605

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444722

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P444601

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: P444619

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: P444409

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: P444411

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

Reference Method: EPA 8321B
Batch ID: P444286

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	95.9		P	40 - 150
Desmethyl microcystin LR	101		P	40 - 150
Microcystin H1R	107		P	40 - 150
Microcystin HtyR	103		P	40 - 150
Microcystin LA	97.5		P	40 - 150
Microcystin LF	96.2		P	40 - 150
Microcystin LR	111		P	40 - 150
Microcystin LW	99.5		P	40 - 150
Microcystin LY	105		P	40 - 150
Microcystin RR	95.1		P	40 - 150
Microcystin WR	96.9		P	40 - 150
Microcystin YR	100		P	40 - 150
Nodularin-R	102		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P444287

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	89.3		P	40 - 150
Neosaxitoxin	89.9		P	40 - 150
Saxitoxin	97.2		P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P444478

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2481997	Ammonia-N	97.6	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P444482

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2484730	Ammonia-N	96.8	98.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P444483

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2482856	Ammonia-N	98.2	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444467

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2482775	Kjeldahl Nitrogen	99.4	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444703

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2482651	Kjeldahl Nitrogen	91.0	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444973

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2483326	Kjeldahl Nitrogen	99.4	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444605

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2482652	NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444722

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2482856	NO2NO3-N	95.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P444601

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2482856	Total-P	104	107	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P444619

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2482985	Total-P	104	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P444409

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2482861	O-Phosphate-P	97.7	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P444411

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2482987	O-Phosphate-P	86.6	88.2	F/F	90 - 110

Reference Method: EPA 8321B
Batch ID: P444286

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2482421	Cylindrospermopsin	114	108	P/P	40 - 150
2482421	Desmethyl microcystin LR	101	104	P/P	40 - 150
2482421	Microcystin HilR	108	112	P/P	40 - 150
2482421	Microcystin HtyR	101	101	P/P	40 - 150
2482421	Microcystin LA	104	103	P/P	40 - 150
2482421	Microcystin LF	113	105	P/P	40 - 150
2482421	Microcystin LR	105	103	P/P	40 - 150
2482421	Microcystin LW	107	104	P/P	40 - 150
2482421	Microcystin LY	114	106	P/P	40 - 150
2482421	Microcystin RR	102	103	P/P	40 - 150
2482421	Microcystin WR	105	106	P/P	40 - 150
2482421	Microcystin YR	101	108	P/P	40 - 150
2482421	Nodularin-R	109	106	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P444287

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2482421	Anatoxin-a	93.2	92.1	P/P	40 - 150
2482421	Neosaxitoxin	58.8	56.0	P/P	40 - 150
2482421	Saxitoxin	72.3	67.7	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P444375

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2482850	Color (true)	19.6	Sample	P	0 - 20

Reference Method: DEP SOP: NU-094-1
Batch ID: P444376

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2482851	Color (true)	5.47	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P444478

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2481997	Ammonia-N	1.40	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P444482

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2484730	Ammonia-N	1.28	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P444483

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2482856	Ammonia-N	1.63	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444467

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2482775	Kjeldahl Nitrogen	3.23	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444703

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2482651	Kjeldahl Nitrogen	9.60	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P444973

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2483326	Kjeldahl Nitrogen	1.65	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444605

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2482652	NO2NO3-N	1.00	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444722

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2482856	NO2NO3-N	0.698	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P444601

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2482856	Total-P	1.81	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P444619

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2482985	Total-P	1.86	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P444409

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2482861	O-Phosphate-P	0.584	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P444411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2482987	O-Phosphate-P	1.74	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P444286

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2482421	Cylindrospermopsin	5.91	Spike	P	0 - 30
2482421	Desmethyl microcystin LR	2.78	Spike	P	0 - 30
2482421	Microcystin HtIR	3.34	Spike	P	0 - 30
2482421	Microcystin HtyR	0.0873	Spike	P	0 - 30
2482421	Microcystin LA	0.508	Spike	P	0 - 30
2482421	Microcystin LF	6.74	Spike	P	0 - 30
2482421	Microcystin LR	1.11	Spike	P	0 - 30
2482421	Microcystin LW	2.88	Spike	P	0 - 30
2482421	Microcystin LY	6.45	Spike	P	0 - 30

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P444286

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2482421	Microcystin RR	0.269	Spike	P	0 - 30
2482421	Microcystin WR	0.882	Spike	P	0 - 30
2482421	Microcystin YR	5.92	Spike	P	0 - 30
2482421	Nodularin-R	2.80	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P444287

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2482421	Anatoxin-a	1.17	Spike	P	0 - 30
2482421	Neosaxitoxin	4.86	Spike	P	0 - 30
2482421	Saxitoxin	6.47	Spike	P	0 - 30

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

Quality Assurance Report

Surrogates

Lab Sample ID: 2482873

Field Sample ID: SEHAB0111

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	132	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	93.6	P	30 - 160

Lab Sample ID: 2482874

Field Sample ID: SEHAB0112

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	118	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	96.3	P	30 - 160

Lab Sample ID: 2482875

Field Sample ID: SEHAB0113

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	105	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	87.5	P	30 - 160

Lab Sample ID: 2482876

Field Sample ID: SEHAB0115

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	101	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	87.0	P	30 - 160

Lab Sample ID: 2482877

Field Sample ID: SEHAB0116

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	126	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	95.6	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A125361

Included Lab Sample IDs: 2482847, 2482848, 2482849, 2482850, 2482851

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	95.6	97.4	P/P	90 - 110
Color (true)	97.1	95.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A125374

Included Lab Sample IDs: 2482857, 2482858, 2482859, 2482860, 2482861

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.4	98.1	P/P	90 - 110
O-Phosphate-P	99.0	98.8	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A125376

Included Lab Sample IDs: 2482873, 2482874, 2482875, 2482876, 2482877

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	103	106	P/P	50 - 160
Desmethyl microcystin LR	101	105	P/P	50 - 160
Microcystin HII R	107	112	P/P	50 - 160
Microcystin HtyR	102	114	P/P	50 - 160
Microcystin LA	109	111	P/P	50 - 160
Microcystin LF	110	111	P/P	50 - 160
Microcystin LR	118	109	P/P	50 - 160
Microcystin LW	107	114	P/P	50 - 160
Microcystin LY	110	118	P/P	50 - 160
Microcystin RR	99.2	102	P/P	50 - 160
Microcystin WR	112	119	P/P	50 - 160
Microcystin YR	111	114	P/P	50 - 160
Nodularin-R	110	109	P/P	50 - 160

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A125397

Included Lab Sample IDs: 2482852, 2482853, 2482854, 2482855, 2482856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.4	99.4	P/P	90 - 110
Ammonia-N	99.3	99.9	P/P	90 - 110
Ammonia-N	99.9	99.5	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A125407

Included Lab Sample IDs: 2482873, 2482874, 2482875, 2482876, 2482877

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	98.9	93.5	P/P	50 - 160
Neosaxitoxin	110	99.9	P/P	50 - 160
Saxitoxin	109	102	P/P	50 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A125427

Included Lab Sample IDs: 2482852, 2482856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.7	95.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A125445

Included Lab Sample IDs: 2482853, 2482854, 2482855

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A125460

Included Lab Sample IDs: 2482852, 2482854, 2482856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	102	P/P	90 - 110
Total-P	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A125492

Included Lab Sample IDs: 2482852, 2482856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A125493

Included Lab Sample IDs: 2482853, 2482855

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.2	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A125529

Included Lab Sample IDs: 2482854

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A125654

Included Lab Sample IDs: 2482853, 2482855

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.8	97.8	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)	94.5			19.6	
	Color (true)	93.4			5.47	
EPA 350.1 Rev. 2.0	Ammonia-N	95.4	97.6	99.2		1.40
	Ammonia-N	95.6	96.8	98.4		1.28
	Ammonia-N	95.2	98.2	100		1.63
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.7	99.4	103		3.23
	Kjeldahl Nitrogen	101	91.0	101		9.60
	Kjeldahl Nitrogen	104	99.4	101		1.65
EPA 353.2 Rev. 2.0	NO2NO3-N	100	99.5	100		1.00
	NO2NO3-N	97.0	95.8			0.698
EPA 365.1 Rev. 2.0	Total-P	102	104	107		1.81
	Total-P	105	104	106		1.86
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	97.7	98.6		0.584
	O-Phosphate-P	98.8	86.6	88.2		1.74
EPA 8321B	Anatoxin-a	89.3	93.2	92.1		1.17
	Cylindrospermopsin	95.9	114	108		5.91
	Desmethyl microcystin LR	101	101	104		2.78
	Microcystin HilR	107	108	112		3.34
	Microcystin HtyR	103	101	101		0.0873
	Microcystin LA	97.5	104	103		0.508
	Microcystin LF	96.2	113	105		6.74
	Microcystin LR	111	105	103		1.11
	Microcystin LW	99.5	107	104		2.88
	Microcystin LY	105	114	106		6.45
	Microcystin RR	95.1	102	103		0.269
	Microcystin WR	96.9	105	106		0.882
	Microcystin YR	100	101	108		5.92
	Neosaxitoxin	89.9	58.8	56.0		4.86
	Nodularin-R	102	109	106		2.80
	Saxitoxin	97.2	72.3	67.7		6.47

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2482847, 2482848, 2482849, 2482850, 2482851
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2482852, 2482853, 2482854, 2482855, 2482856
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2482852, 2482853, 2482854, 2482855, 2482856
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2482852, 2482853, 2482854, 2482855, 2482856
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2482852, 2482853, 2482854, 2482855, 2482856
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2482857, 2482858, 2482859, 2482860, 2482861
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2482873, 2482874, 2482875, 2482876, 2482877
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2482873, 2482874, 2482875, 2482876, 2482877

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	04/17/2024			04/17/2024 14:13	Chandler E Cox	2482847
	04/17/2024			04/17/2024 14:14	Chandler E Cox	2482848, 2482849
	04/17/2024			04/17/2024 14:15	Chandler E Cox	2482850
	04/17/2024			04/17/2024 14:18	Chandler E Cox	2482851
EPA 350.1 Rev. 2.0	04/17/2024			04/18/2024 11:01	Khloe J Berg	2482853
	04/17/2024			04/18/2024 11:02	Khloe J Berg	2482854
	04/17/2024			04/18/2024 11:04	Khloe J Berg	2482855
	04/17/2024			04/18/2024 12:58	Khloe J Berg	2482852
EPA 351.2 Rev. 2.0	04/17/2024			04/18/2024 13:10	Khloe J Berg	2482856
	04/17/2024	04/18/2024 12:53	Ping Hua	04/19/2024 13:34	Ping Hua	2482852
	04/17/2024	04/18/2024 12:53	Ping Hua	04/19/2024 13:36	Ping Hua	2482856
	04/17/2024	04/24/2024 13:31	Samantha L Bates	04/25/2024 13:31	Robyn Blevins	2482854
EPA 353.2 Rev. 2.0	04/17/2024	05/01/2024 13:27	Ping Hua	05/02/2024 11:42	Ping Hua	2482853
	04/17/2024	05/01/2024 13:27	Ping Hua	05/02/2024 11:44	Ping Hua	2482855
	04/17/2024			04/19/2024 15:36	Fadila Guebre	2482853
	04/17/2024			04/19/2024 15:38	Fadila Guebre	2482854
EPA 365.1 Rev. 2.0	04/17/2024			04/19/2024 15:39	Fadila Guebre	2482855
	04/17/2024			04/23/2024 16:42	Fadila Guebre	2482856
	04/17/2024			04/23/2024 16:48	Fadila Guebre	2482852
	04/17/2024	04/22/2024 13:25	Adam P Silver	04/23/2024 08:39	Elise M. Gillis	2482856
EPA 365.1 Rev. 2.0 dissolved	04/17/2024	04/22/2024 13:25	Adam P Silver	04/23/2024 08:43	Elise M. Gillis	2482852
	04/17/2024	04/22/2024 13:25	Adam P Silver	04/23/2024 10:13	Elise M. Gillis	2482854
	04/17/2024	04/22/2024 13:25	Adam P Silver	04/24/2024 13:56	Simonne.V. Calhoun	2482853
	04/17/2024	04/22/2024 13:25	Adam P Silver	04/24/2024 13:57	Simonne.V. Calhoun	2482855
EPA 8321B	04/17/2024			04/17/2024 16:54	Adam P Silver	2482861
	04/17/2024			04/17/2024 16:57	Adam P Silver	2482857
	04/17/2024			04/17/2024 17:29	Adam P Silver	2482858
	04/17/2024			04/17/2024 17:30	Adam P Silver	2482859
EPA 8321B	04/17/2024			04/17/2024 17:31	Adam P Silver	2482860
	04/17/2024	04/17/2024 12:00	Samatha Luckman	04/17/2024 21:48	Samatha Luckman	2482873
	04/17/2024	04/17/2024 12:00	Samatha Luckman	04/17/2024 22:05	Samatha Luckman	2482874
	04/17/2024	04/17/2024 12:00	Samatha Luckman	04/17/2024 22:22	Samatha Luckman	2482875
	04/17/2024	04/17/2024 12:00	Samatha Luckman	04/17/2024 22:38	Samatha Luckman	2482876
	04/17/2024	04/17/2024 12:00	Samatha Luckman	04/17/2024 22:55	Samatha Luckman	2482877
	04/17/2024	04/17/2024 12:00	Samatha Luckman	04/18/2024 13:20	Samatha Luckman	2482873
	04/17/2024	04/17/2024 12:00	Samatha Luckman	04/18/2024 13:34	Samatha Luckman	2482874
	04/17/2024	04/17/2024 12:00	Samatha Luckman	04/18/2024 13:48	Samatha Luckman	2482875
	04/17/2024	04/17/2024 12:00	Samatha Luckman	04/18/2024 14:02	Samatha Luckman	2482876
	04/17/2024	04/17/2024 12:00	Samatha Luckman	04/18/2024 14:16	Samatha Luckman	2482877
	04/17/2024	04/17/2024 12:00	Samatha Luckman			