Chemical Analysis Report

WQAP-2020-06-17-01

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

Event Description: **Lee County Bloom Response**
Request ID: **RQ-2020-03-02-76**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

Send Reports to:
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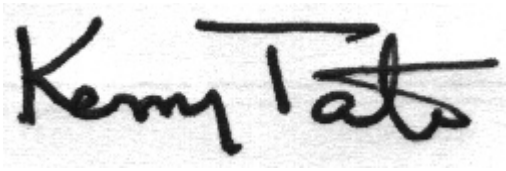
Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 19-JUN-2020 10:18



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: Davis Boat Ramp **Collection Date/Time: 06/16/2020 09:24**

Field ID: Davis Boat Ramp Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2177230	EPA 8321B	Anatoxin-a**	0.25	U	ug/L	P383255	
		Cylindrospermopsin**	0.25	U	ug/L	P383255	
		Desmethyl microcystin LR**	0.25	U	ug/L	P383255	
		Microcystin LA**	1.3		ug/L	P383255	
		Microcystin LF**	0.25	U	ug/L	P383255	
		Microcystin LR**	3.0		ug/L	P383255	
		Microcystin LW**	0.25	U	ug/L	P383255	
		Microcystin LY**	0.25	U	ug/L	P383255	
		Microcystin RR**	0.25	U	ug/L	P383255	
		Microcystin WR**	0.50	U	ug/L	P383255	
		Microcystin YR**	0.25	U	ug/L	P383255	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 8321B
Batch ID: P383255

Component	Result	Code	Units
Anatoxin-a	0.25	U	ug/L
Cylindrospermopsin	0.25	U	ug/L
Desmethyl microcystin LR	0.25	U	ug/L
Microcystin LA	0.25	U	ug/L
Microcystin LF	0.25	U	ug/L
Microcystin LR	0.25	U	ug/L
Microcystin LW	0.25	U	ug/L
Microcystin LY	0.25	U	ug/L
Microcystin RR	0.25	U	ug/L
Microcystin WR	0.50	U	ug/L
Microcystin YR	0.25	U	ug/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P383255

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	81.3		P	40 - 140
Cylindrospermopsin	86.4		P	40 - 140
Desmethyl microcystin LR	72.0		P	40 - 140
Microcystin LA	81.5		P	40 - 140
Microcystin LF	77.6		P	40 - 140
Microcystin LR	72.4		P	40 - 140
Microcystin LW	71.4		P	40 - 140
Microcystin LY	86.0		P	40 - 140
Microcystin RR	79.9		P	40 - 140
Microcystin WR	72.8		P	40 - 140
Microcystin YR	83.3		P	40 - 140

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P383255

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2176915	Anatoxin-a	85.5	95.5	P/P	40 - 140
2176915	Cylindrospermopsin	90.4	105	P/P	40 - 140
2176915	Desmethyl microcystin LR	80.7	100	P/P	40 - 140
2176915	Microcystin LA	82.5	94.7	P/P	40 - 140
2176915	Microcystin LF	70.8	90.4	P/P	40 - 140
2176915	Microcystin LR	80.0	101	P/P	40 - 140
2176915	Microcystin LW	71.6	83.4	P/P	40 - 140
2176915	Microcystin LY	84.9	91.1	P/P	40 - 140
2176915	Microcystin RR	85.7	101	P/P	40 - 140
2176915	Microcystin WR	77.6	90.9	P/P	40 - 140
2176915	Microcystin YR	94.3	111	P/P	40 - 140

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P383255

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2176915	Anatoxin-a	11.0	Spike	P	0 - 30
2176915	Cylindrospermopsin	14.9	Spike	P	0 - 30
2176915	Desmethyl microcystin LR	21.6	Spike	P	0 - 30
2176915	Microcystin LA	13.8	Spike	P	0 - 30
2176915	Microcystin LF	24.3	Spike	P	0 - 30
2176915	Microcystin LR	23.5	Spike	P	0 - 30
2176915	Microcystin LW	15.3	Spike	P	0 - 30
2176915	Microcystin LY	7.04	Spike	P	0 - 30
2176915	Microcystin RR	15.9	Spike	P	0 - 30
2176915	Microcystin WR	15.7	Spike	P	0 - 30
2176915	Microcystin YR	16.5	Spike	P	0 - 30

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2177230
Field Sample ID: Davis Boat Ramp

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	97.7	P	40 - 150

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8321B
Run ID: A99389
Included Lab Sample IDs: 2177230

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	89.2	79.5	P/P	50 - 160
Cylindrospermopsin	103	97.0	P/P	60 - 160
Desmethyl microcystin LR	92.8	113	P/P	60 - 160
Microcystin LA	90.0	90.0	P/P	50 - 160
Microcystin LF	90.1	89.1	P/P	60 - 160
Microcystin LR	88.8	112	P/P	60 - 160
Microcystin LW	88.1	109	P/P	60 - 160
Microcystin LY	86.1	102	P/P	60 - 160
Microcystin RR	92.3	95.4	P/P	60 - 160
Microcystin WR	92.5	110	P/P	60 - 160
Microcystin YR	97.7	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		
					LCS	SMP	MS
EPA 8321B	Anatoxin-a	81.3	85.5	95.5			11.0
	Cylindrospermopsin	86.4	90.4	105			14.9
	Desmethyl microcystin LR	72.0	80.7	100			21.6
	Microcystin LA	81.5	82.5	94.7			13.8
	Microcystin LF	77.6	70.8	90.4			24.3
	Microcystin LR	72.4	80.0	101			23.5
	Microcystin LW	71.4	71.6	83.4			15.3
	Microcystin LY	86.0	84.9	91.1			7.04
	Microcystin RR	79.9	85.7	101			15.9
	Microcystin WR	72.8	77.6	90.9			15.7
	Microcystin YR	83.3	94.3	111			16.5

Reference Method Descriptions

Method	Description	Associated Samples
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2177230

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	06/17/2020	06/17/2020 12:30	Juyoung Kim	06/17/2020 19:27	Juyoung Kim	2177230