Chemical Analysis Report

SE-DIST-2023-09-13-01

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

Event Description: **Algal Bloom Response - SE ROC**
Request ID: **RQ-2023-08-28-71**
Customer: **SE-DIST**
Project ID: **BLOOM-RESP**

Send Reports to:
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Certified by: Thekkekalathil Chandrasekhar, Environmental Consultant Date Certified: 29-SEP-2023 10:57

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: Lake Okeechobee - 1 mile NW of Pahokee **Collection Date/Time: 09/12/2023 10:40**

Field ID: SEHAB0017 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2436414	DEP SOP: NU-094-1	Color (true)	81		PCU	P434942	
2436417	EPA 350.1 Rev. 2.0	Ammonia-N	0.027		mg N/L	P435135	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P435486	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.20		mg N/L	P435282	
	EPA 365.1 Rev. 2.0	Total-P	0.17		mg P/L	P435035	
2436420	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.053		mg P/L	P434932	
2436423	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P434904	
		Cylindrospermopsin	0.10	U	ug/L	P434903	
		Desmethyl microcystin LR	0.25	U	ug/L	P434903	
		Microcystin HilR	0.25	U	ug/L	P434903	
		Microcystin HtyR	0.25	U	ug/L	P434903	
		Microcystin LA	0.10	U	ug/L	P434903	
		Microcystin LF	0.10	U	ug/L	P434903	
		Microcystin LR	0.25	U	ug/L	P434903	
		Microcystin LW	0.25	U	ug/L	P434903	
		Microcystin LY	0.10	U	ug/L	P434903	
		Microcystin RR	0.10	U	ug/L	P434903	
		Microcystin WR	0.50	U	ug/L	P434903	
		Neosaxitoxin	0.50	U	ug/L	P434904	
		Microcystin YR	0.25	U	ug/L	P434903	
		Saxitoxin	0.50	U	ug/L	P434904	
		Nodularin-R	0.10	U	ug/L	P434903	

Ref. Method and Comment:
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: C44 Canal - S308C (canal side) **Collection Date/Time: 09/12/2023 12:00**

Field ID: SEHAB0063 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2436416	DEP SOP: NU-094-1	Color (true)	63	A	PCU	P434943	
2436419	EPA 350.1 Rev. 2.0	Ammonia-N	0.035		mg N/L	P435135	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P435487	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.33		mg N/L	P435282	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P435035	
2436422	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.054		mg P/L	P434932	
2436425	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P434904	
		Cylindrospermopsin	0.10	U	ug/L	P434903	
		Desmethyl microcystin LR	0.25	U	ug/L	P434903	
		Microcystin HilR	0.25	U	ug/L	P434903	
		Microcystin HtyR	0.25	U	ug/L	P434903	
		Microcystin LA	0.10	U	ug/L	P434903	
		Microcystin LF	0.10	U	ug/L	P434903	
		Microcystin LR	0.25	U	ug/L	P434903	
		Microcystin LW	0.25	U	ug/L	P434903	
		Microcystin LY	0.10	U	ug/L	P434903	
		Microcystin RR	0.10	U	ug/L	P434903	
		Microcystin WR	0.50	U	ug/L	P434903	
		Neosaxitoxin	0.50	U	ug/L	P434904	
		Microcystin YR	0.25	U	ug/L	P434903	
		Saxitoxin	0.50	U	ug/L	P434904	
		Nodularin-R	0.10	U	ug/L	P434903	

Sample Location: Lake Okeechobee- S308C (lakeside) **Collection Date/Time: 09/12/2023 11:40**

Field ID: SEHAB0062 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2436415	DEP SOP: NU-094-1	Color (true)	68		PCU	P434942	
2436418	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P435135	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P435486	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P435282	
	EPA 365.1 Rev. 2.0	Total-P	0.18		mg P/L	P435035	
2436421	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.040		mg P/L	P434932	
2436424	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P434904	
		Cylindrospermopsin	0.10	U	ug/L	P434903	
		Desmethyl microcystin LR	0.25	U	ug/L	P434903	
		Microcystin HilR	0.25	U	ug/L	P434903	
		Microcystin HtyR	0.25	U	ug/L	P434903	
		Microcystin LA	0.10	U	ug/L	P434903	
		Microcystin LF	0.10	U	ug/L	P434903	
		Microcystin LR	0.25	U	ug/L	P434903	
		Microcystin LW	0.25	U	ug/L	P434903	
		Microcystin LY	0.10	U	ug/L	P434903	
		Microcystin RR	0.10	U	ug/L	P434903	
		Microcystin WR	0.50	U	ug/L	P434903	
		Neosaxitoxin	0.50	U	ug/L	P434904	
		Microcystin YR	0.25	U	ug/L	P434903	
		Saxitoxin	0.50	U	ug/L	P434904	
		Nodularin-R	0.10	U	ug/L	P434903	

Ref. Method and Comment:
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P434942

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P434943

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P435135

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435486

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435487

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P435282

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P435035

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P434932

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

Reference Method: EPA 8321B
Batch ID: P434903

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: P434903

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: P434904

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: P434942

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.8		P	90 - 110

Reference Method: DEP SOP: NU-094-1
Batch ID: P434943

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P435135

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435486

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: P435487

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P435282

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P435035

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P434932

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

Reference Method: EPA 8321B
Batch ID: P434903

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	109		P	40 - 160
Desmethyl microcystin LR	112		P	40 - 160
Microcystin HilR	103		P	40 - 160
Microcystin HtyR	105		P	40 - 160

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P434903

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Microcystin LA	98.0		P	40 - 160
Microcystin LF	113		P	40 - 160
Microcystin LR	100		P	40 - 160
Microcystin LW	97.2		P	40 - 160
Microcystin LY	92.3		P	40 - 160
Microcystin RR	103		P	40 - 160
Microcystin WR	104		P	40 - 160
Microcystin YR	95.3		P	40 - 160
Nodularin-R	101		P	40 - 160

Reference Method: EPA 8321B
Batch ID: P434904

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	122		P	40 - 150
Neosaxitoxin	91.6		P	40 - 150
Saxitoxin	100		P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P435135

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2436388	Ammonia-N	96.6	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435487

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2436449	Kjeldahl Nitrogen	100	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P435282

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2436434	NO2NO3-N	90.4	95.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P435035

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2436449	Total-P	108	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P434932

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2436352	O-Phosphate-P	98.3	99.3	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P434903

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2435813	Cylindrospermopsin	95.3	108	P/P	40 - 160
2435813	Desmethyl microcystin LR	111	115	P/P	40 - 160
2435813	Microcystin HilR	103	106	P/P	40 - 160
2435813	Microcystin HtyR	106	111	P/P	40 - 160
2435813	Microcystin LA	95.5	107	P/P	40 - 160
2435813	Microcystin LF	117	105	P/P	40 - 160
2435813	Microcystin LR	104	103	P/P	40 - 160
2435813	Microcystin LW	101	94.8	P/P	40 - 160
2435813	Microcystin LY	104	99.3	P/P	40 - 160
2435813	Microcystin RR	104	108	P/P	40 - 160
2435813	Microcystin WR	107	113	P/P	40 - 160
2435813	Microcystin YR	101	102	P/P	40 - 160
2435813	Nodularin-R	102	111	P/P	40 - 160

Reference Method: EPA 8321B
Batch ID: P434904

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2435813	Anatoxin-a	112	114	P/P	40 - 150
2435813	Neosaxitoxin	101	105	P/P	40 - 150
2435813	Saxitoxin	93.3	104	P/P	40 - 150

Quality Assurance Report
Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P434942

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2436350	Color (true)	0.200	Sample	P	0 - 20

Reference Method: DEP SOP: NU-094-1
Batch ID: P434943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2436416	Color (true)	4.48	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P435135

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2436388	Ammonia-N	1.80	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435486

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2436389	Kjeldahl Nitrogen	3.85	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435487

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2436449	Kjeldahl Nitrogen	5.04	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P435282

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2436434	NO2NO3-N	5.74	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P435035

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2436449	Total-P	1.27	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P434932

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2436352	O-Phosphate-P	1.01	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P434903

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2435813	Cylindrospermopsin	12.7	Spike	P	0 - 30
2435813	Desmethyl microcystin LR	3.16	Spike	P	0 - 30
2435813	Microcystin HilR	2.43	Spike	P	0 - 30
2435813	Microcystin HtyR	4.24	Spike	P	0 - 30
2435813	Microcystin LA	11.7	Spike	P	0 - 30
2435813	Microcystin LF	10.7	Spike	P	0 - 30
2435813	Microcystin LR	0.850	Spike	P	0 - 30
2435813	Microcystin LW	6.79	Spike	P	0 - 30
2435813	Microcystin LY	4.23	Spike	P	0 - 30
2435813	Microcystin RR	3.77	Spike	P	0 - 30
2435813	Microcystin WR	5.54	Spike	P	0 - 30
2435813	Microcystin YR	0.775	Spike	P	0 - 30
2435813	Nodularin-R	8.38	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P434904

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2435813	Anatoxin-a	1.99	Spike	P	0 - 30
2435813	Neosaxitoxin	3.90	Spike	P	0 - 30
2435813	Saxitoxin	10.9	Spike	P	0 - 30

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2436423
Field Sample ID: SEHAB0017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	94.9	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	114	P	30 - 160

Lab Sample ID: 2436424
Field Sample ID: SEHAB0062

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	96.2	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	124	P	30 - 160

Lab Sample ID: 2436425
Field Sample ID: SEHAB0063

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	93.4	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	128	P	30 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A121506
Included Lab Sample IDs: 2436420, 2436421, 2436422

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.6	99.9	P/P	90 - 110
O-Phosphate-P	99.9	99.9	P/P	90 - 110

Reference Method: DEP SOP: NU-094-1
Run ID: A121511
Included Lab Sample IDs: 2436414, 2436415, 2436416

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	99.1	P/P	90 - 110
Color (true)	98.2	100	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A121523
Included Lab Sample IDs: 2436423, 2436424, 2436425

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	103	104	P/P	50 - 160
Neosaxitoxin	94.7	95.5	P/P	50 - 160
Saxitoxin	105	109	P/P	50 - 160

Reference Method: EPA 8321B
Run ID: A121534
Included Lab Sample IDs: 2436423, 2436424, 2436425

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	122	94.8	P/P	60 - 160
Desmethyl microcystin LR	127	124	P/P	50 - 160
Microcystin HilR	114	111	P/P	60 - 160
Microcystin HtyR	118	119	P/P	60 - 160
Microcystin LA	114	111	P/P	50 - 160
Microcystin LF	119	115	P/P	60 - 160
Microcystin LR	102	110	P/P	60 - 160
Microcystin LW	104	99.4	P/P	60 - 160
Microcystin LY	103	106	P/P	60 - 160
Microcystin RR	115	120	P/P	60 - 160
Microcystin WR	124	121	P/P	60 - 160
Microcystin YR	106	110	P/P	60 - 160
Nodularin-R	123	117	P/P	60 - 160

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A121598
Included Lab Sample IDs: 2436417, 2436418, 2436419

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.5	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A121611
Included Lab Sample IDs: 2436417, 2436418, 2436419

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A121611
Included Lab Sample IDs: 2436417, 2436418, 2436419

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	104	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A121662
Included Lab Sample IDs: 2436417, 2436418, 2436419

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A121802
Included Lab Sample IDs: 2436417, 2436418, 2436419

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.5	106	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	SMP	MS
DEP SOP: NU-094-1	Color (true)	99.8				0.200	
	Color (true)	99.6				4.48	
EPA 350.1 Rev. 2.0	Ammonia-N	97.2	96.6	98.6			1.80
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101					3.85
	Kjeldahl Nitrogen	99.6	100	106			5.04
EPA 353.2 Rev. 2.0	NO2NO3-N	104	90.4	95.9			5.74
EPA 365.1 Rev. 2.0	Total-P	107	108	107			1.27
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	98.3	99.3			1.01
EPA 8321B	Anatoxin-a	122	112	114			1.99
	Cylindrospermopsin	109	95.3	108			12.7
	Desmethyl microcystin LR	112	111	115			3.16
	Microcystin HilR	103	103	106			2.43
	Microcystin HtyR	105	106	111			4.24
	Microcystin LA	98.0	95.5	107			11.7
	Microcystin LF	113	117	105			10.7
	Microcystin LR	100	104	103			0.850
	Microcystin LW	97.2	101	94.8			6.79
	Microcystin LY	92.3	104	99.3			4.23
	Microcystin RR	103	104	108			3.77
	Microcystin WR	104	107	113			5.54
	Microcystin YR	95.3	101	102			0.775
	Neosaxitoxin	91.6	101	105			3.90
	Nodularin-R	101	102	111			8.38
	Saxitoxin	100	93.3	104			10.9

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2436414, 2436415, 2436416
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2436417, 2436418, 2436419
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2436417, 2436418, 2436419
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2436417, 2436418, 2436419
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2436417, 2436418, 2436419
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2436420, 2436421, 2436422
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2436423, 2436424, 2436425
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2436423, 2436424, 2436425

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	09/13/2023			09/13/2023 15:58	Alexis Price	2436414
	09/13/2023			09/13/2023 15:59	Alexis Price	2436415
	09/13/2023			09/13/2023 16:03	Alexis Price	2436416
EPA 350.1 Rev. 2.0	09/13/2023			09/18/2023 12:42	Khloe J Berg	2436417
	09/13/2023			09/18/2023 12:43	Khloe J Berg	2436418
	09/13/2023			09/18/2023 12:45	Khloe J Berg	2436419
EPA 351.2 Rev. 2.0	09/13/2023	09/26/2023 11:48	Simonne.V. Calhoun	09/27/2023 16:31	Samantha L Bates	2436417
	09/13/2023	09/26/2023 11:48	Simonne.V. Calhoun	09/27/2023 16:33	Samantha L Bates	2436418
	09/13/2023	09/26/2023 11:48	Simonne.V. Calhoun	09/27/2023 16:38	Samantha L Bates	2436419
EPA 353.2 Rev. 2.0	09/13/2023			09/19/2023 14:28	Anna M. Plaviak	2436417
	09/13/2023			09/19/2023 14:29	Anna M. Plaviak	2436418
	09/13/2023			09/19/2023 14:30	Anna M. Plaviak	2436419
EPA 365.1 Rev. 2.0	09/13/2023	09/15/2023 14:15	Adam P Silver	09/19/2023 09:31	James L Waggerby	2436417
	09/13/2023	09/15/2023 14:15	Adam P Silver	09/19/2023 09:32	James L Waggerby	2436418
	09/13/2023	09/15/2023 14:15	Adam P Silver	09/19/2023 09:33	James L Waggerby	2436419
EPA 365.1 Rev. 2.0 dissolved	09/13/2023			09/13/2023 13:57	Elise M. Gillis	2436420, 2436421
	09/13/2023			09/13/2023 14:03	Elise M. Gillis	2436422
EPA 8321B	09/13/2023	09/13/2023 12:00	Hana Lee	09/14/2023 08:19	Tae K Lee	2436423
	09/13/2023	09/13/2023 12:00	Hana Lee	09/14/2023 08:33	Tae K Lee	2436424
	09/13/2023	09/13/2023 12:00	Hana Lee	09/14/2023 08:47	Tae K Lee	2436425
	09/13/2023	09/13/2023 12:00	Hana Lee	09/14/2023 10:11	Tae K Lee	2436423
	09/13/2023	09/13/2023 12:00	Hana Lee	09/14/2023 10:27	Tae K Lee	2436424
	09/13/2023	09/13/2023 12:00	Hana Lee	09/14/2023 10:42	Tae K Lee	2436425