

Chemical Analysis Report

WQAP-2023-05-18-02

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

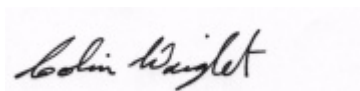
Event Description: **Algal Bloom Response -SOROC**
Request ID: **RQ-2023-05-15-17**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

Send Reports to:
FL Dept. of Environmental Protection
2295 Victoria AVE
Suite 364
Fort Myers, FL 33901
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: Colin Wright, Program Administrator

Date Certified: 07-JUN-2023 08:44



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: Peace River - at mouth of Deep Creek

Collection Date/Time: 05/17/2023 09:05

Field ID: Hab-sd-051723-0905

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2410791	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P430015	
		Cylindrospermopsin	0.10	U	ug/L	P430014	
		Desmethyl microcystin LR	0.25	U	ug/L	P430014	
		Microcystin HILR	0.25	U	ug/L	P430014	
		Microcystin HtyR	0.25	U	ug/L	P430014	
		Microcystin LA	0.10	U	ug/L	P430014	
		Microcystin LF	0.10	U	ug/L	P430014	
		Microcystin LR	0.25	U	ug/L	P430014	
		Microcystin LW	0.25	U	ug/L	P430014	
		Microcystin LY	0.10	U	ug/L	P430014	
		Microcystin RR	0.10	U	ug/L	P430014	
		Microcystin WR	0.50	U	ug/L	P430014	
		Neosaxitoxin	0.50	U	ug/L	P430015	
		Microcystin YR	0.25	U	ug/L	P430014	
		Saxitoxin	0.50	U	ug/L	P430015	
		Nodularin-R	0.10	U	ug/L	P430014	
2410793	EPA 350.1 Rev. 2.0	Ammonia-N	0.028		mg N/L	P430337	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.96		mg N/L	P430389	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.033		mg N/L	P430296	
	EPA 365.1 Rev. 2.0	Total-P	0.90		mg P/L	P430216	
2410795	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.71		mg P/L	P430063	

Sample Location: Nocatee boat ramp

Collection Date/Time: 05/17/2023 09:40

Field ID: Hab-sd-051723-0940

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2410792	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P430015	
		Cylindrospermopsin	0.10	U	ug/L	P430014	
		Desmethyl microcystin LR	0.25	U	ug/L	P430014	
		Microcystin HILR	0.25	U	ug/L	P430014	
		Microcystin HtyR	0.25	U	ug/L	P430014	
		Microcystin LA	0.10	U	ug/L	P430014	
		Microcystin LF	0.10	U	ug/L	P430014	
		Microcystin LR	0.25	U	ug/L	P430014	
		Microcystin LW	0.25	U	ug/L	P430014	
		Microcystin LY	0.10	U	ug/L	P430014	
		Microcystin RR	0.10	U	ug/L	P430014	
		Microcystin WR	0.50	U	ug/L	P430014	
		Neosaxitoxin	0.50	U	ug/L	P430015	
		Microcystin YR	0.25	U	ug/L	P430014	
		Saxitoxin	0.50	U	ug/L	P430015	
		Nodularin-R	0.10	U	ug/L	P430014	
2410794	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P430411	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.0		mg N/L	P430239	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P430731	
	EPA 365.1 Rev. 2.0	Total-P	1.9		mg P/L	P430172	
2410796	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.90		mg P/L	P430063	

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: Niagara Waterway - at Conway and Depew

Collection Date/Time: 05/17/2023 08:22

Field ID: Hab-sd-051723-0822

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2410816	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P430015	
		Cylindrospermopsin	0.10	U	ug/L	P430014	
		Desmethyl microcystin LR	0.25	U	ug/L	P430014	
		Microcystin HILR	0.25	U	ug/L	P430014	
		Microcystin HtyR	0.25	U	ug/L	P430014	
		Microcystin LA	0.10	U	ug/L	P430014	
		Microcystin LF	0.10	U	ug/L	P430014	
		Microcystin LR	0.25	U	ug/L	P430014	
		Microcystin LW	0.25	U	ug/L	P430014	
		Microcystin LY	0.10	U	ug/L	P430014	
		Microcystin RR	0.10	U	ug/L	P430014	
		Microcystin WR	0.50	U	ug/L	P430014	
		Neosaxitoxin	0.50	U	ug/L	P430015	
		Microcystin YR	0.25	U	ug/L	P430014	
		Saxitoxin	0.50	U	ug/L	P430015	
		Nodularin-R	0.10	U	ug/L	P430014	
2410818	EPA 350.1 Rev. 2.0	Ammonia-N	0.034		mg N/L	P430411	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.3		mg N/L	P430239	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.049		mg N/L	P430629	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P430172	
2410819	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P430063	

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: EPA 350.1 Rev. 2.0
Batch ID: P430337

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P430411

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P430239

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P430389

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430296

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430629

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430731

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P430172

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P430216

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P430063

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

Reference Method: EPA 8321B
Batch ID: P430014

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: P430015

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: EPA 350.1 Rev. 2.0
Batch ID: P430337

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P430411

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P430239

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P430389

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430296

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430629

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	105		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430731

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: P430172

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: P430216

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P430063

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

Reference Method: EPA 8321B
Batch ID: P430014

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	108		P	40 - 150
Desmethyl microcystin LR	103		P	40 - 150
Microcystin HILR	103		P	40 - 150
Microcystin HtyR	103		P	40 - 150
Microcystin LA	121		P	40 - 150
Microcystin LF	108		P	40 - 150
Microcystin LR	101		P	40 - 150
Microcystin LW	117		P	40 - 150
Microcystin LY	113		P	40 - 150
Microcystin RR	103		P	40 - 150
Microcystin WR	91.7		P	40 - 150
Microcystin YR	94.1		P	40 - 150
Nodularin-R	99.2		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P430015

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	80.7		P	40 - 150
Neosaxitoxin	68.1		P	40 - 150
Saxitoxin	68.4		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P430337

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2410310	Ammonia-N	99.6	98.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P430411

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2410748	Ammonia-N	97.6	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P430389

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2411988	Kjeldahl Nitrogen	94.9	92.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430296

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2410529	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430629

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2410751	NO2NO3-N	105	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430731

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2411718	NO2NO3-N	96.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P430172

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2410752	Total-P	103	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P430216

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2411706	Total-P	94.9	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P430063

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2410619	O-Phosphate-P	98.4	99.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B

Batch ID: P430014

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2410613	Cylindrospermopsin	106	105	P/P	40 - 150
2410613	Desmethyl microcystin LR	105	112	P/P	40 - 150
2410613	Microcystin HilR	101	110	P/P	40 - 150
2410613	Microcystin HtyR	100	102	P/P	40 - 150
2410613	Microcystin LA	114	114	P/P	40 - 150
2410613	Microcystin LF	107	105	P/P	40 - 150
2410613	Microcystin LR	107	97.8	P/P	40 - 150
2410613	Microcystin LW	93.5	101	P/P	40 - 150
2410613	Microcystin LY	96.2	105	P/P	40 - 150
2410613	Microcystin RR	106	104	P/P	40 - 150
2410613	Microcystin WR	104	99.8	P/P	40 - 150
2410613	Microcystin YR	96.9	111	P/P	40 - 150
2410613	Nodularin-R	99.4	98.0	P/P	40 - 150

Reference Method: EPA 8321B

Batch ID: P430015

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2410613	Anatoxin-a	85.5	84.1	P/P	40 - 150
2410613	Neosaxitoxin	58.3	58.2	P/P	40 - 150
2410613	Saxitoxin	67.6	67.4	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P430337

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2410310	Ammonia-N	0.822	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P430411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2410748	Ammonia-N	0.485	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P430239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2410818	Kjeldahl Nitrogen	11.3	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P430389

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2411988	Kjeldahl Nitrogen	2.65	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430296

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2410529	NO2NO3-N	0.496	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430629

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2410751	NO2NO3-N	0.766	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P430731

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2411718	NO2NO3-N	0.187	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P430172

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2410752	Total-P	2.21	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P430216

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2411706	Total-P	1.95	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P430063

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2410619	O-Phosphate-P	1.11	Spike	P	0 - 20

Reference Method: EPA 8321B

Batch ID: P430014

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2410613	Cylindrospermopsin	1.10	Spike	P	0 - 30
2410613	Desmethyl microcystin LR	6.25	Spike	P	0 - 30
2410613	Microcystin HiiR	8.05	Spike	P	0 - 30
2410613	Microcystin HtyR	2.06	Spike	P	0 - 30
2410613	Microcystin LA	0.441	Spike	P	0 - 30
2410613	Microcystin LF	2.17	Spike	P	0 - 30
2410613	Microcystin LR	8.53	Spike	P	0 - 30
2410613	Microcystin LW	8.03	Spike	P	0 - 30
2410613	Microcystin LY	8.40	Spike	P	0 - 30
2410613	Microcystin RR	2.19	Spike	P	0 - 30
2410613	Microcystin WR	4.51	Spike	P	0 - 30
2410613	Microcystin YR	13.1	Spike	P	0 - 30
2410613	Nodularin-R	1.37	Spike	P	0 - 30

Reference Method: EPA 8321B

Batch ID: P430015

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2410613	Anatoxin-a	1.74	Spike	P	0 - 30
2410613	Neosaxitoxin	0.160	Spike	P	0 - 30
2410613	Saxitoxin	0.320	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2410791
Field Sample ID: Hab-sd-051723-0905

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	125	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	65.8	P	30 - 160

Lab Sample ID: 2410792
Field Sample ID: Hab-sd-051723-0940

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	137	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	67.4	P	30 - 160

Lab Sample ID: 2410816
Field Sample ID: Hab-sd-051723-0822

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	136	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	61.0	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A119232

Included Lab Sample IDs: 2410791, 2410792, 2410816

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	90.9	90.0	P/P	50 - 160
Cylindrospermopsin	108	105	P/P	50 - 160
Desmethyl microcystin LR	108	109	P/P	50 - 160
Microcystin H1R	101	98.9	P/P	50 - 160
Microcystin HtyR	94.8	99.3	P/P	50 - 160
Microcystin LA	120	118	P/P	50 - 160
Microcystin LF	112	109	P/P	50 - 160
Microcystin LR	98.4	105	P/P	50 - 160
Microcystin LW	92.7	108	P/P	50 - 160
Microcystin LY	118	101	P/P	50 - 160
Microcystin RR	105	108	P/P	50 - 160
Microcystin WR	97.2	99.4	P/P	50 - 160
Microcystin YR	97.1	101	P/P	50 - 160
Neosaxitoxin	77.9	75.9	P/P	50 - 160
Nodularin-R	104	105	P/P	50 - 160
Saxitoxin	82.0	83.0	P/P	50 - 160

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A119255

Included Lab Sample IDs: 2410795, 2410796, 2410819

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.4	98.4	P/P	90 - 110
O-Phosphate-P	99.4	99.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A119364

Included Lab Sample IDs: 2410793

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	97.0	95.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A119373

Included Lab Sample IDs: 2410793

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A119381

Included Lab Sample IDs: 2410793

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A119387

Included Lab Sample IDs: 2410794

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: A119387

Included Lab Sample IDs: 2410794

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.4	95.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A119408

Included Lab Sample IDs: 2410794, 2410818

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A119430

Included Lab Sample IDs: 2410793, 2410818

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.1	97.9	P/P	90 - 110
Kjeldahl Nitrogen	95.6	91.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A119481

Included Lab Sample IDs: 2410818

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A119487

Included Lab Sample IDs: 2410794, 2410818

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	101	P/P	90 - 110
Total-P	99.2	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A119541

Included Lab Sample IDs: 2410794

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	104	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	
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	99.6	98.6			0.822
	Ammonia-N	98.0	97.6	98.2			0.485
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100					11.3
	Kjeldahl Nitrogen	99.9	94.9	92.3			2.65
EPA 353.2 Rev. 2.0	NO2NO3-N	96.0	101	100			0.496
	NO2NO3-N	105	105	104			0.766
	NO2NO3-N	104	96.0				0.187
EPA 365.1 Rev. 2.0	Total-P	102	103	101			2.21
	Total-P	98.6	94.9	97.4			1.95
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	98.4	99.5			1.11
EPA 8321B	Anatoxin-a	80.7	85.5	84.1			1.74
	Cylindrospermopsin	108	106	105			1.10
	Desmethyl microcystin LR	103	105	112			6.25
	Microcystin HiLR	103	101	110			8.05
	Microcystin HtyR	103	100	102			2.06
	Microcystin LA	121	114	114			0.441
	Microcystin LF	108	107	105			2.17
	Microcystin LR	101	107	97.8			8.53
	Microcystin LW	117	93.5	101			8.03
	Microcystin LY	113	96.2	105			8.40
	Microcystin RR	103	106	104			2.19
	Microcystin WR	91.7	104	99.8			4.51
	Microcystin YR	94.1	96.9	111			13.1
	Neosaxitoxin	68.1	58.3	58.2			0.160
	Nodularin-R	99.2	99.4	98.0			1.37
	Saxitoxin	68.4	67.6	67.4			0.320

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2410793, 2410794, 2410818
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2410793, 2410794, 2410818
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2410793, 2410794, 2410818
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2410793, 2410794, 2410818
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2410795, 2410796, 2410819
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2410791, 2410792, 2410816
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2410791, 2410792, 2410816

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 350.1 Rev. 2.0	05/18/2023			05/24/2023 13:12	Khloe J Berg	2410793
	05/18/2023			05/25/2023 12:16	Khloe J Berg	2410794
	05/18/2023			05/25/2023 12:18	Khloe J Berg	2410818
EPA 351.2 Rev. 2.0	05/18/2023	05/23/2023 11:55	Dana G. Hughes	05/24/2023 14:43	Samantha L Bates	2410794
	05/18/2023	05/23/2023 11:55	Dana G. Hughes	05/26/2023 08:34	Samantha L Bates	2410818
	05/18/2023	05/25/2023 11:53	Dana G. Hughes	05/26/2023 09:19	Samantha L Bates	2410793
EPA 353.2 Rev. 2.0	05/18/2023			05/24/2023 10:06	Beverly Y. Sanders	2410793
	05/18/2023			05/31/2023 10:47	Beverly Y. Sanders	2410818
	05/18/2023			06/02/2023 09:53	Beverly Y. Sanders	2410794
EPA 365.1 Rev. 2.0	05/18/2023	05/23/2023 14:40	Simonne.V. Calhoun	05/24/2023 11:03	Simonne.V. Calhoun	2410793
	05/18/2023	05/26/2023 09:45	Adam P Silver	05/31/2023 12:26	Chandler E Cox	2410818
	05/18/2023	05/26/2023 09:45	Adam P Silver	05/31/2023 13:12	Chandler E Cox	2410794
EPA 365.1 Rev. 2.0 dissolved	05/18/2023			05/18/2023 14:36	Elise M. Gillis	2410819
	05/18/2023			05/18/2023 14:38	Elise M. Gillis	2410795
	05/18/2023			05/18/2023 14:44	Elise M. Gillis	2410796
EPA 8321B	05/18/2023	05/18/2023 13:00	Manjita Shrestha	05/18/2023 20:03	Manjita Shrestha	2410791
	05/18/2023	05/18/2023 13:00	Manjita Shrestha	05/18/2023 20:20	Manjita Shrestha	2410792
	05/18/2023	05/18/2023 13:00	Manjita Shrestha	05/18/2023 20:37	Manjita Shrestha	2410816
	05/18/2023	05/18/2023 13:00	Manjita Shrestha	05/19/2023 04:25	Manjita Shrestha	2410791
	05/18/2023	05/18/2023 13:00	Manjita Shrestha	05/19/2023 04:39	Manjita Shrestha	2410792
	05/18/2023	05/18/2023 13:00	Manjita Shrestha	05/19/2023 04:53	Manjita Shrestha	2410816