

Chemical Analysis Report

SO-DIST-2024-04-04-01

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

Event Description: **Algal Bloom Response -SOROC**
Request ID: **RQ-2023-07-24-16**
Customer: **SO-DIST**
Project ID: **BLOOM-RESP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: John Barrington

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Certified by: Marek Topolski, Environmental Administrator

Date Certified: 19-APR-2024 15:20

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

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Nutrients and Pesticides.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Caloosahatchee River - Cypress Lake Dr Collection Date/Time: 04/03/2024 11:05

Field ID: HAB-SD-040324-1105 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2479775	DEP SOP: NU-094-1	Color (true)	46		PCU	P443796	
2479778	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P443843	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.99		mg N/L	P443809	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P444297	
	EPA 365.1 Rev. 2.0	Total-P	0.044		mg P/L	P443895	
2479781	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P443790	
2479795	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P443749	
		Cylindrospermopsin	0.10	U	ug/L	P443748	
		Desmethyl microcystin LR	0.25	U	ug/L	P443748	
		Microcystin HilR	0.25	U	ug/L	P443748	
		Microcystin HtyR	0.25	U	ug/L	P443748	
		Microcystin LA	0.10	U	ug/L	P443748	
		Microcystin LF	0.10	U	ug/L	P443748	
		Microcystin LR	0.25	U	ug/L	P443748	
		Microcystin LW	0.25	U	ug/L	P443748	
		Microcystin LY	0.10	U	ug/L	P443748	
		Microcystin RR	0.10	U	ug/L	P443748	
		Microcystin WR	0.50	U	ug/L	P443748	
		Neosaxitoxin	0.50	U	ug/L	P443749	
		Microcystin YR	0.25	U	ug/L	P443748	
		Saxitoxin	0.50	U	ug/L	P443749	
		Nodularin-R	0.10	U	ug/L	P443748	

Collection Date/Time: 04/03/2024 10:00

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2479773	DEP SOP: NU-094-1	Color (true)	61		PCU	P443796	
2479776	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P443846	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P443808	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P444107	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P443910	
2479779	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.028		mg P/L	P443787	
2479793	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P443749	
		Cylindrospermopsin	0.10	U	ug/L	P443748	
		Desmethyl microcystin LR	0.25	U	ug/L	P443748	
		Microcystin HiIR	0.25	U	ug/L	P443748	
		Microcystin HtyR	0.25	U	ug/L	P443748	
		Microcystin LA	0.10	U	ug/L	P443748	
		Microcystin LF	0.10	U	ug/L	P443748	
		Microcystin LR	0.25	U	ug/L	P443748	
		Microcystin LW	0.25	U	ug/L	P443748	
		Microcystin LY	0.10	U	ug/L	P443748	
		Microcystin RR	0.10	U	ug/L	P443748	
		Microcystin WR	0.50	U	ug/L	P443748	
		Neosaxitoxin	0.50	U	ug/L	P443749	
		Microcystin YR	0.25	U	ug/L	P443748	
		Saxitoxin	0.50	U	ug/L	P443749	
		Nodularin-R	0.10	U	ug/L	P443748	

Sample Location: Caloosahatchee River - Magnolia Canal

Collection Date/Time: 04/03/2024 10:35

Field ID: HAB-SD-040324-1035

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2479774	DEP SOP: NU-094-1	Color (true)	49		PCU	P443796	
2479777	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P443846	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P443810	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P444107	
	EPA 365.1 Rev. 2.0	Total-P	0.092		mg P/L	P443910	
2479780	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.026		mg P/L	P443787	
2479794	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P443749	
		Cylindrospermopsin	0.10	U	ug/L	P443748	
		Desmethyl microcystin LR	0.25	U	ug/L	P443748	
		Microcystin HiLR	0.25	U	ug/L	P443748	
		Microcystin HtyR	0.25	U	ug/L	P443748	
		Microcystin LA	0.10	U	ug/L	P443748	
		Microcystin LF	0.10	U	ug/L	P443748	
		Microcystin LR	0.25	U	ug/L	P443748	
		Microcystin LW	0.25	U	ug/L	P443748	
		Microcystin LY	0.10	U	ug/L	P443748	
		Microcystin RR	0.10	U	ug/L	P443748	
		Microcystin WR	0.50	U	ug/L	P443748	
		Neosaxitoxin	0.50	U	ug/L	P443749	
		Microcystin YR	0.25	U	ug/L	P443748	
		Saxitoxin	0.50	U	ug/L	P443749	
		Nodularin-R	0.10	U	ug/L	P443748	

Quality Assurance Report

Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P443796

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443843

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443846

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

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

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P443809

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P443810

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444107

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444297

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443895

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
Batch ID: P443910

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P443787

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P443790

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

Reference Method: EPA 8321B
Batch ID: P443748

Component	Result	Code	Units
Cylindrospermopsin	0.10	U	ug/L
Desmethyl microcystin LR	0.25	U	ug/L
Microcystin H11R	0.25	U	ug/L
Microcystin HtyR	0.25	U	ug/L
Microcystin LA	0.10	U	ug/L
Microcystin LF	0.10	U	ug/L
Microcystin LR	0.25	U	ug/L
Microcystin LW	0.25	U	ug/L
Microcystin LY	0.10	U	ug/L
Microcystin RR	0.10	U	ug/L
Microcystin WR	0.50	U	ug/L
Microcystin YR	0.25	U	ug/L
Nodularin-R	0.10	U	ug/L

Reference Method: EPA 8321B
Batch ID: P443749

Component	Result	Code	Units
Anatoxin-a	0.25	U	ug/L
Neosaxitoxin	0.50	U	ug/L
Saxitoxin	0.50	U	ug/L

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: DEP SOP: NU-094-1
Batch ID: P443796

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443843

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443846

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

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

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P443809

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P443810

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.3		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444107

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444297

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443895

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443910

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P443787

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P443790

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.8		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P443748

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

Reference Method: EPA 8321B
Batch ID: P443749

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

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443843

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2479372	Ammonia-N	100	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443846

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2479721	Ammonia-N	97.0	97.4	P/P	90 - 110

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

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P443809

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2479820	Kjeldahl Nitrogen	92.5	93.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P443810

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2479777	Kjeldahl Nitrogen	91.6	98.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444107

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2479776	NO2NO3-N	96.0	96.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444297

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2480080	NO2NO3-N	94.0	95.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443895

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2479612	Total-P	99.4	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443910

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2479743	Total-P	98.5	99.6	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P443787

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2479722	O-Phosphate-P	97.5	94.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P443790

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2479781	O-Phosphate-P	100	99.5	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P443748

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2479738	Cylindrospermopsin	103	110	P/P	40 - 150
2479738	Desmethyl microcystin LR	117	136	P/P	40 - 150
2479738	Microcystin HILR	138	136	P/P	40 - 150
2479738	Microcystin HtyR	142	147	P/P	40 - 150
2479738	Microcystin LA	105	114	P/P	40 - 150
2479738	Microcystin LF	120	122	P/P	40 - 150
2479738	Microcystin LR	109	121	P/P	40 - 150
2479738	Microcystin LW	122	128	P/P	40 - 150
2479738	Microcystin LY	128	127	P/P	40 - 150
2479738	Microcystin RR	105	104	P/P	40 - 150
2479738	Microcystin WR	137	142	P/P	40 - 150
2479738	Microcystin YR	129	134	P/P	40 - 150
2479738	Nodularin-R	118	115	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P443749

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

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P443796

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2479843	Color (true)	3.53	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443843

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2479372	Ammonia-N	3.88	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P443846

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2479721	Ammonia-N	0.412	Spike	P	0 - 20

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

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P443809

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2479820	Kjeldahl Nitrogen	0.462	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P443810

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2479777	Kjeldahl Nitrogen	4.45	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444107

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2479776	NO2NO3-N	0.519	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P444297

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2480080	NO2NO3-N	1.02	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2479612	Total-P	0.851	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P443910

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2479743	Total-P	0.620	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P443787

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2479722	O-Phosphate-P	3.08	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P443790

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2479781	O-Phosphate-P	0.658	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P443748

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2479738	Cylindrospermopsin	7.14	Spike	P	0 - 30
2479738	Desmethyl microcystin LR	14.9	Spike	P	0 - 30
2479738	Microcystin H1LR	1.27	Spike	P	0 - 30
2479738	Microcystin HtyR	3.59	Spike	P	0 - 30
2479738	Microcystin LA	7.04	Spike	P	0 - 30
2479738	Microcystin LF	1.85	Spike	P	0 - 30
2479738	Microcystin LR	9.32	Spike	P	0 - 30
2479738	Microcystin LW	4.87	Spike	P	0 - 30
2479738	Microcystin LY	0.671	Spike	P	0 - 30
2479738	Microcystin RR	0.920	Spike	P	0 - 30
2479738	Microcystin WR	3.62	Spike	P	0 - 30
2479738	Microcystin YR	4.19	Spike	P	0 - 30
2479738	Nodularin-R	2.64	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P443749

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

Quality Assurance Report Precision

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

Quality Assurance Report

Surrogates

Lab Sample ID: 2479793

Field Sample ID: HAB-SD-040324-1000

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	102	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	114	P	30 - 160

Lab Sample ID: 2479794

Field Sample ID: HAB-SD-040324-1035

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	93.7	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	99.0	P	30 - 160

Lab Sample ID: 2479795

Field Sample ID: HAB-SD-040324-1105

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	87.3	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	93.4	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A125155

Included Lab Sample IDs: 2479793, 2479794, 2479795

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

Reference Method: EPA 8321B

Run ID: A125170

Included Lab Sample IDs: 2479793, 2479794, 2479795

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A125174

Included Lab Sample IDs: 2479779, 2479780, 2479781

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.2	98.0	P/P	90 - 110
O-Phosphate-P	99.1	99.7	P/P	90 - 110

Reference Method: DEP SOP: NU-094-1

Run ID: A125175

Included Lab Sample IDs: 2479773, 2479774, 2479775

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.7	98.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A125191

Included Lab Sample IDs: 2479776, 2479777, 2479778

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	100	P/P	90 - 110
Ammonia-N	97.2	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A125222

Included Lab Sample IDs: 2479776

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A125222

Included Lab Sample IDs: 2479776

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A125232

Included Lab Sample IDs: 2479776, 2479777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.3	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A125234

Included Lab Sample IDs: 2479778

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A125262

Included Lab Sample IDs: 2479777, 2479778

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.8	102	P/P	90 - 110
Kjeldahl Nitrogen	98.2	97.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A125279

Included Lab Sample IDs: 2479776, 2479777

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A125335

Included Lab Sample IDs: 2479778

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	101	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	MS
					LCS	SMP
DEP SOP: NU-094-1	Color (true)	98.5			3.53	
EPA 350.1 Rev. 2.0	Ammonia-N	97.0	100	106		3.88
	Ammonia-N	96.8	97.0	97.4		0.412
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	107	105		1.47
	Kjeldahl Nitrogen	94.4	92.5	93.0		0.462
	Kjeldahl Nitrogen	93.3	91.6	98.9		4.45
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	96.0	96.5		0.519
	NO2NO3-N	99.5	94.0	95.0		1.02
EPA 365.1 Rev. 2.0	Total-P	100	99.4	100		0.851
	Total-P	103	98.5	99.6		0.620
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	97.5	94.2		3.08
	O-Phosphate-P	99.8	100	99.5		0.658
EPA 8321B	Anatoxin-a	98.1	91.1	94.8		3.94
	Cylindrospermopsin	96.1	103	110		7.14
	Desmethyl microcystin LR	112	117	136		14.9
	Microcystin HiLR	122	138	136		1.27
	Microcystin HtyR	130	142	147		3.59
	Microcystin LA	107	105	114		7.04
	Microcystin LF	103	120	122		1.85
	Microcystin LR	125	109	121		9.32
	Microcystin LW	116	122	128		4.87
	Microcystin LY	122	128	127		0.671
	Microcystin RR	99.0	105	104		0.920
	Microcystin WR	128	137	142		3.62
	Microcystin YR	121	129	134		4.19
	Neosaxitoxin	79.8	80.8	79.2		1.98
	Nodularin-R	109	118	115		2.64
	Saxitoxin	96.8	103	101		1.89

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2479773, 2479774, 2479775
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2479776, 2479777, 2479778
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2479776, 2479777, 2479778
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2479776, 2479777, 2479778
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2479776, 2479777, 2479778
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2479779, 2479780, 2479781
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2479793, 2479794, 2479795
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2479793, 2479794, 2479795

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	04/04/2024			04/04/2024 15:05	Jessica K Wilks	2479773
	04/04/2024			04/04/2024 15:06	Jessica K Wilks	2479774, 2479775
	04/04/2024			04/05/2024 12:18	Kenneth H Lee	2479778
EPA 350.1 Rev. 2.0	04/04/2024			04/05/2024 13:42	Kenneth H Lee	2479776
	04/04/2024			04/05/2024 13:43	Kenneth H Lee	2479777
	04/04/2024	04/05/2024 08:07	Robyn Blevins	04/08/2024 16:17	Robyn Blevins	2479776
EPA 351.2 Rev. 2.0	04/04/2024	04/05/2024 10:29	Robyn Blevins	04/09/2024 15:23	Ping Hua	2479778
	04/04/2024	04/05/2024 10:29	Robyn Blevins	04/09/2024 16:00	Ping Hua	2479777
	04/04/2024			04/08/2024 16:18	Fadila Guebre	2479776
EPA 353.2 Rev. 2.0	04/04/2024			04/08/2024 16:24	Fadila Guebre	2479777
	04/04/2024			04/15/2024 14:02	Fadila Guebre	2479778
	04/04/2024	04/08/2024 11:35	Josephine W Gitau	04/09/2024 11:40	Simonne.V. Calhoun	2479776
EPA 365.1 Rev. 2.0	04/04/2024	04/08/2024 11:35	Josephine W Gitau	04/09/2024 11:41	Simonne.V. Calhoun	2479777
	04/04/2024	04/08/2024 11:35	Josephine W Gitau	04/09/2024 12:06	Simonne.V. Calhoun	2479778
	04/04/2024			04/04/2024 14:11	Chandler E Cox	2479779
EPA 365.1 Rev. 2.0 dissolved	04/04/2024			04/04/2024 14:12	Chandler E Cox	2479780
	04/04/2024			04/04/2024 14:52	Chandler E Cox	2479781
	04/04/2024	04/04/2024 13:30	Hana Lee	04/04/2024 15:32	Hana Lee	2479793
EPA 8321B	04/04/2024	04/04/2024 13:30	Hana Lee	04/04/2024 15:46	Hana Lee	2479794
	04/04/2024	04/04/2024 13:30	Hana Lee	04/04/2024 16:00	Hana Lee	2479795
	04/04/2024	04/04/2024 14:00	Hana Lee	04/04/2024 21:13	Hana Lee	2479793
	04/04/2024	04/04/2024 14:00	Hana Lee	04/04/2024 21:30	Hana Lee	2479794
	04/04/2024	04/04/2024 14:00	Hana Lee	04/04/2024 21:46	Hana Lee	2479795