

Chemical Analysis Report

SO-DIST-2023-09-07-01

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

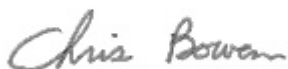
Event Description: **Algal Bloom Response -SOROC**
Request ID: **RQ-2023-08-07-55**
Customer: **SO-DIST**
Project ID: **BLOOM-RESP**

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.
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Phone (850) 245-8085

Certified by: Chris Bowen, Environmental Administrator

Date Certified: 29-SEP-2023 12:13



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-End of Coon Rd

Collection Date/Time: 09/05/2023 10:35

Field ID: HAB-SD-090523-1035

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2434955	DEP SOP: NU-094-1	Color (true)	180	Q	PCU	P434664	
2434958	EPA 350.1 Rev. 2.0	Ammonia-N	0.040		mg N/L	P434846	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P435370	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.30		mg N/L	P435086	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P434716	
2434961	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13	Q	mg P/L	P434675	
2434964	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P434600	
		Cylindrospermopsin	0.10	U	ug/L	P434599	
		Desmethyl microcystin LR	0.25	U	ug/L	P434599	
		Microcystin HilR	0.25	U	ug/L	P434599	
		Microcystin HtyR	0.25	U	ug/L	P434599	
		Microcystin LA	0.10	U	ug/L	P434599	
		Microcystin LF	0.10	U	ug/L	P434599	
		Microcystin LR	0.25	U	ug/L	P434599	
		Microcystin LW	0.25	U	ug/L	P434599	
		Microcystin LY	0.10	U	ug/L	P434599	
		Microcystin RR	0.10	U	ug/L	P434599	
		Microcystin WR	0.50	U	ug/L	P434599	
		Neosaxitoxin	0.50	U	ug/L	P434600	
		Microcystin YR	0.25	U	ug/L	P434599	
		Saxitoxin	0.50	U	ug/L	P434600	
		Nodularin-R	0.10	U	ug/L	P434599	

Ref. Method and Comment:

DEP SOP: NU-094-1: The sample expired upon receipt.

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

Sample Location: Caloosahatchee River-Fort Myers Shores

Collection Date/Time: 09/05/2023 11:10

Field ID: HAB-SD-090523-1110

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2434956	DEP SOP: NU-094-1	Color (true)	200		PCU	P434664	
2434959	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P434846	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P435370	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.40		mg N/L	P435086	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P434716	
2434962	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12	Q	mg P/L	P434675	
2434965	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P434600	
		Cylindrospermopsin	0.10	U	ug/L	P434599	
		Desmethyl microcystin LR	0.25	U	ug/L	P434599	
		Microcystin HiLR	0.25	U	ug/L	P434599	
		Microcystin HtyR	0.25	U	ug/L	P434599	
		Microcystin LA	0.10	U	ug/L	P434599	
		Microcystin LF	0.10	U	ug/L	P434599	
		Microcystin LR	0.25	U	ug/L	P434599	
		Microcystin LW	0.25	U	ug/L	P434599	
		Microcystin LY	0.10	U	ug/L	P434599	
		Microcystin RR	0.10	U	ug/L	P434599	
		Microcystin WR	0.50	U	ug/L	P434599	
		Neosaxitoxin	0.50	U	ug/L	P434600	
		Microcystin YR	0.25	U	ug/L	P434599	
		Saxitoxin	0.50	U	ug/L	P434600	
		Nodularin-R	0.10	U	ug/L	P434599	

Ref. Method and Comment:

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

Sample Location: Caloosahatchee River-N of Loftons Island

Collection Date/Time: 09/05/2023 10:10

Field ID: HAB-SD-090523-1010

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2434957	DEP SOP: NU-094-1	Color (true)	140	Q	PCU	P434664	
2434960	EPA 350.1 Rev. 2.0	Ammonia-N	0.031		mg N/L	P434846	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P435425	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.19		mg N/L	P435086	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P434895	
2434963	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12	Q	mg P/L	P434675	
2434966	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P434600	
		Cylindrospermopsin	0.10	U	ug/L	P434599	
		Desmethyl microcystin LR	0.25	U	ug/L	P434599	
		Microcystin HilR	0.25	U	ug/L	P434599	
		Microcystin HtyR	0.25	U	ug/L	P434599	
		Microcystin LA	0.10	U	ug/L	P434599	
		Microcystin LF	0.10	U	ug/L	P434599	
		Microcystin LR	0.25	U	ug/L	P434599	
		Microcystin LW	0.25	U	ug/L	P434599	
		Microcystin LY	0.10	U	ug/L	P434599	
		Microcystin RR	0.10	U	ug/L	P434599	
		Microcystin WR	0.50	U	ug/L	P434599	
		Neosaxitoxin	0.50	U	ug/L	P434600	
		Microcystin YR	0.25	U	ug/L	P434599	
		Saxitoxin	0.50	U	ug/L	P434600	
		Nodularin-R	0.10	U	ug/L	P434599	

Ref. Method and Comment:

DEP SOP: NU-094-1: The sample expired upon receipt.

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

Non-Conformance Report

NCR ID: 10057

Event(s)

SO-DIST-2023-09-07-01

Job(s)

Sample(s)

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.

Authorized by/Date: Kerry Tate, Ph.D. 9/11/2023

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: P434664

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P434846

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435370

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435425

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P435086

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434716

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434895

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P434675

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

Reference Method: EPA 8321B
Batch ID: P434599

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: P434599

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: P434600

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: P434664

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P434846

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435370

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435425

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: P435086

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: P434716

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434895

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P434675

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

Reference Method: EPA 8321B
Batch ID: P434599

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	101		P	40 - 160
Desmethyl microcystin LR	109		P	40 - 160
Microcystin HILR	102		P	40 - 160
Microcystin HtyR	101		P	40 - 160

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B

Batch ID: P434599

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Microcystin LA	100		P	40 - 160
Microcystin LF	106		P	40 - 160
Microcystin LR	95.1		P	40 - 160
Microcystin LW	92.4		P	40 - 160
Microcystin LY	89.6		P	40 - 160
Microcystin RR	101		P	40 - 160
Microcystin WR	105		P	40 - 160
Microcystin YR	97.2		P	40 - 160
Nodularin-R	100		P	40 - 160

Reference Method: EPA 8321B

Batch ID: P434600

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	94.6		P	40 - 150
Neosaxitoxin	90.3		P	40 - 150
Saxitoxin	88.5		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P434846

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2434876	Ammonia-N	97.2	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435370

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2434876	Kjeldahl Nitrogen	96.5	98.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435425

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2435075	Kjeldahl Nitrogen	109	107	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P435086

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2434515	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434716

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2434982	Total-P	108	110	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434895

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2434784	Total-P	109	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P434675

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2435058	O-Phosphate-P	98.7	101	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P434599

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2434439	Cylindrospermopsin	85.1	106	P/P	40 - 160
2434439	Desmethyl microcystin LR	109	110	P/P	40 - 160
2434439	Microcystin HiLR	94.8	103	P/P	40 - 160
2434439	Microcystin HtyR	98.4	105	P/P	40 - 160
2434439	Microcystin LA	92.5	95.3	P/P	40 - 160
2434439	Microcystin LF	108	115	P/P	40 - 160
2434439	Microcystin LR	103	107	P/P	40 - 160
2434439	Microcystin LW	93.6	95.9	P/P	40 - 160
2434439	Microcystin LY	85.4	101	P/P	40 - 160
2434439	Microcystin RR	98.5	108	P/P	40 - 160

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P434599

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2434439	Microcystin WR	101	96.9	P/P	40 - 160
2434439	Microcystin YR	99.3	105	P/P	40 - 160
2434439	Nodularin-R	102	111	P/P	40 - 160

Reference Method: EPA 8321B
Batch ID: P434600

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2434439	Anatoxin-a	87.6	94.9	P/P	40 - 150
2434439	Neosaxitoxin	72.7	78.1	P/P	40 - 150
2434439	Saxitoxin	74.3	81.1	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P434664

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2434981	Color (true)	3.60	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P434846

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2434876	Ammonia-N	1.69	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435370

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2434876	Kjeldahl Nitrogen	1.32	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435425

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2435075	Kjeldahl Nitrogen	1.49	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P435086

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2434515	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434716

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2434982	Total-P	1.44	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P434895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2434784	Total-P	1.38	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P434675

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2435058	O-Phosphate-P	1.91	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P434599

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2434439	Cylindrospermopsin	21.7	Spike	P	0 - 30
2434439	Desmethyl microcystin LR	1.08	Spike	P	0 - 30
2434439	Microcystin HilR	8.14	Spike	P	0 - 30
2434439	Microcystin HtyR	6.13	Spike	P	0 - 30
2434439	Microcystin LA	3.08	Spike	P	0 - 30
2434439	Microcystin LF	5.90	Spike	P	0 - 30
2434439	Microcystin LR	4.56	Spike	P	0 - 30
2434439	Microcystin LW	2.42	Spike	P	0 - 30
2434439	Microcystin LY	16.3	Spike	P	0 - 30
2434439	Microcystin RR	9.11	Spike	P	0 - 30
2434439	Microcystin WR	4.45	Spike	P	0 - 30
2434439	Microcystin YR	5.41	Spike	P	0 - 30
2434439	Nodularin-R	8.43	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P434600

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2434439	Anatoxin-a	8.00	Spike	P	0 - 30
2434439	Neosaxitoxin	7.12	Spike	P	0 - 30
2434439	Saxitoxin	8.83	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2434964
Field Sample ID: HAB-SD-090523-1035

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	89.7	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	81.9	P	30 - 160

Lab Sample ID: 2434965
Field Sample ID: HAB-SD-090523-1110

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	87.0	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	93.4	P	30 - 160

Lab Sample ID: 2434966
Field Sample ID: HAB-SD-090523-1010

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	82.5	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	87.4	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: DEP SOP: NU-094-1

Run ID: A121394

Included Lab Sample IDs: 2434955, 2434956, 2434957

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.7	100	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A121403

Included Lab Sample IDs: 2434964, 2434965, 2434966

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	106	107	P/P	60 - 160
Desmethyl microcystin LR	109	93.0	P/P	50 - 160
Microcystin HtR	95.0	94.4	P/P	60 - 160
Microcystin HtyR	100	94.3	P/P	60 - 160
Microcystin LA	97.4	98.8	P/P	50 - 160
Microcystin LF	101	93.8	P/P	60 - 160
Microcystin LR	95.1	90.2	P/P	60 - 160
Microcystin LW	85.1	80.1	P/P	60 - 160
Microcystin LY	95.4	86.4	P/P	60 - 160
Microcystin RR	105	93.0	P/P	60 - 160
Microcystin WR	100	102	P/P	60 - 160
Microcystin YR	92.5	86.8	P/P	60 - 160
Nodularin-R	105	96.8	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A121406

Included Lab Sample IDs: 2434961, 2434962, 2434963

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.5	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A121410

Included Lab Sample IDs: 2434964, 2434965, 2434966

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	90.9	99.6	P/P	50 - 160
Neosaxitoxin	101	105	P/P	50 - 160
Saxitoxin	102	109	P/P	50 - 160

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A121453

Included Lab Sample IDs: 2434958, 2434959

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A121468

Included Lab Sample IDs: 2434958, 2434959, 2434960

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.6	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A121533

Included Lab Sample IDs: 2434960

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A121570

Included Lab Sample IDs: 2434958, 2434959, 2434960

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	96.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A121763

Included Lab Sample IDs: 2434958, 2434959, 2434960

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.0	100	P/P	90 - 110
Kjeldahl Nitrogen	98.3	96.0	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)	98.1				3.60	
EPA 350.1 Rev. 2.0	Ammonia-N	95.2	97.2	99.2			1.69
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	96.5	98.3			1.32
	Kjeldahl Nitrogen	97.6	109	107			1.49
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	100	100			0.0
EPA 365.1 Rev. 2.0	Total-P	107	108	110			1.44
	Total-P	106	109	108			1.38
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	98.7	101			1.91
EPA 8321B	Anatoxin-a	94.6	87.6	94.9			8.00
	Cylindrospermopsin	101	85.1	106			21.7
	Desmethyl microcystin LR	109	109	110			1.08
	Microcystin HiLR	102	94.8	103			8.14
	Microcystin HtyR	101	98.4	105			6.13
	Microcystin LA	100	92.5	95.3			3.08
	Microcystin LF	106	108	115			5.90
	Microcystin LR	95.1	103	107			4.56
	Microcystin LW	92.4	93.6	95.9			2.42
	Microcystin LY	89.6	85.4	101			16.3
	Microcystin RR	101	98.5	108			9.11
	Microcystin WR	105	101	96.9			4.45
	Microcystin YR	97.2	99.3	105			5.41
	Neosaxitoxin	90.3	72.7	78.1			7.12
	Nodularin-R	100	102	111			8.43
	Saxitoxin	88.5	74.3	81.1			8.83

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2434955, 2434956, 2434957
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2434958, 2434959, 2434960
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2434958, 2434959, 2434960
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2434958, 2434959, 2434960
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2434958, 2434959, 2434960
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2434961, 2434962, 2434963
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2434964, 2434965, 2434966
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2434964, 2434965, 2434966

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	09/07/2023			09/07/2023 10:52	Samantha L Bates	2434956
	09/07/2023			09/07/2023 10:53	Samantha L Bates	2434955, 2434957
EPA 350.1 Rev. 2.0	09/07/2023			09/11/2023 15:01	Ping Hua	2434958
	09/07/2023			09/11/2023 15:02	Ping Hua	2434959
	09/07/2023			09/11/2023 15:03	Ping Hua	2434960
EPA 351.2 Rev. 2.0	09/07/2023	09/22/2023 15:23	Simonne.V. Calhoun	09/26/2023 10:37	Samantha L Bates	2434958
	09/07/2023	09/22/2023 15:23	Simonne.V. Calhoun	09/26/2023 10:42	Samantha L Bates	2434959
	09/07/2023	09/25/2023 12:47	Simonne.V. Calhoun	09/26/2023 10:50	Samantha L Bates	2434960
EPA 353.2 Rev. 2.0	09/07/2023			09/13/2023 14:26	Anna M. Plaviak	2434958
	09/07/2023			09/13/2023 14:27	Anna M. Plaviak	2434959
	09/07/2023			09/13/2023 14:28	Anna M. Plaviak	2434960
EPA 365.1 Rev. 2.0	09/07/2023	09/08/2023 15:16	Adam P Silver	09/11/2023 13:40	Chandler E Cox	2434958
	09/07/2023	09/08/2023 15:16	Adam P Silver	09/11/2023 13:41	Chandler E Cox	2434959
	09/07/2023	09/13/2023 18:31	Adam P Silver	09/14/2023 10:48	James L Waggeberby	2434960
EPA 365.1 Rev. 2.0 dissolved	09/07/2023			09/07/2023 12:27	Elise M. Gillis	2434961
	09/07/2023			09/07/2023 12:28	Elise M. Gillis	2434962
	09/07/2023			09/07/2023 12:29	Elise M. Gillis	2434963
EPA 8321B	09/07/2023	09/07/2023 12:00	Tae K Lee	09/07/2023 15:32	Hana Lee	2434964
	09/07/2023	09/07/2023 12:00	Tae K Lee	09/07/2023 15:33	Hana Lee	2434964
	09/07/2023	09/07/2023 12:00	Tae K Lee	09/07/2023 15:47	Hana Lee	2434965
	09/07/2023	09/07/2023 12:00	Tae K Lee	09/07/2023 15:48	Hana Lee	2434965
	09/07/2023	09/07/2023 12:00	Tae K Lee	09/07/2023 16:00	Hana Lee	2434966
	09/07/2023	09/07/2023 12:00	Tae K Lee	09/07/2023 16:03	Hana Lee	2434966