

Chemical Analysis Report

SE-DIST-2023-08-10-01

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

Event Description: **Algal Bloom Response - SE ROC**
Request ID: **RQ-2023-07-10-63**
Customer: **SE-DIST**
Project ID: **BLOOM-RESP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
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Certified by: Colin Wright, Program Administrator

Date Certified: 29-AUG-2023 09:47



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: Queens Cove Canal

Collection Date/Time: 08/09/2023 09:45

Field ID: SEHAB0097

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2430272	DEP SOP: NU-094-1	Color (true)	24		PCU	P433710	
2430274	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P434125	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.86		mg N/L	P433814	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P434380	
	EPA 365.1 Rev. 2.0	Total-P	0.070		mg P/L	P433763	
2430276	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P433708	
2430278	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P433674	
		Cylindrospermopsin	0.10	U	ug/L	P433671	
		Desmethyl microcystin LR	0.25	U	ug/L	P433671	
		Microcystin HiLR	0.25	U	ug/L	P433671	
		Microcystin HtyR	0.25	U	ug/L	P433671	
		Microcystin LA	0.10	U	ug/L	P433671	
		Microcystin LF	0.10	U	ug/L	P433671	
		Microcystin LR	0.25	U	ug/L	P433671	
		Microcystin LW	0.25	U	ug/L	P433671	
		Microcystin LY	0.10	U	ug/L	P433671	
		Microcystin RR	0.10	U	ug/L	P433671	
		Microcystin WR	0.50	U	ug/L	P433671	
		Neosaxitoxin	0.50	U	ug/L	P433674	
		Microcystin YR	0.25	U	ug/L	P433671	
		Saxitoxin	0.50	U	ug/L	P433674	
		Nodularin-R	0.10	U	ug/L	P433671	

Sample Location: Atlantic Ocean at Simon Dezer Beach Access Collection Date/Time: 08/09/2023 11:30

Field ID: SEHAB0098

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2430273	DEP SOP: NU-094-1	Color (true)	7.5	U	PCU	P433710	
2430275	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P434125	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40		mg N/L	P434082	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.060		mg N/L	P434380	
	EPA 365.1 Rev. 2.0	Total-P	0.42		mg P/L	P433900	
2430277	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P433708	
2430279	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P433674	
		Cylindrospermopsin	0.10	U	ug/L	P433671	
		Desmethyl microcystin LR	0.25	U	ug/L	P433671	
		Microcystin HiLR	0.25	U	ug/L	P433671	
		Microcystin HtyR	0.25	U	ug/L	P433671	
		Microcystin LA	0.10	U	ug/L	P433671	
		Microcystin LF	0.10	U	ug/L	P433671	
		Microcystin LR	0.25	U	ug/L	P433671	
		Microcystin LW	0.25	U	ug/L	P433671	
		Microcystin LY	0.10	U	ug/L	P433671	
		Microcystin RR	0.10	U	ug/L	P433671	
		Microcystin WR	0.50	U	ug/L	P433671	
		Neosaxitoxin	0.50	U	ug/L	P433674	
		Microcystin YR	0.25	U	ug/L	P433671	
		Saxitoxin	0.50	U	ug/L	P433674	
		Nodularin-R	0.10	U	ug/L	P433671	

Ref. Method and Comment:
DEP SOP: NU-094-1: The MDL was elevated because of sample matrix interference.

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P433710

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P434125

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433814

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P434082

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P434380

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P433763

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P433900

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P433708

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

Reference Method: EPA 8321B
Batch ID: P433671

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P433671

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: P433674

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: P433710

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P434125

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433814

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P434082

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: P434380

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P433763

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: P433900

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P433708

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

Reference Method: EPA 8321B
Batch ID: P433671

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	109		P	40 - 160
Desmethyl microcystin LR	112		P	40 - 160
Microcystin HILR	111		P	40 - 160
Microcystin HtyR	103		P	40 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P433671

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Microcystin LA	119		P	40 - 160
Microcystin LF	98.4		P	40 - 160
Microcystin LR	100		P	40 - 160
Microcystin LW	99.8		P	40 - 160
Microcystin LY	105		P	40 - 160
Microcystin RR	102		P	40 - 160
Microcystin WR	119		P	40 - 160
Microcystin YR	91.9		P	40 - 160
Nodularin-R	104		P	40 - 160

Reference Method: EPA 8321B
Batch ID: P433674

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	85.1		P	40 - 150
Neosaxitoxin	81.3		P	40 - 150
Saxitoxin	66.6		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P434125

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2430223	Ammonia-N	103	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433814

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2430223	Kjeldahl Nitrogen	107	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P434082

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2430862	Kjeldahl Nitrogen	102	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P434380

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2430228	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P433763

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2430274	Total-P	95.0	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P433900

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2430275	Total-P	95.2	92.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P433708

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2430277	O-Phosphate-P	102	103	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P433671

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2430259	Cylindrospermopsin	100	95.1	P/P	40 - 160
2430259	Desmethyl microcystin LR	111	108	P/P	40 - 160
2430259	Microcystin HiLR	105	103	P/P	40 - 160
2430259	Microcystin HtyR	95.6	94.3	P/P	40 - 160
2430259	Microcystin LA	115	107	P/P	40 - 160
2430259	Microcystin LF	96.8	92.5	P/P	40 - 160
2430259	Microcystin LR	99.7	93.9	P/P	40 - 160
2430259	Microcystin LW	96.4	89.8	P/P	40 - 160
2430259	Microcystin LY	94.0	90.9	P/P	40 - 160
2430259	Microcystin RR	97.0	93.6	P/P	40 - 160

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P433671

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2430259	Microcystin WR	111	104	P/P	40 - 160
2430259	Microcystin YR	91.4	87.5	P/P	40 - 160
2430259	Nodularin-R	101	93.8	P/P	40 - 160

Reference Method: EPA 8321B
Batch ID: P433674

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2430259	Anatoxin-a	79.7	82.8	P/P	40 - 150
2430259	Neosaxitoxin	60.9	66.3	P/P	40 - 150
2430259	Saxitoxin	55.1	56.4	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P433710

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2430284	Color (true)	4.15	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P434125

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2430223	Ammonia-N	2.61	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P433814

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2430223	Kjeldahl Nitrogen	0.849	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P434082

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2430862	Kjeldahl Nitrogen	1.10	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P434380

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2430228	NO2NO3-N	0.980	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P433763

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2430274	Total-P	1.99	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P433900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2430275	Total-P	2.05	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P433708

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2430277	O-Phosphate-P	1.02	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P433671

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2430259	Cylindrospermopsin	5.17	Spike	P	0 - 30
2430259	Desmethyl microcystin LR	2.76	Spike	P	0 - 30
2430259	Microcystin HilR	2.01	Spike	P	0 - 30
2430259	Microcystin HtyR	1.41	Spike	P	0 - 30
2430259	Microcystin LA	6.70	Spike	P	0 - 30
2430259	Microcystin LF	4.58	Spike	P	0 - 30
2430259	Microcystin LR	5.51	Spike	P	0 - 30
2430259	Microcystin LW	7.06	Spike	P	0 - 30
2430259	Microcystin LY	3.30	Spike	P	0 - 30
2430259	Microcystin RR	3.60	Spike	P	0 - 30
2430259	Microcystin WR	6.67	Spike	P	0 - 30
2430259	Microcystin YR	4.37	Spike	P	0 - 30
2430259	Nodularin-R	7.46	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P433674

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2430259	Anatoxin-a	3.80	Spike	P	0 - 30
2430259	Neosaxitoxin	8.61	Spike	P	0 - 30
2430259	Saxitoxin	2.34	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2430278
Field Sample ID: SEHAB0097

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	60.3	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	75.3	P	30 - 160

Lab Sample ID: 2430279
Field Sample ID: SEHAB0098

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	57.7	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	67.1	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A120968

Included Lab Sample IDs: 2430272

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	97.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A120972

Included Lab Sample IDs: 2430276, 2430277

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.2	99.4	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A120973

Included Lab Sample IDs: 2430278, 2430279

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	103	103	P/P	60 - 160
Cylindrospermopsin	103	104	P/P	60 - 160
Desmethyl microcystin LR	103	107	P/P	50 - 160
Desmethyl microcystin LR	107	102	P/P	50 - 160
Microcystin HILR	101	103	P/P	60 - 160
Microcystin HILR	104	101	P/P	60 - 160
Microcystin HtyR	95.6	97.4	P/P	60 - 160
Microcystin HtyR	97.6	95.6	P/P	60 - 160
Microcystin LA	107	109	P/P	50 - 160
Microcystin LA	109	110	P/P	50 - 160
Microcystin LF	87.7	89.0	P/P	60 - 160
Microcystin LF	89.0	89.1	P/P	60 - 160
Microcystin LR	98.2	96.2	P/P	60 - 160
Microcystin LR	98.5	98.2	P/P	60 - 160
Microcystin LW	89.8	90.1	P/P	60 - 160
Microcystin LW	94.4	89.8	P/P	60 - 160
Microcystin LY	104	104	P/P	60 - 160
Microcystin LY	97.6	104	P/P	60 - 160
Microcystin RR	96.9	95.9	P/P	60 - 160
Microcystin RR	97.9	96.9	P/P	60 - 160
Microcystin WR	109	111	P/P	60 - 160
Microcystin WR	111	112	P/P	60 - 160
Microcystin YR	87.8	88.4	P/P	60 - 160
Microcystin YR	88.4	89.5	P/P	60 - 160
Nodularin-R	96.3	97.6	P/P	60 - 160
Nodularin-R	99.5	96.3	P/P	60 - 160

Reference Method: EPA 8321B

Run ID: A120976

Included Lab Sample IDs: 2430278, 2430279

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	88.4	89.1	P/P	50 - 160
Anatoxin-a	95.1	88.4	P/P	50 - 160
Neosaxitoxin	87.3	87.7	P/P	50 - 160
Neosaxitoxin	92.5	87.3	P/P	50 - 160
Saxitoxin	72.4	73.1	P/P	50 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A120976

Included Lab Sample IDs: 2430278, 2430279

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Saxitoxin	75.1	72.4	P/P	50 - 160

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A121019

Included Lab Sample IDs: 2430274

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A121046

Included Lab Sample IDs: 2430274

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A121096

Included Lab Sample IDs: 2430275

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A121154

Included Lab Sample IDs: 2430274, 2430275

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.2	99.5	P/P	90 - 110

Reference Method: DEP SOP: NU-094-1

Run ID: A121164

Included Lab Sample IDs: 2430273

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A121184

Included Lab Sample IDs: 2430275

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	90.4	96.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A121252

Included Lab Sample IDs: 2430274, 2430275

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	99.5	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		Precision SMP	MS
					LCS	
DEP SOP: NU-094-1	Color (true)	101			4.15	
EPA 350.1 Rev. 2.0	Ammonia-N	96.0	103	107		2.61
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	107	106		0.849
	Kjeldahl Nitrogen	104	102	101		1.10
EPA 353.2 Rev. 2.0	NO2NO3-N	101	102	102		0.980
EPA 365.1 Rev. 2.0	Total-P	102	97.0	95.0		1.99
	Total-P	102	95.2	92.2		2.05
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	102	103		1.02
EPA 8321B	Anatoxin-a	85.1	79.7	82.8		3.80
	Cylindrospermopsin	109	100	95.1		5.17
	Desmethyl microcystin LR	112	111	108		2.76
	Microcystin HiLR	111	105	103		2.01
	Microcystin HtyR	103	95.6	94.3		1.41
	Microcystin LA	119	115	107		6.70
	Microcystin LF	98.4	96.8	92.5		4.58
	Microcystin LR	100	99.7	93.9		5.51
	Microcystin LW	99.8	96.4	89.8		7.06
	Microcystin LY	105	94.0	90.9		3.30
	Microcystin RR	102	97.0	93.6		3.60
	Microcystin WR	119	111	104		6.67
	Microcystin YR	91.9	91.4	87.5		4.37
	Neosaxitoxin	81.3	60.9	66.3		8.61
	Nodularin-R	104	101	93.8		7.46
	Saxitoxin	66.6	55.1	56.4		2.34

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2430272, 2430273
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2430274, 2430275
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2430274, 2430275
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2430274, 2430275
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2430274, 2430275
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2430276, 2430277
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2430278, 2430279
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2430278, 2430279

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	08/10/2023			08/10/2023 14:21	Samantha L Bates	2430272
	08/10/2023			08/10/2023 15:11	Samantha L Bates	2430273
EPA 350.1 Rev. 2.0	08/10/2023			08/21/2023 12:27	Khloe J Berg	2430274
	08/10/2023			08/21/2023 12:28	Khloe J Berg	2430275
EPA 351.2 Rev. 2.0	08/10/2023	08/14/2023 12:37	Ping Hua	08/15/2023 14:55	Ping Hua	2430274
	08/10/2023	08/21/2023 14:13	Simonne.V. Calhoun	08/22/2023 17:20	Samantha L Bates	2430275
EPA 353.2 Rev. 2.0	08/10/2023			08/25/2023 12:06	Anna M. Plaviak	2430274
	08/10/2023			08/25/2023 12:07	Anna M. Plaviak	2430275
EPA 365.1 Rev. 2.0	08/10/2023	08/11/2023 14:24	Alexis Price	08/14/2023 12:50	Simonne.V. Calhoun	2430274
	08/10/2023	08/16/2023 16:02	Adam P Silver	08/17/2023 12:53	James L Waggeberby	2430275
EPA 365.1 Rev. 2.0 dissolved	08/10/2023			08/10/2023 16:50	Elise M. Gillis	2430277
	08/10/2023			08/10/2023 16:52	Elise M. Gillis	2430276
EPA 8321B	08/10/2023	08/10/2023 13:00	Hana Lee	08/11/2023 01:07	Tae K Lee	2430278
	08/10/2023	08/10/2023 13:00	Hana Lee	08/11/2023 01:40	Tae K Lee	2430279
	08/10/2023	08/10/2023 13:00	Hana Lee	08/11/2023 07:13	Tae K Lee	2430278
	08/10/2023	08/10/2023 13:00	Hana Lee	08/11/2023 07:41	Tae K Lee	2430279