Chemical Analysis Report

SFWMD-2021-09-15-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **SFWMD Bloom Response--As Needed (WPB)**
Request ID: **RQ-2021-08-16-54**
Customer: **SFWMD**
Project ID: **BLOOM-RESP**

Send Reports to:
South Florida Water Management District
SFWMD
8894 Belvedere Rd. B374
West Palm Beach, FL 33411
Attn: Mickael Tompkins

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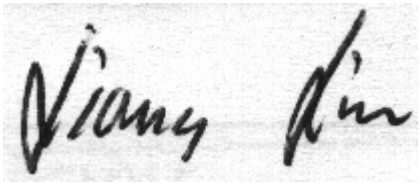
Certified by: Liang Lin, Environmental Administrator

Date Certified: 20-SEP-2021 15:06



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: C44S80 **Collection Date/Time: 09/14/2021 08:33**

Field ID: C44S80 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2276128	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P403717	
		Cylindrospermopsin	0.10	U	ug/L	P403717	
		Desmethyl microcystin LR	0.25	U	ug/L	P403717	
		Microcystin HilR**	0.25	U	ug/L	P403717	
		Microcystin HtyR**	0.25	U	ug/L	P403717	
		Microcystin LA	0.10	U	ug/L	P403717	
		Microcystin LF	0.10	U	ug/L	P403717	MS
		Microcystin LR	0.25	U	ug/L	P403717	
		Microcystin LW	0.25	U	ug/L	P403717	
		Microcystin LY	0.10	U	ug/L	P403717	MS
		Microcystin RR	0.10	U	ug/L	P403717	
		Microcystin WR	0.50	U	ug/L	P403717	
		Microcystin YR	0.25	U	ug/L	P403717	
		Nodularin-R**	0.10	U	ug/L	P403717	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 8321B
Batch ID: P403717

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P403717

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	80.4		P	40 - 150
Cylindrospermopsin	116		P	40 - 150
Desmethyl microcystin LR	94.8		P	40 - 150
Microcystin HilR	107		P	40 - 150
Microcystin HtyR	115		P	40 - 150
Microcystin LA	142		P	40 - 150
Microcystin LF	147		P	40 - 150
Microcystin LR	121		P	40 - 150
Microcystin LW	124		P	40 - 150
Microcystin LY	145		P	40 - 150
Microcystin RR	135		P	40 - 150
Microcystin WR	92.8		P	40 - 150
Microcystin YR	101		P	40 - 150
Nodularin-R	110		P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P403717

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2275907	Anatoxin-a	97.0	97.5	P/P	40 - 150
2275907	Cylindrospermopsin	126	127	P/P	40 - 150
2275907	Desmethyl microcystin LR	105	105	P/P	40 - 150
2275907	Microcystin HilR	116	120	P/P	40 - 150
2275907	Microcystin HtyR	116	120	P/P	40 - 150
2275907	Microcystin LA	142	144	P/P	40 - 150
2275907	Microcystin LF	158	150	F/F	40 - 150
2275907	Microcystin LR	130	131	P/P	40 - 150
2275907	Microcystin LW	129	128	P/P	40 - 150
2275907	Microcystin LY	150	153	P/F	40 - 150
2275907	Microcystin RR	147	139	P/P	40 - 150
2275907	Microcystin WR	96.2	96.3	P/P	40 - 150
2275907	Microcystin YR	111	108	P/P	40 - 150
2275907	Nodularin-R	131	128	P/P	40 - 150

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P403717

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2275907	Anatoxin-a	0.434	Spike	P	0 - 30
2275907	Cylindrospermopsin	0.958	Spike	P	0 - 30
2275907	Desmethyl microcystin LR	0.481	Spike	P	0 - 30
2275907	Microcystin HilR	3.13	Spike	P	0 - 30
2275907	Microcystin HtyR	4.00	Spike	P	0 - 30
2275907	Microcystin LA	1.72	Spike	P	0 - 30
2275907	Microcystin LF	5.23	Spike	P	0 - 30
2275907	Microcystin LR	0.354	Spike	P	0 - 30
2275907	Microcystin LW	0.457	Spike	P	0 - 30
2275907	Microcystin LY	1.85	Spike	P	0 - 30
2275907	Microcystin RR	5.44	Spike	P	0 - 30
2275907	Microcystin WR	0.152	Spike	P	0 - 30
2275907	Microcystin YR	3.26	Spike	P	0 - 30
2275907	Nodularin-R	2.30	Spike	P	0 - 30

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2276128
Field Sample ID: C44S80

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	102	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	91.5	P	30 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8321B
Run ID: A107824
Included Lab Sample IDs: 2276128

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	83.8	71.5	P/P	50 - 160
Cylindrospermopsin	101	108	P/P	50 - 160
Desmethyl microcystin LR	79.5	81.4	P/P	50 - 160
Microcystin HilR	90.9	95.8	P/P	50 - 160
Microcystin HtyR	88.4	103	P/P	50 - 160
Microcystin LA	127	129	P/P	50 - 160
Microcystin LF	104	137	P/P	50 - 160
Microcystin LR	92.9	106	P/P	50 - 160
Microcystin LW	101	112	P/P	50 - 160
Microcystin LY	122	132	P/P	50 - 160
Microcystin RR	117	124	P/P	50 - 160
Microcystin WR	85.2	78.3	P/P	50 - 160
Microcystin YR	89.6	92.0	P/P	50 - 160
Nodularin-R	114	105	P/P	50 - 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		
					LCS	SMP	MS
EPA 8321B	Anatoxin-a	80.4	97.5	97.0			0.434
	Cylindrospermopsin	116	126	127			0.958
	Desmethyl microcystin LR	94.8	105	105			0.481
	Microcystin HilR	107	116	120			3.13
	Microcystin HtyR	115	116	120			4.00
	Microcystin LA	142	142	144			1.72
	Microcystin LF	147	158	150			5.23
	Microcystin LR	121	130	131			0.354
	Microcystin LW	124	129	128			0.457
	Microcystin LY	145	150	153			1.85
	Microcystin RR	135	147	139			5.44
	Microcystin WR	92.8	96.2	96.3			0.152
	Microcystin YR	101	111	108			3.26
	Nodularin-R	110	131	128			2.30

Reference Method Descriptions

Method	Description	Associated Samples
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2276128

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	09/15/2021	09/16/2021 08:00	Manjita Shrestha	09/16/2021 11:05	Manjita Shrestha	2276128