

Chemical Analysis Report

SE-DIST-2024-05-08-01

Florida DEP Laboratory
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DOH Accreditation E31780

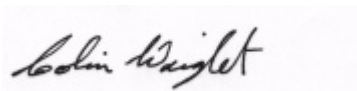
Event Description: **Algal Bloom Response - SE ROC**
Request ID: **RQ-2024-04-22-56**
Customer: **SE-DIST**
Project ID: **BLOOM-RESP**

Send Reports to:
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Certified by: Colin Wright, Program Administrator

Date Certified: 22-MAY-2024 11:03



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 group are included in this report: 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 ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2487640	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P445393	
		Cylindrospermopsin	0.10	U	ug/L	P445392	
		Desmethyl microcystin LR	0.25	U	ug/L	P445392	
		Microcystin H11R	0.25	U	ug/L	P445392	
		Microcystin HtyR	0.25	U	ug/L	P445392	
		Microcystin LA	0.10	U	ug/L	P445392	
		Microcystin LF	0.10	U	ug/L	P445392	
		Microcystin LR	0.25	U	ug/L	P445392	
		Microcystin LW	0.25	U	ug/L	P445392	
		Microcystin LY	0.10	U	ug/L	P445392	
		Microcystin RR	0.10	U	ug/L	P445392	
		Microcystin WR	0.50	U	ug/L	P445392	
		Neosaxitoxin	0.50	U	ug/L	P445393	
		Microcystin YR	0.25	U	ug/L	P445392	
		Saxitoxin	0.50	U	ug/L	P445393	
Nodularin-R	0.10	U	ug/L	P445392			

Sample Location: St Lucie Canal - 96th Street Bridge

Collection Date/Time: 05/07/2024 09:55

Field ID: SEHAB0111

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2487637	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P445393	
		Cylindrospermopsin	0.10	U	ug/L	P445392	
		Desmethyl microcystin LR	0.25	U	ug/L	P445392	
		Microcystin HlIR	0.25	U	ug/L	P445392	
		Microcystin HtyR	0.25	U	ug/L	P445392	
		Microcystin LA	0.10	U	ug/L	P445392	
		Microcystin LF	0.10	U	ug/L	P445392	
		Microcystin LR	0.25	U	ug/L	P445392	
		Microcystin LW	0.25	U	ug/L	P445392	
		Microcystin LY	0.10	U	ug/L	P445392	
		Microcystin RR	0.10	U	ug/L	P445392	
		Microcystin WR	0.50	U	ug/L	P445392	
		Neosaxitoxin	0.50	U	ug/L	P445393	
		Microcystin YR	0.25	U	ug/L	P445392	
		Saxitoxin	0.50	U	ug/L	P445393	
		Nodularin-R	0.10	U	ug/L	P445392	

Sample Location: St. Lucie River - Palm City Bridge

Collection Date/Time: 05/07/2024 13:10

Field ID: SEHAB0113

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2487639	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P445393	
		Cylindrospermopsin	0.10	U	ug/L	P445392	
		Desmethyl microcystin LR	0.25	U	ug/L	P445392	
		Microcystin HlIR	0.25	U	ug/L	P445392	
		Microcystin HtyR	0.25	U	ug/L	P445392	
		Microcystin LA	0.10	U	ug/L	P445392	
		Microcystin LF	0.10	U	ug/L	P445392	
		Microcystin LR	0.25	U	ug/L	P445392	
		Microcystin LW	0.25	U	ug/L	P445392	
		Microcystin LY	0.10	U	ug/L	P445392	
		Microcystin RR	0.10	U	ug/L	P445392	
		Microcystin WR	0.50	U	ug/L	P445392	
		Neosaxitoxin	0.50	U	ug/L	P445393	
		Microcystin YR	0.25	U	ug/L	P445392	
		Saxitoxin	0.50	U	ug/L	P445393	
		Nodularin-R	0.10	U	ug/L	P445392	

Sample Location: Lake Okeechobee - S308C (lakeside)

Collection Date/Time: 05/07/2024 09:10

Field ID: SEHAB0062

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2487635	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P445393	
		Cylindrospermopsin	0.10	U	ug/L	P445392	
		Desmethyl microcystin LR	0.25	U	ug/L	P445392	
		Microcystin HILR	0.25	U	ug/L	P445392	
		Microcystin HtyR	0.25	U	ug/L	P445392	
		Microcystin LA	0.10	U	ug/L	P445392	
		Microcystin LF	0.10	U	ug/L	P445392	
		Microcystin LR	0.25	U	ug/L	P445392	
		Microcystin LW	0.25	U	ug/L	P445392	
		Microcystin LY	0.10	U	ug/L	P445392	
		Microcystin RR	0.10	U	ug/L	P445392	
		Microcystin WR	0.50	U	ug/L	P445392	
		Neosaxitoxin	0.50	U	ug/L	P445393	
		Microcystin YR	0.25	U	ug/L	P445392	
		Saxitoxin	0.50	U	ug/L	P445393	
		Nodularin-R	0.10	U	ug/L	P445392	

Sample Location: St. Lucie River - at Four Rivers

Collection Date/Time: 05/07/2024 12:15

Field ID: SEHAB0112

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2487638	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P445393	
		Cylindrospermopsin	0.10	U	ug/L	P445392	
		Desmethyl microcystin LR	0.25	U	ug/L	P445392	
		Microcystin HlIR	0.25	U	ug/L	P445392	
		Microcystin HtyR	0.25	U	ug/L	P445392	
		Microcystin LA	0.10	U	ug/L	P445392	
		Microcystin LF	0.10	U	ug/L	P445392	
		Microcystin LR	0.25	U	ug/L	P445392	
		Microcystin LW	0.25	U	ug/L	P445392	
		Microcystin LY	0.10	U	ug/L	P445392	
		Microcystin RR	0.10	U	ug/L	P445392	
		Microcystin WR	0.50	U	ug/L	P445392	
		Neosaxitoxin	0.50	U	ug/L	P445393	
		Microcystin YR	0.25	U	ug/L	P445392	
		Saxitoxin	0.50	U	ug/L	P445393	
		Nodularin-R	0.10	U	ug/L	P445392	

Sample Location: C44 Canal - S308C (canal side)

Collection Date/Time: 05/07/2024 09:00

Field ID: SEHAB0063

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2487636	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P445393	
		Cylindrospermopsin	0.10	U	ug/L	P445392	
		Desmethyl microcystin LR	0.25	U	ug/L	P445392	
		Microcystin HlR	0.25	U	ug/L	P445392	
		Microcystin HtyR	0.25	U	ug/L	P445392	
		Microcystin LA	0.10	U	ug/L	P445392	
		Microcystin LF	0.10	U	ug/L	P445392	
		Microcystin LR	0.25	U	ug/L	P445392	
		Microcystin LW	0.25	U	ug/L	P445392	
		Microcystin LY	0.10	U	ug/L	P445392	
		Microcystin RR	0.10	U	ug/L	P445392	
		Microcystin WR	0.50	U	ug/L	P445392	
		Neosaxitoxin	0.50	U	ug/L	P445393	
		Microcystin YR	0.25	U	ug/L	P445392	
		Saxitoxin	0.50	U	ug/L	P445393	
		Nodularin-R	0.10	U	ug/L	P445392	

Sample Location: St. Lucie Canal - Army Corps Campground

Collection Date/Time: 05/07/2024 10:45

Field ID: SEHAB0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2487641	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P445393	
		Cylindrospermopsin	0.10	U	ug/L	P445392	
		Desmethyl microcystin LR	0.25	U	ug/L	P445392	
		Microcystin HlIR	0.25	U	ug/L	P445392	
		Microcystin HtyR	0.25	U	ug/L	P445392	
		Microcystin LA	0.10	U	ug/L	P445392	
		Microcystin LF	0.10	U	ug/L	P445392	
		Microcystin LR	0.25	U	ug/L	P445392	
		Microcystin LW	0.25	U	ug/L	P445392	
		Microcystin LY	0.10	U	ug/L	P445392	
		Microcystin RR	0.10	U	ug/L	P445392	
		Microcystin WR	0.50	U	ug/L	P445392	
		Neosaxitoxin	0.50	U	ug/L	P445393	
		Microcystin YR	0.25	U	ug/L	P445392	
		Saxitoxin	0.50	U	ug/L	P445393	
		Nodularin-R	0.10	U	ug/L	P445392	

Sample Location: St. Lucie Rivr - Harborage

Collection Date/Time: 05/07/2024 13:25

Field ID: FB_05072024

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2487822	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P445405	
		Cylindrospermopsin	0.10	U	ug/L	P445404	
		Desmethyl microcystin LR	0.25	U	ug/L	P445404	
		Microcystin HllR	0.25	U	ug/L	P445404	
		Microcystin HtyR	0.25	U	ug/L	P445404	
		Microcystin LA	0.10	U	ug/L	P445404	
		Microcystin LF	0.10	U	ug/L	P445404	
		Microcystin LR	0.25	U	ug/L	P445404	
		Microcystin LW	0.25	U	ug/L	P445404	
		Microcystin LY	0.10	U	ug/L	P445404	
		Microcystin RR	0.10	U	ug/L	P445404	
		Microcystin WR	0.50	U	ug/L	P445404	
		Neosaxitoxin	0.50	U	ug/L	P445405	
		Microcystin YR	0.25	U	ug/L	P445404	
		Saxitoxin	0.50	U	ug/L	P445405	
		Nodularin-R	0.10	U	ug/L	P445404	

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P445392

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
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: P445393

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

Reference Method: EPA 8321B

Batch ID: P445404

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
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: P445405

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 8321B

Batch ID: P445392

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	82.3		P	40 - 160
Desmethyl microcystin LR	89.2		P	40 - 160
Microcystin HilR	89.5		P	40 - 160
Microcystin HtyR	95.9		P	40 - 160
Microcystin LA	90.2		P	40 - 160
Microcystin LF	94.9		P	40 - 160
Microcystin LR	98.3		P	40 - 160
Microcystin LW	99.2		P	40 - 160
Microcystin LY	97.1		P	40 - 160
Microcystin RR	94.6		P	40 - 160
Microcystin WR	96.3		P	40 - 160
Microcystin YR	104		P	40 - 160
Nodularin-R	94.5		P	40 - 160

Reference Method: EPA 8321B

Batch ID: P445393

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	116		P	40 - 150
Neosaxitoxin	84.0		P	40 - 150
Saxitoxin	90.8		P	40 - 150

Reference Method: EPA 8321B

Batch ID: P445404

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	83.4		P	40 - 160
Desmethyl microcystin LR	95.6		P	40 - 160
Microcystin HilR	95.7		P	40 - 160
Microcystin HtyR	98.4		P	40 - 160
Microcystin LA	96.9		P	40 - 160
Microcystin LF	111		P	40 - 160
Microcystin LR	98.5		P	40 - 160
Microcystin LW	111		P	40 - 160
Microcystin LY	117		P	40 - 160
Microcystin RR	101		P	40 - 160
Microcystin WR	106		P	40 - 160
Microcystin YR	110		P	40 - 160
Nodularin-R	96.5		P	40 - 160

Reference Method: EPA 8321B

Batch ID: P445405

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	107		P	40 - 150
Neosaxitoxin	79.5		P	40 - 150
Saxitoxin	89.3		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P445392

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2487582	Cylindrospermopsin	82.4	71.9	P/P	40 - 160
2487582	Desmethyl microcystin LR	91.6	80.9	P/P	40 - 160
2487582	Microcystin HilR	94.6	81.5	P/P	40 - 160
2487582	Microcystin HtyR	93.1	81.7	P/P	40 - 160
2487582	Microcystin LA	92.2	79.3	P/P	40 - 160
2487582	Microcystin LF	98.7	94.6	P/P	40 - 160
2487582	Microcystin LR	96.9	83.3	P/P	40 - 160
2487582	Microcystin LW	98.5	91.6	P/P	40 - 160
2487582	Microcystin LY	91.4	82.5	P/P	40 - 160
2487582	Microcystin RR	98.7	86.4	P/P	40 - 160
2487582	Microcystin WR	97.8	85.6	P/P	40 - 160
2487582	Microcystin YR	105	93.1	P/P	40 - 160
2487582	Nodularin-R	99.0	87.3	P/P	40 - 160

Reference Method: EPA 8321B
Batch ID: P445393

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2487582	Anatoxin-a	115	99.1	P/P	40 - 150
2487582	Neosaxitoxin	53.3	45.7	P/P	40 - 150
2487582	Saxitoxin	66.3	57.6	P/P	40 - 150

Reference Method: EPA 8321B
Batch ID: P445404

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2487719	Cylindrospermopsin	83.7	77.5	P/P	40 - 160
2487719	Desmethyl microcystin LR	94.6	86.1	P/P	40 - 160
2487719	Microcystin HilR	97.8	91.7	P/P	40 - 160
2487719	Microcystin HtyR	103	92.8	P/P	40 - 160
2487719	Microcystin LA	96.2	87.8	P/P	40 - 160
2487719	Microcystin LF	118	104	P/P	40 - 160
2487719	Microcystin LR	99.1	93.3	P/P	40 - 160
2487719	Microcystin LW	113	110	P/P	40 - 160
2487719	Microcystin LY	116	106	P/P	40 - 160
2487719	Microcystin RR	108	94.7	P/P	40 - 160
2487719	Microcystin WR	103	92.9	P/P	40 - 160
2487719	Microcystin YR	112	102	P/P	40 - 160
2487719	Nodularin-R	108	94.5	P/P	40 - 160

Reference Method: EPA 8321B
Batch ID: P445405

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2487719	Anatoxin-a	109	99.7	P/P	40 - 150
2487719	Neosaxitoxin	53.0	46.3	P/P	40 - 150
2487719	Saxitoxin	67.9	61.1	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P445392

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487582	Cylindrospermopsin	13.5	Spike	P	0 - 30
2487582	Desmethyl microcystin LR	12.4	Spike	P	0 - 30
2487582	Microcystin HilR	14.9	Spike	P	0 - 30
2487582	Microcystin HtyR	13.1	Spike	P	0 - 30
2487582	Microcystin LA	15.1	Spike	P	0 - 30
2487582	Microcystin LF	4.29	Spike	P	0 - 30
2487582	Microcystin LR	15.0	Spike	P	0 - 30
2487582	Microcystin LW	7.28	Spike	P	0 - 30
2487582	Microcystin LY	10.2	Spike	P	0 - 30
2487582	Microcystin RR	13.3	Spike	P	0 - 30
2487582	Microcystin WR	13.3	Spike	P	0 - 30
2487582	Microcystin YR	11.9	Spike	P	0 - 30
2487582	Nodularin-R	12.5	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P445393

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487582	Anatoxin-a	15.2	Spike	P	0 - 30
2487582	Neosaxitoxin	15.3	Spike	P	0 - 30
2487582	Saxitoxin	14.0	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P445404

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487719	Cylindrospermopsin	7.65	Spike	P	0 - 30
2487719	Desmethyl microcystin LR	9.36	Spike	P	0 - 30
2487719	Microcystin HilR	6.48	Spike	P	0 - 30
2487719	Microcystin HtyR	10.5	Spike	P	0 - 30
2487719	Microcystin LA	9.17	Spike	P	0 - 30
2487719	Microcystin LF	11.9	Spike	P	0 - 30
2487719	Microcystin LR	5.96	Spike	P	0 - 30
2487719	Microcystin LW	3.47	Spike	P	0 - 30
2487719	Microcystin LY	8.50	Spike	P	0 - 30
2487719	Microcystin RR	13.4	Spike	P	0 - 30
2487719	Microcystin WR	10.1	Spike	P	0 - 30
2487719	Microcystin YR	10.0	Spike	P	0 - 30
2487719	Nodularin-R	13.2	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P445405

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2487719	Anatoxin-a	9.14	Spike	P	0 - 30
2487719	Neosaxitoxin	13.5	Spike	P	0 - 30
2487719	Saxitoxin	10.6	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: 2487635

Field Sample ID: SEHAB0062

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	89.9	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	110	P	30 - 160

Lab Sample ID: 2487636

Field Sample ID: SEHAB0063

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	93.4	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	107	P	30 - 160

Lab Sample ID: 2487637

Field Sample ID: SEHAB0111

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	92.0	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	90.9	P	30 - 160

Lab Sample ID: 2487638

Field Sample ID: SEHAB0112

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	84.5	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	89.5	P	30 - 160

Lab Sample ID: 2487639

Field Sample ID: SEHAB0113

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	80.4	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	94.9	P	30 - 160

Lab Sample ID: 2487640

Field Sample ID: SEHAB0115

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	76.7	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	80.9	P	30 - 160

Lab Sample ID: 2487641

Field Sample ID: SEHAB0116

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	85.7	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	88.3	P	30 - 160

Lab Sample ID: 2487822

Field Sample ID: FB_05072024

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	91.9	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	64.9	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A125762

Included Lab Sample IDs: 2487635, 2487636, 2487637, 2487638, 2487639, 2487640, 2487641, 2487822

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	110	107	P/P	50 - 160
Anatoxin-a	113	110	P/P	50 - 160
Anatoxin-a	116	113	P/P	50 - 160
Neosaxitoxin	95.6	87.6	P/P	50 - 160
Neosaxitoxin	97.8	94.6	P/P	50 - 160
Neosaxitoxin	98.4	97.8	P/P	50 - 160
Saxitoxin	101	97.3	P/P	50 - 160
Saxitoxin	102	100	P/P	50 - 160
Saxitoxin	103	102	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A125787

Included Lab Sample IDs: 2487635, 2487636, 2487637, 2487638, 2487639, 2487640, 2487641, 2487822

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	90.4	90.9	P/P	60 - 160
Cylindrospermopsin	90.9	84.4	P/P	60 - 160
Cylindrospermopsin	91.3	90.4	P/P	60 - 160
Desmethyl microcystin LR	95.4	97.3	P/P	60 - 160
Desmethyl microcystin LR	96.9	95.4	P/P	60 - 160
Desmethyl microcystin LR	98.1	96.9	P/P	60 - 160
Microcystin HiLR	100	97.1	P/P	60 - 160
Microcystin HiLR	100	98.3	P/P	60 - 160
Microcystin HiLR	98.3	100	P/P	60 - 160
Microcystin HtyR	103	106	P/P	60 - 160
Microcystin HtyR	103	105	P/P	60 - 160
Microcystin HtyR	105	103	P/P	60 - 160
Microcystin LA	101	98.1	P/P	50 - 160
Microcystin LA	96.6	101	P/P	50 - 160
Microcystin LA	98.7	96.6	P/P	50 - 160
Microcystin LF	116	117	P/P	50 - 160
Microcystin LF	117	116	P/P	50 - 160
Microcystin LF	117	118	P/P	50 - 160
Microcystin LR	102	100	P/P	60 - 160
Microcystin LR	104	102	P/P	60 - 160
Microcystin LR	100	99.3	P/P	60 - 160
Microcystin LW	107	112	P/P	60 - 160
Microcystin LW	111	107	P/P	60 - 160
Microcystin LW	112	111	P/P	60 - 160
Microcystin LY	115	119	P/P	60 - 160
Microcystin LY	117	121	P/P	60 - 160
Microcystin LY	119	117	P/P	60 - 160
Microcystin RR	101	106	P/P	60 - 160
Microcystin RR	106	101	P/P	60 - 160
Microcystin RR	111	106	P/P	60 - 160
Microcystin WR	101	103	P/P	60 - 160
Microcystin WR	103	105	P/P	60 - 160
Microcystin WR	105	105	P/P	60 - 160
Microcystin YR	107	113	P/P	60 - 160
Microcystin YR	110	107	P/P	60 - 160
Microcystin YR	113	119	P/P	60 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8321B
Run ID: A125787
Included Lab Sample IDs: 2487635, 2487636, 2487637, 2487638, 2487639, 2487640, 2487641, 2487822

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nodularin-R	102	104	P/P	60 - 160
Nodularin-R	103	103	P/P	60 - 160
Nodularin-R	104	103	P/P	60 - 160

* 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		
EPA 8321B	Anatoxin-a	116	115	99.1		15.2
	Anatoxin-a	107	109	99.7		9.14
	Cylindrospermopsin	82.3	82.4	71.9		13.5
	Cylindrospermopsin	83.4	83.7	77.5		7.65
	Desmethyl microcystin LR	89.2	91.6	80.9		12.4
	Desmethyl microcystin LR	95.6	94.6	86.1		9.36
	Microcystin HiLR	89.5	94.6	81.5		14.9
	Microcystin HiLR	95.7	97.8	91.7		6.48
	Microcystin HtyR	95.9	93.1	81.7		13.1
	Microcystin HtyR	98.4	103	92.8		10.5
	Microcystin LA	90.2	92.2	79.3		15.1
	Microcystin LA	96.9	96.2	87.8		9.17
	Microcystin LF	94.9	98.7	94.6		4.29
	Microcystin LF	111	118	104		11.9
	Microcystin LR	98.3	96.9	83.3		15.0
	Microcystin LR	98.5	99.1	93.3		5.96
	Microcystin LW	99.2	98.5	91.6		7.28
	Microcystin LW	111	113	110		3.47
	Microcystin LY	97.1	91.4	82.5		10.2
	Microcystin LY	117	116	106		8.50
	Microcystin RR	94.6	98.7	86.4		13.3
	Microcystin RR	101	108	94.7		13.4
	Microcystin WR	96.3	97.8	85.6		13.3
	Microcystin WR	106	103	92.9		10.1
	Microcystin YR	104	105	93.1		11.9
	Microcystin YR	110	112	102		10.0
	Neosaxitoxin	84.0	53.3	45.7		15.3
	Neosaxitoxin	79.5	53.0	46.3		13.5
	Nodularin-R	94.5	99.0	87.3		12.5
	Nodularin-R	96.5	108	94.5		13.2
	Saxitoxin	90.8	66.3	57.6		14.0
	Saxitoxin	89.3	67.9	61.1		10.6

Reference Method Descriptions

Method	Description	Associated Samples
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2487635, 2487636, 2487637, 2487638, 2487639, 2487640, 2487641, 2487822
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2487635, 2487636, 2487637, 2487638, 2487639, 2487640, 2487641, 2487822

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	05/08/2024	05/08/2024 11:00	Samatha Luckman	05/09/2024 02:15	Samatha Luckman	2487635
	05/08/2024	05/08/2024 11:00	Samatha Luckman	05/09/2024 02:43	Samatha Luckman	2487636
	05/08/2024	05/08/2024 11:00	Samatha Luckman	05/09/2024 02:57	Samatha Luckman	2487637
	05/08/2024	05/08/2024 11:00	Samatha Luckman	05/09/2024 03:11	Samatha Luckman	2487638
	05/08/2024	05/08/2024 11:00	Samatha Luckman	05/09/2024 03:25	Samatha Luckman	2487639
	05/08/2024	05/08/2024 11:00	Samatha Luckman	05/09/2024 03:39	Samatha Luckman	2487640
	05/08/2024	05/08/2024 11:00	Samatha Luckman	05/09/2024 03:53	Samatha Luckman	2487641
	05/08/2024	05/08/2024 11:00	Samatha Luckman	05/09/2024 13:42	Samatha Luckman	2487635
	05/08/2024	05/08/2024 11:00	Samatha Luckman	05/09/2024 14:15	Samatha Luckman	2487636
	05/08/2024	05/08/2024 11:00	Samatha Luckman	05/09/2024 14:32	Samatha Luckman	2487637
	05/08/2024	05/08/2024 11:00	Samatha Luckman	05/09/2024 14:49	Samatha Luckman	2487638
	05/08/2024	05/08/2024 11:00	Samatha Luckman	05/09/2024 15:05	Samatha Luckman	2487639
	05/08/2024	05/08/2024 11:00	Samatha Luckman	05/09/2024 15:22	Samatha Luckman	2487640
	05/08/2024	05/08/2024 11:00	Samatha Luckman	05/09/2024 15:39	Samatha Luckman	2487641
	05/08/2024	05/09/2024 11:00	Samatha Luckman	05/09/2024 12:58	Samatha Luckman	2487822
	05/08/2024	05/09/2024 16:00	Samatha Luckman	05/09/2024 19:00	Samatha Luckman	2487822