

Chemical Analysis Report

SE-DIST-2024-03-29-01

Florida DEP Laboratory
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DOH Accreditation E31780

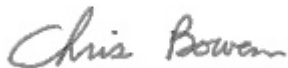
Event Description: **Algal Bloom Response - SE ROC**
Request ID: **RQ-2024-03-04-71**
Customer: **SE-DIST**
Project ID: **BLOOM-RESP**

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

Date Certified: 16-APR-2024 15:23



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 River - Seagate Harbor Boat Ramp Collection Date/Time: 03/28/2024 10:30

Field ID: SEHAB0114 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2478300	DEP SOP: NU-094-1	Color (true)	36		PCU	P443522	
2478303	EPA 350.1 Rev. 2.0	Ammonia-N	0.052		mg N/L	P443577	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.76		mg N/L	P443554	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.19		mg N/L	P443591	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P443602	
2478306	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.081		mg P/L	P443525	
2478315	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P443486	
		Cylindrospermopsin	0.10	U	ug/L	P443485	
		Desmethyl microcystin LR	0.25	U	ug/L	P443485	
		Microcystin HilR	0.25	U	ug/L	P443485	
		Microcystin HtyR	0.25	U	ug/L	P443485	
		Microcystin LA	0.10	U	ug/L	P443485	
		Microcystin LF	0.10	U	ug/L	P443485	
		Microcystin LR	0.25	U	ug/L	P443485	
		Microcystin LW	0.25	U	ug/L	P443485	
		Microcystin LY	0.10	U	ug/L	P443485	
		Microcystin RR	0.10	U	ug/L	P443485	
		Microcystin WR	0.50	U	ug/L	P443485	
		Neosaxitoxin	0.50	U	ug/L	P443486	
		Microcystin YR	0.25	U	ug/L	P443485	
		Saxitoxin	0.50	U	ug/L	P443486	
		Nodularin-R	0.10	U	ug/L	P443485	

Sample Location: St. Lucie River - Harborage

Collection Date/Time: 03/28/2024 11:30

Field ID: SEHAB0115

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2478301	DEP SOP: NU-094-1	Color (true)	39		PCU	P443522	
2478304	EPA 350.1 Rev. 2.0	Ammonia-N	0.039		mg N/L	P443577	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.79		mg N/L	P443554	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.24		mg N/L	P443591	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P443602	
2478307	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.078		mg P/L	P443525	
2478316	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P443486	
		Cylindrospermopsin	0.10	U	ug/L	P443485	
		Desmethyl microcystin LR	0.25	U	ug/L	P443485	
		Microcystin HilR	0.25	U	ug/L	P443485	
		Microcystin HtyR	0.25	U	ug/L	P443485	
		Microcystin LA	0.15	I	ug/L	P443485	
		Microcystin LF	0.10	U	ug/L	P443485	
		Microcystin LR	1.3		ug/L	P443485	
		Microcystin LW	0.25	U	ug/L	P443485	
		Microcystin LY	0.10	U	ug/L	P443485	
		Microcystin RR	0.10	U	ug/L	P443485	
		Microcystin WR	0.50	U	ug/L	P443485	
		Neosaxitoxin	0.50	U	ug/L	P443486	
		Microcystin YR	0.25	U	ug/L	P443485	
		Saxitoxin	0.50	U	ug/L	P443486	
		Nodularin-R	0.10	U	ug/L	P443485	

Sample Location: St. Lucie Canal - Army Corp Campground

Collection Date/Time: 03/28/2024 13:00

Field ID: SEHAB0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2478302	DEP SOP: NU-094-1	Color (true)	110		PCU	P443522	
2478305	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P443579	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P443551	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.34		mg N/L	P443864	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P443608	
2478308	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.086		mg P/L	P443525	
2478317	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P443486	
		Cylindrospermopsin	0.10	U	ug/L	P443485	
		Desmethyl microcystin LR	0.25	U	ug/L	P443485	
		Microcystin H1LR	0.25	U	ug/L	P443485	
		Microcystin HtyR	0.25	U	ug/L	P443485	
		Microcystin LA	0.10	I	ug/L	P443485	
		Microcystin LF	0.10	U	ug/L	P443485	
		Microcystin LR	0.50	I	ug/L	P443485	
		Microcystin LW	0.25	U	ug/L	P443485	
		Microcystin LY	0.10	U	ug/L	P443485	
		Microcystin RR	0.10	U	ug/L	P443485	
		Microcystin WR	0.50	U	ug/L	P443485	
		Neosaxitoxin	0.50	U	ug/L	P443486	
		Microcystin YR	0.25	U	ug/L	P443485	
		Saxitoxin	0.50	U	ug/L	P443486	
		Nodularin-R	0.10	U	ug/L	P443485	

Quality Assurance Report
Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P443522

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443577

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443579

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P443551

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P443554

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P443591

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P443864

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443602

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443608

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P443525

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

Reference Method: EPA 8321B
Batch ID: P443485

Component	Result	Code	Units
Cylindrospermopsin	0.10	U	ug/L
Desmethyl microcystin LR	0.25	U	ug/L
Microcystin HllR	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: P443486

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: P443522

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443577

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443579

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P443551

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P443554

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P443591

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P443864

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443602

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443608

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P443525

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

Reference Method: EPA 8321B

Batch ID: P443485

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	93.4		P	40 - 150
Desmethyl microcystin LR	89.0		P	40 - 150
Microcystin HII R	94.6		P	40 - 150
Microcystin HtyR	87.6		P	40 - 150
Microcystin LA	89.0		P	40 - 150
Microcystin LF	84.4		P	40 - 150
Microcystin LR	87.2		P	40 - 150
Microcystin LW	84.6		P	40 - 150
Microcystin LY	91.7		P	40 - 150
Microcystin RR	89.3		P	40 - 150
Microcystin WR	81.0		P	40 - 150
Microcystin YR	84.9		P	40 - 150
Nodularin-R	86.6		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P443486

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	109		P	40 - 150
Neosaxitoxin	93.4		P	40 - 150
Saxitoxin	106		P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443577

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2477683	Ammonia-N	96.4	98.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443579

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2478250	Ammonia-N	94.8	94.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P443551

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2478278	Kjeldahl Nitrogen	93.0	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P443554

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2478286	Kjeldahl Nitrogen	95.6	97.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P443591

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2478182	NO2NO3-N	98.5	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P443864

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2478223	NO2NO3-N	96.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443602

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2478286	Total-P	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443608

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2478352	Total-P	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P443525

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2478307	O-Phosphate-P	99.1	99.5	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P443485

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2478281	Cylindrospermopsin	95.4	96.2	P/P	40 - 150
2478281	Desmethyl microcystin LR	93.8	87.9	P/P	40 - 150
2478281	Microcystin HilR	87.6	88.4	P/P	40 - 150
2478281	Microcystin HtyR	88.8	86.1	P/P	40 - 150
2478281	Microcystin LA	91.5	89.7	P/P	40 - 150
2478281	Microcystin LF	95.2	91.8	P/P	40 - 150
2478281	Microcystin LR	99.9	96.6	P/P	40 - 150
2478281	Microcystin LW	91.1	92.5	P/P	40 - 150
2478281	Microcystin LY	96.2	92.5	P/P	40 - 150
2478281	Microcystin RR	97.6	91.2	P/P	40 - 150
2478281	Microcystin WR	95.4	88.2	P/P	40 - 150
2478281	Microcystin YR	90.1	89.1	P/P	40 - 150
2478281	Nodularin-R	91.2	89.4	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P443486

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2478281	Anatoxin-a	97.4	103	P/P	40 - 150
2478281	Neosaxitoxin	77.9	75.4	P/P	40 - 150
2478281	Saxitoxin	89.8	90.6	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P443522

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478284	Color (true)	0.728	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443577

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2477683	Ammonia-N	1.91	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443579

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478250	Ammonia-N	0.211	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P443551

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478278	Kjeldahl Nitrogen	5.33	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P443554

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478286	Kjeldahl Nitrogen	1.45	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P443591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478182	NO2NO3-N	1.01	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P443864

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478223	NO2NO3-N	0.378	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443602

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478286	Total-P	0.732	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443608

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478352	Total-P	0.740	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P443525

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478307	O-Phosphate-P	0.226	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P443485

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478281	Cylindrospermopsin	0.811	Spike	P	0 - 30
2478281	Desmethyl microcystin LR	6.40	Spike	P	0 - 30
2478281	Microcystin HilR	0.929	Spike	P	0 - 30
2478281	Microcystin HtyR	3.09	Spike	P	0 - 30
2478281	Microcystin LA	2.03	Spike	P	0 - 30
2478281	Microcystin LF	3.68	Spike	P	0 - 30
2478281	Microcystin LR	3.32	Spike	P	0 - 30
2478281	Microcystin LW	1.47	Spike	P	0 - 30
2478281	Microcystin LY	3.84	Spike	P	0 - 30
2478281	Microcystin RR	6.72	Spike	P	0 - 30
2478281	Microcystin WR	7.81	Spike	P	0 - 30
2478281	Microcystin YR	1.12	Spike	P	0 - 30
2478281	Nodularin-R	2.02	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P443486

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2478281	Anatoxin-a	5.84	Spike	P	0 - 30
2478281	Neosaxitoxin	3.15	Spike	P	0 - 30
2478281	Saxitoxin	0.910	Spike	P	0 - 30

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2478315
Field Sample ID: SEHAB0114

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	94.1	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	98.1	P	30 - 160

Lab Sample ID: 2478316
Field Sample ID: SEHAB0115

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	96.2	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	92.8	P	30 - 160

Lab Sample ID: 2478317
Field Sample ID: SEHAB0116

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	107	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	94.2	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A125053

Included Lab Sample IDs: 2478315, 2478316, 2478317

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	98.9	99.6	P/P	50 - 160
Desmethyl microcystin LR	94.7	97.4	P/P	50 - 160
Microcystin HILR	98.2	102	P/P	50 - 160
Microcystin HtyR	95.4	105	P/P	50 - 160
Microcystin LA	103	102	P/P	50 - 160
Microcystin LF	101	103	P/P	50 - 160
Microcystin LR	105	109	P/P	50 - 160
Microcystin LW	93.7	104	P/P	50 - 160
Microcystin LY	103	107	P/P	50 - 160
Microcystin RR	99.4	105	P/P	50 - 160
Microcystin WR	93.8	98.8	P/P	50 - 160
Microcystin YR	93.5	103	P/P	50 - 160
Nodularin-R	103	104	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A125054

Included Lab Sample IDs: 2478315, 2478316, 2478317

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	112	104	P/P	50 - 160
Neosaxitoxin	108	97.1	P/P	50 - 160
Saxitoxin	114	113	P/P	50 - 160

Reference Method: DEP SOP: NU-094-1

Run ID: A125071

Included Lab Sample IDs: 2478300, 2478301, 2478302

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	96.9	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A125072

Included Lab Sample IDs: 2478306, 2478307, 2478308

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	98.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A125091

Included Lab Sample IDs: 2478303, 2478304, 2478305

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.3	98.4	P/P	90 - 110
Ammonia-N	97.9	96.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A125096

Included Lab Sample IDs: 2478303, 2478304

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A125109
Included Lab Sample IDs: 2478303, 2478304, 2478305

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	101	P/P	90 - 110
Kjeldahl Nitrogen	98.4	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A125138
Included Lab Sample IDs: 2478303, 2478304

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A125139
Included Lab Sample IDs: 2478305

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A125197
Included Lab Sample IDs: 2478305

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	106	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		LCS	Precision	MS
						SMP	
DEP SOP: NU-094-1	Color (true)	99.2				0.728	
EPA 350.1 Rev. 2.0	Ammonia-N	97.4	96.4	98.6			1.91
	Ammonia-N	97.4	94.8	94.6			0.211
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.6	93.0	102			5.33
	Kjeldahl Nitrogen	98.9	95.6	97.5			1.45
EPA 353.2 Rev. 2.0	NO2NO3-N	100	98.5	99.5			1.01
	NO2NO3-N	97.5	96.8				0.378
EPA 365.1 Rev. 2.0	Total-P	99.7	101	102			0.732
	Total-P	101	102	101			0.740
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.7	99.1	99.5			0.226
EPA 8321B	Anatoxin-a	109	97.4	103			5.84
	Cylindrospermopsin	93.4	95.4	96.2			0.811
	Desmethyl microcystin LR	89.0	93.8	87.9			6.40
	Microcystin HiIR	94.6	87.6	88.4			0.929
	Microcystin HtyR	87.6	88.8	86.1			3.09
	Microcystin LA	89.0	91.5	89.7			2.03
	Microcystin LF	84.4	95.2	91.8			3.68
	Microcystin LR	87.2	99.9	96.6			3.32
	Microcystin LW	84.6	91.1	92.5			1.47
	Microcystin LY	91.7	96.2	92.5			3.84
	Microcystin RR	89.3	97.6	91.2			6.72
	Microcystin WR	81.0	95.4	88.2			7.81
	Microcystin YR	84.9	90.1	89.1			1.12
	Neosaxitoxin	93.4	77.9	75.4			3.15
	Nodularin-R	86.6	91.2	89.4			2.02
	Saxitoxin	106	89.8	90.6			0.910

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2478300, 2478301, 2478302
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2478303, 2478304, 2478305
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2478303, 2478304, 2478305
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2478303, 2478304, 2478305
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2478303, 2478304, 2478305
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2478306, 2478307, 2478308
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2478315, 2478316, 2478317
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2478315, 2478316, 2478317

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	03/29/2024			03/29/2024 14:37	Samantha L Bates	2478300, 2478301
	03/29/2024			03/29/2024 14:38	Samantha L Bates	2478302
	03/29/2024			04/01/2024 12:17	Kenneth H Lee	2478303
EPA 350.1 Rev. 2.0	03/29/2024			04/01/2024 12:18	Kenneth H Lee	2478304
	03/29/2024			04/01/2024 13:10	Kenneth H Lee	2478305
	03/29/2024	04/01/2024 13:53	Simonne.V. Calhoun	04/02/2024 14:51	Robyn Blevins	2478305
EPA 351.2 Rev. 2.0	03/29/2024	04/01/2024 18:06	Simonne.V. Calhoun	04/02/2024 15:42	Robyn Blevins	2478303
	03/29/2024	04/01/2024 18:06	Simonne.V. Calhoun	04/02/2024 15:44	Robyn Blevins	2478304
	03/29/2024			04/01/2024 15:10	Fadila Guebre	2478303
EPA 353.2 Rev. 2.0	03/29/2024			04/01/2024 15:11	Fadila Guebre	2478304
	03/29/2024			04/04/2024 14:59	Fadila Guebre	2478305
	03/29/2024	04/02/2024 13:51	Josephine W Gitau	04/03/2024 11:02	Simonne.V. Calhoun	2478303
EPA 365.1 Rev. 2.0	03/29/2024	04/02/2024 13:51	Josephine W Gitau	04/03/2024 11:03	Simonne.V. Calhoun	2478304
	03/29/2024	04/02/2024 13:51	Josephine W Gitau	04/03/2024 12:16	Simonne.V. Calhoun	2478305
	03/29/2024			03/29/2024 15:44	Adam P Silver	2478307
EPA 365.1 Rev. 2.0 dissolved	03/29/2024			03/29/2024 15:47	Adam P Silver	2478306, 2478308
	03/29/2024					
EPA 8321B	03/29/2024	03/29/2024 13:00	Samatha Luckman	03/30/2024 02:56	Samatha Luckman	2478315
	03/29/2024	03/29/2024 13:00	Samatha Luckman	03/30/2024 03:13	Samatha Luckman	2478316
	03/29/2024	03/29/2024 13:00	Samatha Luckman	03/30/2024 03:30	Samatha Luckman	2478317
	03/29/2024	03/29/2024 13:00	Samatha Luckman	04/01/2024 10:21	Samatha Luckman	2478315
	03/29/2024	03/29/2024 13:00	Samatha Luckman	04/01/2024 10:35	Samatha Luckman	2478316
	03/29/2024	03/29/2024 13:00	Samatha Luckman	04/01/2024 10:49	Samatha Luckman	2478317
	03/29/2024	03/29/2024 13:00	Samatha Luckman			