

Chemical Analysis Report

SO-DIST-2023-10-12-01

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

Event Description: **Algal Bloom Response -SOROC w/ blank**
Request ID: **RQ-2023-07-31-19**
Customer: **SO-DIST**
Project ID: **BLOOM-RESP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 314
Fort Myers, FL 33901-3381
Attn: John Barrington

For additional information please contact
Colin Wright, Ph.D.
Chris Bowen, B.S.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Environmental Consultant

Date Certified: 31-OCT-2023 10:09



NON-CONFORMANCE REPORT INCLUDED

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 - Jaycee park

Collection Date/Time: 10/10/2023 12:20

Field ID: HAB-SD-101023-1220

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2444551	DEP SOP: NU-094-1	Color (true)	140	A	PCU	P436440	
2444554	EPA 350.1 Rev. 2.0	Ammonia-N	0.036		mg N/L	P436614	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.99		mg N/L	P436505	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.28		mg N/L	P436877	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P436649	
2444557	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11	Q	mg P/L	P436412	
2444564	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P436332	
		Cylindrospermopsin	0.10	U	ug/L	P436331	
		Desmethyl microcystin LR	0.25	U	ug/L	P436331	
		Microcystin HiLR	0.25	U	ug/L	P436331	
		Microcystin HtyR	0.25	U	ug/L	P436331	
		Microcystin LA	0.10	U	ug/L	P436331	
		Microcystin LF	0.10	U	ug/L	P436331	
		Microcystin LR	0.25	U	ug/L	P436331	
		Microcystin LW	0.25	U	ug/L	P436331	
		Microcystin LY	0.10	U	ug/L	P436331	
		Microcystin RR	0.10	U	ug/L	P436331	
		Microcystin WR	0.50	U	ug/L	P436331	
		Neosaxitoxin	0.50	U	ug/L	P436332	
		Microcystin YR	0.25	U	ug/L	P436331	
		Saxitoxin	0.50	U	ug/L	P436332	
		Nodularin-R	0.10	U	ug/L	P436331	

Ref. Method and Comment:

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: Caloosahatchee River - Horton Park

Collection Date/Time: 10/10/2023 13:00

Field ID: HAB-SD-101023-1300

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2444552	DEP SOP: NU-094-1	Color (true)	150		PCU	P436440	
2444555	EPA 350.1 Rev. 2.0	Ammonia-N	0.036		mg N/L	P436761	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P436504	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.28		mg N/L	P436645	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P436508	
2444558	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P436411	
2444565	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P436332	
		Cylindrospermopsin	0.10	U	ug/L	P436331	
		Desmethyl microcystin LR	0.25	U	ug/L	P436331	
		Microcystin HiLR	0.25	U	ug/L	P436331	
		Microcystin HtyR	0.25	U	ug/L	P436331	
		Microcystin LA	0.10	U	ug/L	P436331	
		Microcystin LF	0.10	U	ug/L	P436331	
		Microcystin LR	0.25	U	ug/L	P436331	
		Microcystin LW	0.25	U	ug/L	P436331	
		Microcystin LY	0.10	U	ug/L	P436331	
		Microcystin RR	0.10	U	ug/L	P436331	
		Microcystin WR	0.50	U	ug/L	P436331	
		Neosaxitoxin	0.50	U	ug/L	P436332	
		Microcystin YR	0.25	U	ug/L	P436331	
		Saxitoxin	0.50	U	ug/L	P436332	
		Nodularin-R	0.10	U	ug/L	P436331	

Sample Location: Caloosahatchee River - McGregor Colonial Park

Collection Date/Time: 10/10/2023 13:40

Field ID: HAB-SD-101023-1340

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2444553	DEP SOP: NU-094-1	Color (true)	160		PCU	P436440	
2444556	EPA 350.1 Rev. 2.0	Ammonia-N	0.071		mg N/L	P436761	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P436504	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.28		mg N/L	P436645	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P436651	
2444559	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P436411	
2444566	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P436332	
		Cylindrospermopsin	0.10	U	ug/L	P436331	
		Desmethyl microcystin LR	0.25	U	ug/L	P436331	
		Microcystin HILR	0.25	U	ug/L	P436331	
		Microcystin HtyR	0.25	U	ug/L	P436331	
		Microcystin LA	0.10	U	ug/L	P436331	
		Microcystin LF	0.10	U	ug/L	P436331	
		Microcystin LR	0.25	U	ug/L	P436331	
		Microcystin LW	0.25	U	ug/L	P436331	
		Microcystin LY	0.10	U	ug/L	P436331	
		Microcystin RR	0.10	U	ug/L	P436331	
		Microcystin WR	0.50	U	ug/L	P436331	
		Neosaxitoxin	0.50	U	ug/L	P436332	
		Microcystin YR	0.25	U	ug/L	P436331	
		Saxitoxin	0.50	U	ug/L	P436332	
		Nodularin-R	0.10	U	ug/L	P436331	

Non-Conformance Report

NCR ID: 10147

Event(s)

SO-DIST-2023-10-12-01

Job(s)

TLH-2023-10-12-26

Sample(s)

2444558

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Samples arrived late

Observation: Samples arrived late, samples received within the acceptable temperature range.

Resolution: Samples will be qualified as appropriate.
Biology and Chemistry supervisors were notified by email.

Authorized by/Date: Kyle Klug 10/31/2023

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P436440

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436614

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436761

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436504

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436505

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P436645

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P436877

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436508

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436649

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: P436651

Component	Result	Code	Units
Total-P	0.010	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P436411

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P436412

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

Reference Method: EPA 8321B

Batch ID: P436331

Component	Result	Code	Units
Cylindrospermopsin	0.10	U	ug/L
Desmethyl microcystin LR	0.25	U	ug/L
Microcystin H1LR	0.25	U	ug/L
Microcystin HtyR	0.25	U	ug/L
Microcystin LA	0.10	U	ug/L
Microcystin LF	0.10	U	ug/L
Microcystin LR	0.25	U	ug/L
Microcystin LW	0.25	U	ug/L
Microcystin LY	0.10	U	ug/L
Microcystin RR	0.10	U	ug/L
Microcystin WR	0.50	U	ug/L
Microcystin YR	0.25	U	ug/L
Nodularin-R	0.10	U	ug/L

Reference Method: EPA 8321B

Batch ID: P436332

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: P436440

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436614

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436761

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436504

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: P436505

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P436645

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P436877

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436508

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436649

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P436651

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P436411

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.3		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P436412

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.8		P	90 - 110

Reference Method: EPA 8321B

Batch ID: P436331

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	96.6		P	40 - 160
Desmethyl microcystin LR	94.7		P	40 - 160
Microcystin HlIR	93.6		P	40 - 160
Microcystin HtyR	94.8		P	40 - 160
Microcystin LA	95.2		P	40 - 160
Microcystin LF	99.5		P	40 - 160
Microcystin LR	93.9		P	40 - 160
Microcystin LW	92.0		P	40 - 160
Microcystin LY	91.9		P	40 - 160
Microcystin RR	104		P	40 - 160
Microcystin WR	95.0		P	40 - 160
Microcystin YR	94.8		P	40 - 160
Nodularin-R	98.0		P	40 - 160

Reference Method: EPA 8321B

Batch ID: P436332

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	128		P	40 - 150
Neosaxitoxin	116		P	40 - 150
Saxitoxin	113		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436614

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2444554	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436761

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2444509	Ammonia-N	98.8	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436504

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2444197	Kjeldahl Nitrogen	95.7	95.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436505

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2444554	Kjeldahl Nitrogen	98.2	99.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P436645

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2444510	NO2NO3-N	98.5	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P436877

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2444554	NO2NO3-N	97.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436508

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2444604	Total-P	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436649

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2445243	Total-P	98.6	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436651

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2445097	Total-P	108	109	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P436411

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2444528	O-Phosphate-P	98.4	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P436412

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2444753	O-Phosphate-P	104	102	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P436331

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2444400	Cylindrospermopsin	100	93.0	P/P	40 - 160
2444400	Desmethyl microcystin LR	96.9	96.6	P/P	40 - 160
2444400	Microcystin H1R	101	99.3	P/P	40 - 160
2444400	Microcystin HtyR	96.9	102	P/P	40 - 160
2444400	Microcystin LA	102	102	P/P	40 - 160
2444400	Microcystin LF	115	101	P/P	40 - 160
2444400	Microcystin LR	96.9	101	P/P	40 - 160
2444400	Microcystin LW	96.1	99.7	P/P	40 - 160
2444400	Microcystin LY	81.7	106	P/P	40 - 160
2444400	Microcystin RR	106	110	P/P	40 - 160
2444400	Microcystin WR	94.4	101	P/P	40 - 160
2444400	Microcystin YR	93.3	93.5	P/P	40 - 160
2444400	Nodularin-R	102	100	P/P	40 - 160

Reference Method: EPA 8321B
Batch ID: P436332

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2444400	Anatoxin-a	117	114	P/P	40 - 150
2444400	Neosaxitoxin	68.8	66.9	P/P	40 - 150
2444400	Saxitoxin	70.9	69.0	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P436440

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2444551	Color (true)	6.43	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436614

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2444554	Ammonia-N	0.345	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P436761

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2444509	Ammonia-N	1.66	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436504

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2444197	Kjeldahl Nitrogen	0.0768	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P436505

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2444554	Kjeldahl Nitrogen	0.740	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P436645

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2444510	NO2NO3-N	1.01	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P436877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2444554	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P436508

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2444604	Total-P	1.25	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P436649

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2445243	Total-P	0.177	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P436651

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2445097	Total-P	0.872	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P436411

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2444528	O-Phosphate-P	0.798	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P436412

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2444753	O-Phosphate-P	1.85	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P436331

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2444400	Cylindrospermopsin	7.60	Spike	P	0 - 30
2444400	Desmethyl microcystin LR	0.298	Spike	P	0 - 30
2444400	Microcystin H1LR	2.06	Spike	P	0 - 30
2444400	Microcystin HtyR	5.18	Spike	P	0 - 30
2444400	Microcystin LA	0.128	Spike	P	0 - 30
2444400	Microcystin LF	13.0	Spike	P	0 - 30
2444400	Microcystin LR	4.55	Spike	P	0 - 30
2444400	Microcystin LW	3.66	Spike	P	0 - 30
2444400	Microcystin LY	25.9	Spike	P	0 - 30
2444400	Microcystin RR	3.62	Spike	P	0 - 30
2444400	Microcystin WR	7.01	Spike	P	0 - 30
2444400	Microcystin YR	0.265	Spike	P	0 - 30
2444400	Nodularin-R	1.99	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P436332

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2444400	Anatoxin-a	2.51	Spike	P	0 - 30
2444400	Neosaxitoxin	2.84	Spike	P	0 - 30
2444400	Saxitoxin	2.59	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: 2444564

Field Sample ID: HAB-SD-101023-1220

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	94.6	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	118	P	30 - 160

Lab Sample ID: 2444565

Field Sample ID: HAB-SD-101023-1300

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	93.9	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	121	P	30 - 160

Lab Sample ID: 2444566

Field Sample ID: HAB-SD-101023-1340

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	98.0	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	116	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A122102

Included Lab Sample IDs: 2444564, 2444565, 2444566

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	92.0	113	P/P	50 - 160
Neosaxitoxin	136	149	P/P	50 - 160
Saxitoxin	121	134	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A122104

Included Lab Sample IDs: 2444564, 2444565, 2444566

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	117	94.5	P/P	60 - 160
Desmethyl microcystin LR	106	105	P/P	50 - 160
Microcystin H1R	116	113	P/P	60 - 160
Microcystin HtyR	108	108	P/P	60 - 160
Microcystin LA	114	109	P/P	50 - 160
Microcystin LF	113	103	P/P	60 - 160
Microcystin LR	104	105	P/P	60 - 160
Microcystin LW	105	97.2	P/P	60 - 160
Microcystin LY	114	104	P/P	60 - 160
Microcystin RR	114	118	P/P	60 - 160
Microcystin WR	110	105	P/P	60 - 160
Microcystin YR	106	101	P/P	60 - 160
Nodularin-R	107	109	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A122113

Included Lab Sample IDs: 2444557, 2444558, 2444559

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.8	98.4	P/P	90 - 110
O-Phosphate-P	97.3	96.2	P/P	90 - 110

Reference Method: DEP SOP: NU-094-1

Run ID: A122124

Included Lab Sample IDs: 2444551, 2444552, 2444553

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	101	P/P	90 - 110
Color (true)	99.6	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A122193

Included Lab Sample IDs: 2444555

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.6	98.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A122195

Included Lab Sample IDs: 2444554

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A122195

Included Lab Sample IDs: 2444554

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A122206

Included Lab Sample IDs: 2444555, 2444556

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A122221

Included Lab Sample IDs: 2444554, 2444555, 2444556

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	95.2	P/P	90 - 110
Kjeldahl Nitrogen	95.2	95.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A122246

Included Lab Sample IDs: 2444555, 2444556

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.9	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A122257

Included Lab Sample IDs: 2444554

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A122258

Included Lab Sample IDs: 2444556

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.1	98.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A122293

Included Lab Sample IDs: 2444554

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	99.0	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)	99.8				6.43	
EPA 350.1 Rev. 2.0	Ammonia-N	102	102	101			0.345
	Ammonia-N	99.8	98.8	101			1.66
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	95.7	95.8			0.0768
	Kjeldahl Nitrogen	97.6	98.2	99.1			0.740
EPA 353.2 Rev. 2.0	NO2NO3-N	102	98.5	99.5			1.01
	NO2NO3-N	98.5	97.2				0.0
EPA 365.1 Rev. 2.0	Total-P	103	102	103			1.25
	Total-P	103	98.6	98.8			0.177
	Total-P	105	108	109			0.872
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.3	98.4	99.3			0.798
	O-Phosphate-P	97.8	104	102			1.85
EPA 8321B	Anatoxin-a	128	117	114			2.51
	Cylindrospermopsin	96.6	100	93.0			7.60
	Desmethyl microcystin LR	94.7	96.9	96.6			0.298
	Microcystin HiLR	93.6	101	99.3			2.06
	Microcystin HtyR	94.8	96.9	102			5.18
	Microcystin LA	95.2	102	102			0.128
	Microcystin LF	99.5	115	101			13.0
	Microcystin LR	93.9	96.9	101			4.55
	Microcystin LW	92.0	96.1	99.7			3.66
	Microcystin LY	91.9	81.7	106			25.9
	Microcystin RR	104	106	110			3.62
	Microcystin WR	95.0	94.4	101			7.01
	Microcystin YR	94.8	93.3	93.5			0.265
	Neosaxitoxin	116	68.8	66.9			2.84
	Nodularin-R	98.0	102	100			1.99
	Saxitoxin	113	70.9	69.0			2.59

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2444551, 2444552, 2444553
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2444554, 2444555, 2444556
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2444554, 2444555, 2444556
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2444554, 2444555, 2444556
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2444554, 2444555, 2444556
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2444557, 2444558, 2444559
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2444564, 2444565, 2444566
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2444564, 2444565, 2444566

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	10/12/2023			10/12/2023 11:12	Chandler E Cox	2444551
	10/12/2023			10/12/2023 11:19	Chandler E Cox	2444552
	10/12/2023			10/12/2023 11:20	Chandler E Cox	2444553
EPA 350.1 Rev. 2.0	10/12/2023			10/17/2023 14:02	Ping Hua	2444554
	10/12/2023			10/19/2023 13:15	Khloe J Berg	2444555
	10/12/2023			10/19/2023 13:17	Khloe J Berg	2444556
EPA 351.2 Rev. 2.0	10/12/2023	10/16/2023 16:38	Simonne.V. Calhoun	10/18/2023 11:22	Samantha L Bates	2444555
	10/12/2023	10/16/2023 16:38	Simonne.V. Calhoun	10/18/2023 11:27	Samantha L Bates	2444556
	10/12/2023	10/16/2023 16:38	Simonne.V. Calhoun	10/18/2023 11:41	Samantha L Bates	2444554
EPA 353.2 Rev. 2.0	10/12/2023			10/17/2023 12:30	Anna M. Plaviak	2444555
	10/12/2023			10/17/2023 12:31	Anna M. Plaviak	2444556
	10/12/2023			10/23/2023 12:35	Anna M. Plaviak	2444554
EPA 365.1 Rev. 2.0	10/12/2023	10/16/2023 12:31	Adam P Silver	10/17/2023 09:47	James L Waggeberby	2444555
	10/12/2023	10/18/2023 13:42	Adam P Silver	10/19/2023 15:12	James L Waggeberby	2444554
	10/12/2023	10/18/2023 13:42	Adam P Silver	10/20/2023 11:35	James L Waggeberby	2444556
EPA 365.1 Rev. 2.0 dissolved	10/12/2023			10/12/2023 12:52	Elise M. Gillis	2444558
	10/12/2023			10/12/2023 12:53	Elise M. Gillis	2444559
	10/12/2023			10/12/2023 13:22	Elise M. Gillis	2444557
EPA 8321B	10/12/2023	10/12/2023 12:00	Hana Lee	10/12/2023 15:29	Tae K Lee	2444564
	10/12/2023	10/12/2023 12:00	Hana Lee	10/12/2023 15:44	Tae K Lee	2444565
	10/12/2023	10/12/2023 12:00	Hana Lee	10/12/2023 16:00	Tae K Lee	2444566
	10/12/2023	10/12/2023 12:00	Hana Lee	10/13/2023 07:27	Tae K Lee	2444564
	10/12/2023	10/12/2023 12:00	Hana Lee	10/13/2023 07:41	Tae K Lee	2444565
	10/12/2023	10/12/2023 12:00	Hana Lee	10/13/2023 07:55	Tae K Lee	2444566