

Chemical Analysis Report

SE-DIST-2024-06-06-01

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

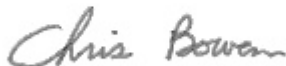
Event Description: **Algal Bloom Response - SE ROC**
Request ID: **RQ-2024-05-13-63**
Customer: **SE-DIST**
Project ID: **BLOOM-RESP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Andrew Luering

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

Certified by: Chris Bowen, Environmental Administrator

Date Certified: 11-JUN-2024 09:04



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 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 Location: Lake Okeechobee - S308C (lakeside)

Collection Date/Time: 06/05/2024 10:30

Field ID: SEHAB0062

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2492012	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P446117	
		Cylindrospermopsin	0.10	U	ug/L	P446116	
		Desmethyl microcystin LR	0.25	U	ug/L	P446116	
		Microcystin H1R	0.25	U	ug/L	P446116	
		Microcystin HtyR	0.25	U	ug/L	P446116	
		Microcystin LA	0.10	U	ug/L	P446116	
		Microcystin LF	0.10	U	ug/L	P446116	
		Microcystin LR	0.25	U	ug/L	P446116	
		Microcystin LW	0.25	U	ug/L	P446116	
		Microcystin LY	0.10	U	ug/L	P446116	
		Microcystin RR	0.10	U	ug/L	P446116	
		Microcystin WR	0.50	U	ug/L	P446116	
		Neosaxitoxin	0.50	U	ug/L	P446117	
		Microcystin YR	0.25	U	ug/L	P446116	
		Saxitoxin	0.50	U	ug/L	P446117	
		Nodularin-R	0.10	U	ug/L	P446116	

Non-Conformance Report

NCR ID: 10518

Event(s)

SE-DIST-2024-06-06-01

Job(s)

TLH-2024-06-06-24

Sample(s)

2492012

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Receiving

Observation: Sample collected in improper container.

Resolution: Sample volume transfered to correct container on 06/06/2024 at 10:27.

Authorized by/Date: Joshua Ayres 6/10/2024

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: EPA 8321B

Batch ID: P446116

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: P446117

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: P446116

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	97.5		P	40 - 160
Desmethyl microcystin LR	93.3		P	40 - 160
Microcystin HilR	97.4		P	40 - 160
Microcystin HtyR	95.9		P	40 - 160
Microcystin LA	105		P	40 - 160
Microcystin LF	99.4		P	40 - 160
Microcystin LR	88.1		P	40 - 160
Microcystin LW	98.4		P	40 - 160
Microcystin LY	99.8		P	40 - 160
Microcystin RR	88.4		P	40 - 160
Microcystin WR	105		P	40 - 160
Microcystin YR	92.8		P	40 - 160
Nodularin-R	93.7		P	40 - 160

Reference Method: EPA 8321B
Batch ID: P446117

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	96.4		P	40 - 150
Neosaxitoxin	75.6		P	40 - 150
Saxitoxin	78.1		P	40 - 150

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P446116

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2491923	Cylindrospermopsin	90.2	85.0	P/P	40 - 160
2491923	Desmethyl microcystin LR	87.8	79.5	P/P	40 - 160
2491923	Microcystin HilR	91.0	82.4	P/P	40 - 160
2491923	Microcystin HtyR	89.2	81.7	P/P	40 - 160
2491923	Microcystin LA	95.7	89.0	P/P	40 - 160
2491923	Microcystin LF	102	92.0	P/P	40 - 160
2491923	Microcystin LR	82.5	81.3	P/P	40 - 160
2491923	Microcystin LW	91.4	85.9	P/P	40 - 160
2491923	Microcystin LY	90.7	84.8	P/P	40 - 160
2491923	Microcystin RR	83.3	76.5	P/P	40 - 160
2491923	Microcystin WR	99.0	89.1	P/P	40 - 160
2491923	Microcystin YR	86.6	80.5	P/P	40 - 160
2491923	Nodularin-R	87.2	82.7	P/P	40 - 160

Reference Method: EPA 8321B
Batch ID: P446117

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2491923	Anatoxin-a	95.1	97.9	P/P	40 - 150
2491923	Neosaxitoxin	68.6	68.9	P/P	40 - 150
2491923	Saxitoxin	71.5	71.7	P/P	40 - 150

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P446116

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2491923	Cylindrospermopsin	5.94	Spike	P	0 - 30
2491923	Desmethyl microcystin LR	9.96	Spike	P	0 - 30
2491923	Microcystin HilR	9.93	Spike	P	0 - 30
2491923	Microcystin HtyR	8.72	Spike	P	0 - 30
2491923	Microcystin LA	7.16	Spike	P	0 - 30
2491923	Microcystin LF	10.6	Spike	P	0 - 30
2491923	Microcystin LR	1.45	Spike	P	0 - 30
2491923	Microcystin LW	6.23	Spike	P	0 - 30
2491923	Microcystin LY	6.69	Spike	P	0 - 30
2491923	Microcystin RR	8.53	Spike	P	0 - 30
2491923	Microcystin WR	10.6	Spike	P	0 - 30
2491923	Microcystin YR	7.22	Spike	P	0 - 30
2491923	Nodularin-R	5.30	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P446117

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2491923	Anatoxin-a	2.85	Spike	P	0 - 30
2491923	Neosaxitoxin	0.451	Spike	P	0 - 30
2491923	Saxitoxin	0.348	Spike	P	0 - 30

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2492012
Field Sample ID: SEHAB0062

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	101	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	61.7	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B
Run ID: A126009
Included Lab Sample IDs: 2492012

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	99.4	97.3	P/P	50 - 160
Neosaxitoxin	81.9	81.7	P/P	50 - 160
Saxitoxin	82.4	83.5	P/P	50 - 160

Reference Method: EPA 8321B
Run ID: A126017
Included Lab Sample IDs: 2492012

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	92.1	89.4	P/P	60 - 160
Desmethyl microcystin LR	86.4	90.8	P/P	60 - 160
Microcystin HII R	87.9	88.8	P/P	60 - 160
Microcystin HtyR	87.8	91.5	P/P	60 - 160
Microcystin LA	97.8	95.0	P/P	50 - 160
Microcystin LF	93.3	97.0	P/P	50 - 160
Microcystin LR	79.8	81.2	P/P	60 - 160
Microcystin LW	87.9	90.5	P/P	60 - 160
Microcystin LY	94.2	93.2	P/P	60 - 160
Microcystin RR	78.5	79.7	P/P	60 - 160
Microcystin WR	101	103	P/P	60 - 160
Microcystin YR	86.3	86.8	P/P	60 - 160
Nodularin-R	81.0	82.7	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	96.4	95.1	97.9		2.85
	Cylindrospermopsin	97.5	90.2	85.0		5.94
	Desmethyl microcystin LR	93.3	87.8	79.5		9.96
	Microcystin HilR	97.4	91.0	82.4		9.93
	Microcystin HtyR	95.9	89.2	81.7		8.72
	Microcystin LA	105	95.7	89.0		7.16
	Microcystin LF	99.4	102	92.0		10.6
	Microcystin LR	88.1	82.5	81.3		1.45
	Microcystin LW	98.4	91.4	85.9		6.23
	Microcystin LY	99.8	90.7	84.8		6.69
	Microcystin RR	88.4	83.3	76.5		8.53
	Microcystin WR	105	99.0	89.1		10.6
	Microcystin YR	92.8	86.6	80.5		7.22
	Neosaxitoxin	75.6	68.6	68.9		0.451
	Nodularin-R	93.7	87.2	82.7		5.30
	Saxitoxin	78.1	71.5	71.7		0.348

Reference Method Descriptions

Method	Description	Associated Samples
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2492012
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2492012

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	06/06/2024	06/06/2024 11:00	Samatha Luckman	06/06/2024 20:32	Samatha Luckman	2492012
	06/06/2024	06/06/2024 11:00	Samatha Luckman	06/06/2024 21:03	Samatha Luckman	2492012