Chemical Analysis Report

WQAP-2020-05-06-01

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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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: Franklin Locks Upstream **Collection Date/Time: 05/05/2020 08:47**

Field ID: Franklin Locks Upstream Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2171618	EPA 8321B	Anatoxin-a**	0.25	U	ug/L	P382290	
		Cylindrospermopsin**	0.25	U	ug/L	P382290	
		Desmethyl microcystin LR**	0.25	U	ug/L	P382290	
		Microcystin LA**	0.36	I	ug/L	P382290	
		Microcystin LF**	0.25	U	ug/L	P382290	
		Microcystin LR**	0.25	U	ug/L	P382290	
		Microcystin LW**	0.25	U	ug/L	P382290	
		Microcystin LY**	0.25	U	ug/L	P382290	
		Microcystin RR**	0.25	U	ug/L	P382290	
		Microcystin WR**	0.50	U	ug/L	P382290	
		Microcystin YR**	0.25	U	ug/L	P382290	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 8321B
Batch ID: P382290

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: P382290

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	118		P	40 - 140
Cylindrospermopsin	108		P	40 - 140
Desmethyl microcystin LR	99.4		P	40 - 140
Microcystin LA	106		P	40 - 140
Microcystin LF	108		P	40 - 140
Microcystin LR	115		P	40 - 140
Microcystin LW	102		P	40 - 140
Microcystin LY	106		P	40 - 140
Microcystin RR	114		P	40 - 140
Microcystin WR	102		P	40 - 140
Microcystin YR	112		P	40 - 140

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P382290

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2171618	Anatoxin-a	85.3	91.2	P/P	40 - 140
2171618	Cylindrospermopsin	93.8	91.0	P/P	40 - 140
2171618	Desmethyl microcystin LR	87.5	89.2	P/P	40 - 140
2171618	Microcystin LA	88.7	91.0	P/P	40 - 140
2171618	Microcystin LF	85.4	88.7	P/P	40 - 140
2171618	Microcystin LR	100	106	P/P	40 - 140
2171618	Microcystin LW	75.3	76.8	P/P	40 - 140
2171618	Microcystin LY	90.4	94.5	P/P	40 - 140
2171618	Microcystin RR	89.2	91.9	P/P	40 - 140
2171618	Microcystin WR	80.3	79.0	P/P	40 - 140
2171618	Microcystin YR	89.5	97.0	P/P	40 - 140

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P382290

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2171618	Anatoxin-a	6.70	Spike	P	0 - 30
2171618	Cylindrospermopsin	3.11	Spike	P	0 - 30
2171618	Desmethyl microcystin LR	1.88	Spike	P	0 - 30
2171618	Microcystin LA	2.44	Spike	P	0 - 30
2171618	Microcystin LF	3.74	Spike	P	0 - 30
2171618	Microcystin LR	5.58	Spike	P	0 - 30
2171618	Microcystin LW	2.04	Spike	P	0 - 30
2171618	Microcystin LY	4.49	Spike	P	0 - 30
2171618	Microcystin RR	2.89	Spike	P	0 - 30
2171618	Microcystin WR	1.69	Spike	P	0 - 30
2171618	Microcystin YR	8.08	Spike	P	0 - 30

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2171618
Field Sample ID: Franklin Locks Upstream

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	85.2	P	40 - 150

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8321B
Run ID: A98946
Included Lab Sample IDs: 2171618

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	80.8	100	P/P	50 - 160
Cylindrospermopsin	98.7	102	P/P	60 - 160
Desmethyl microcystin LR	93.6	106	P/P	60 - 160
Microcystin LA	97.9	104	P/P	50 - 160
Microcystin LF	94.9	105	P/P	60 - 160
Microcystin LR	93.3	115	P/P	60 - 160
Microcystin LW	98.2	106	P/P	60 - 160
Microcystin LY	89.3	102	P/P	60 - 160
Microcystin RR	96.9	104	P/P	60 - 160
Microcystin WR	97.0	113	P/P	60 - 160
Microcystin YR	102	112	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	118	85.3	91.2			6.70
	Cylindrospermopsin	108	93.8	91.0			3.11
	Desmethyl microcystin LR	99.4	87.5	89.2			1.88
	Microcystin LA	106	88.7	91.0			2.44
	Microcystin LF	108	85.4	88.7			3.74
	Microcystin LR	115	100	106			5.58
	Microcystin LW	102	75.3	76.8			2.04
	Microcystin LY	106	90.4	94.5			4.49
	Microcystin RR	114	89.2	91.9			2.89
	Microcystin WR	102	80.3	79.0			1.69
	Microcystin YR	112	89.5	97.0			8.08

Reference Method Descriptions

Method	Description	Associated Samples
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2171618

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 8321B	05/06/2020	05/07/2020 09:00	Juyoung Kim	05/07/2020 12:05	Juyoung Kim	2171618