Chemical Analysis Report

WQAP-2021-05-27-04

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

Event Description: **Algal Bloom Response - SWD**
Request ID: **RQ-2021-03-15-58**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

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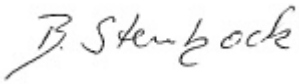
Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 17-JUN-2021 18:26



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 groups are included in this report: Nutrients and 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: Banana Lake Cut to Stahl **Collection Date/Time: 05/26/2021 11:30**

Field ID: HAB-SW-0032 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2250578	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P398901	
		Cylindrospermopsin	0.10	U	ug/L	P398901	
		Desmethyl microcystin LR	0.25	U	ug/L	P398901	
		Microcystin HilR**	0.25	U	ug/L	P398901	
		Microcystin HtyR**	0.25	U	ug/L	P398901	
		Microcystin LA	0.10	U	ug/L	P398901	
		Microcystin LF	0.10	U	ug/L	P398901	
		Microcystin LR	0.25	U	ug/L	P398901	
		Microcystin LW	0.25	U	ug/L	P398901	
		Microcystin LY	0.10	U	ug/L	P398901	
		Microcystin RR	0.10	U	ug/L	P398901	
		Microcystin WR	0.50	U	ug/L	P398901	
		Microcystin YR	0.25	U	ug/L	P398901	
		Nodularin-R**	0.10	U	ug/L	P398901	
2250581	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P399307	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.8		mg N/L	P399036	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P399030	
	EPA 365.1 Rev. 2.0	Total-P	0.26		mg P/L	P398974	
2250584	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.099		mg P/L	P398938	

Sample Location: Lake Crago by Boat Ramp **Collection Date/Time: 05/26/2021 09:05**

Field ID: HAB-SW-0031 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2250579	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P398901	
		Cylindrospermopsin	0.10	U	ug/L	P398901	
		Desmethyl microcystin LR	0.25	U	ug/L	P398901	
		Microcystin HilR**	0.25	U	ug/L	P398901	
		Microcystin HtyR**	0.25	U	ug/L	P398901	
		Microcystin LA	0.10	U	ug/L	P398901	
		Microcystin LF	0.10	U	ug/L	P398901	
		Microcystin LR	0.35	I	ug/L	P398901	
		Microcystin LW	0.25	U	ug/L	P398901	
		Microcystin LY	0.10	U	ug/L	P398901	
		Microcystin RR	0.10	U	ug/L	P398901	
		Microcystin WR	0.50	U	ug/L	P398901	
		Microcystin YR	0.25	U	ug/L	P398901	
		Nodularin-R**	0.10	U	ug/L	P398901	
2250582	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P399307	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.9		mg N/L	P399036	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P399030	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P398974	
2250585	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P398938	

Sample Location: Lake Deer Western Shore **Collection Date/Time: 05/26/2021 10:15**

Field ID: HAB-SW-0029 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2250580	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P398901	
		Cylindrospermopsin	0.10	U	ug/L	P398901	
		Desmethyl microcystin LR	0.25	U	ug/L	P398901	
		Microcystin HilR**	0.25	U	ug/L	P398901	
		Microcystin HtyR**	0.25	U	ug/L	P398901	
		Microcystin LA	0.15	I	ug/L	P398901	
		Microcystin LF	0.10	U	ug/L	P398901	
		Microcystin LR	0.25	U	ug/L	P398901	
		Microcystin LW	0.25	U	ug/L	P398901	
		Microcystin LY	0.10	U	ug/L	P398901	
		Microcystin RR	0.10	U	ug/L	P398901	
		Microcystin WR	0.50	U	ug/L	P398901	
		Microcystin YR	0.25	U	ug/L	P398901	
		Nodularin-R**	0.10	U	ug/L	P398901	
2250583	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P399310	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P399036	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P398984	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P398974	
2250586	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P398938	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399307

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399310

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P399036

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398984

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399030

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P398974

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398938

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: EPA 8321B
Batch ID: P398901

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 8321B
Batch ID: P398901

Component	Result	Code	Units
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 350.1 Rev. 2.0
Batch ID: P399307

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399310

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P399036

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.4		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398984

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	100		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399030

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	100		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P398974

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398938

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	100		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P398901

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	100		P	40 - 150
Cylindrospermopsin	98.6		P	40 - 150
Desmethyl microcystin LR	79.4		P	40 - 150
Microcystin HilR	88.3		P	40 - 150
Microcystin HtyR	87.7		P	40 - 150
Microcystin LA	92.9		P	40 - 150
Microcystin LF	91.4		P	40 - 150
Microcystin LR	66.9		P	40 - 150
Microcystin LW	93.1		P	40 - 150
Microcystin LY	85.3		P	40 - 150

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P398901

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Microcystin RR	88.3		P	40 - 150
Microcystin WR	92.5		P	40 - 150
Microcystin YR	94.8		P	40 - 150
Nodularin-R	84.8		P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399307

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2250473	Ammonia-N	97.2	98.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399310

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2248841	Ammonia-N	93.4	96.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P399036

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2250551	Kjeldahl Nitrogen	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398984

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2250473	NO2NO3-N	99.4	99.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399030

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2250581	NO2NO3-N	98.5	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P398974

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2250551	Total-P	104	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398938

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2250553	O-Phosphate-P	96.9	97.7	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P398901

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2250517	Anatoxin-a	113	109	P/P	40 - 150
2250517	Cylindrospermopsin	99.8	99.0	P/P	40 - 150
2250517	Desmethyl microcystin LR	87.6	84.4	P/P	40 - 150
2250517	Microcystin HilR	103	96.7	P/P	40 - 150
2250517	Microcystin HtyR	99.5	95.6	P/P	40 - 150
2250517	Microcystin LA	97.9	94.0	P/P	40 - 150
2250517	Microcystin LF	91.2	85.0	P/P	40 - 150
2250517	Microcystin LR	81.4	77.4	P/P	40 - 150
2250517	Microcystin LW	98.7	94.9	P/P	40 - 150
2250517	Microcystin LY	88.8	88.3	P/P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P398901

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2250517	Microcystin RR	101	99.3	P/P	40 - 150
2250517	Microcystin WR	109	103	P/P	40 - 150
2250517	Microcystin YR	107	104	P/P	40 - 150
2250517	Nodularin-R	98.9	103	P/P	40 - 150

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399307

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250473	Ammonia-N	1.23	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399310

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2248841	Ammonia-N	3.07	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P399036

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250551	Kjeldahl Nitrogen	0.930	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P398984

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250473	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250581	NO2NO3-N	0.506	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P398974

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250551	Total-P	3.07	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P398938

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250553	O-Phosphate-P	0.822	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P398901

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250517	Anatoxin-a	3.25	Spike	P	0 - 30
2250517	Cylindrospermopsin	0.832	Spike	P	0 - 30

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P398901

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2250517	Desmethyl microcystin LR	3.70	Spike	P	0 - 30
2250517	Microcystin HilR	6.23	Spike	P	0 - 30
2250517	Microcystin HtyR	3.99	Spike	P	0 - 30
2250517	Microcystin LA	4.08	Spike	P	0 - 30
2250517	Microcystin LF	7.01	Spike	P	0 - 30
2250517	Microcystin LR	5.04	Spike	P	0 - 30
2250517	Microcystin LW	3.94	Spike	P	0 - 30
2250517	Microcystin LY	0.537	Spike	P	0 - 30
2250517	Microcystin RR	2.10	Spike	P	0 - 30
2250517	Microcystin WR	6.15	Spike	P	0 - 30
2250517	Microcystin YR	2.84	Spike	P	0 - 30
2250517	Nodularin-R	3.76	Spike	P	0 - 30

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2250578
Field Sample ID: HAB-SW-0032

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	65.6	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	79.1	P	30 - 160

Lab Sample ID: 2250579
Field Sample ID: HAB-SW-0031

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	64.6	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	74.6	P	30 - 160

Lab Sample ID: 2250580
Field Sample ID: HAB-SW-0029

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	67.4	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	75.7	P	30 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A105742
Included Lab Sample IDs: 2250584, 2250585, 2250586

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.5	P/P	90 - 110
O-Phosphate-P	99.4	100	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A105745
Included Lab Sample IDs: 2250578, 2250579, 2250580

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	112	107	P/P	50 - 160
Cylindrospermopsin	102	97.0	P/P	50 - 160
Desmethyl microcystin LR	80.6	71.8	P/P	50 - 160
Microcystin HilR	92.6	79.0	P/P	50 - 160
Microcystin HtyR	88.8	77.2	P/P	50 - 160
Microcystin LA	91.7	78.5	P/P	50 - 160
Microcystin LF	92.3	61.9	P/P	50 - 160
Microcystin LR	70.0	61.1	P/P	50 - 160
Microcystin LW	84.0	64.5	P/P	50 - 160
Microcystin LY	81.9	64.2	P/P	50 - 160
Microcystin RR	95.7	91.8	P/P	50 - 160
Microcystin WR	93.8	80.5	P/P	50 - 160
Microcystin YR	94.2	80.5	P/P	50 - 160
Nodularin-R	86.7	87.5	P/P	50 - 160

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A105761
Included Lab Sample IDs: 2250583

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A105778
Included Lab Sample IDs: 2250581, 2250582

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A105788
Included Lab Sample IDs: 2250581, 2250582

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A105792
Included Lab Sample IDs: 2250583

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	101	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A105840
Included Lab Sample IDs: 2250581, 2250582, 2250583

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.0	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A105920
Included Lab Sample IDs: 2250581, 2250582

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.6	97.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A105921
Included Lab Sample IDs: 2250583

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.9	101	P/P	90 - 110

* 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 350.1 Rev. 2.0	Ammonia-N	97.0	97.2	98.6			1.23
	Ammonia-N	98.2	93.4	96.8			3.07
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.4	101	102			0.930
EPA 353.2 Rev. 2.0	NO2NO3-N	100	99.4	99.4			0.0
	NO2NO3-N	100	98.5	99.0			0.506
EPA 365.1 Rev. 2.0	Total-P	104	104	101			3.07
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	96.9	97.7			0.822
EPA 8321B	Anatoxin-a	100	113	109			3.25
	Cylindrospermopsin	98.6	99.8	99.0			0.832
	Desmethyl microcystin LR	79.4	87.6	84.4			3.70
	Microcystin HilR	88.3	103	96.7			6.23
	Microcystin HtyR	87.7	99.5	95.6			3.99
	Microcystin LA	92.9	97.9	94.0			4.08
	Microcystin LF	91.4	91.2	85.0			7.01
	Microcystin LR	66.9	81.4	77.4			5.04
	Microcystin LW	93.1	98.7	94.9			3.94
	Microcystin LY	85.3	88.8	88.3			0.537
	Microcystin RR	88.3	101	99.3			2.10
	Microcystin WR	92.5	109	103			6.15
	Microcystin YR	94.8	107	104			2.84
	Nodularin-R	84.8	98.9	103			3.76

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2250581, 2250582, 2250583
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2250581, 2250582, 2250583
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2250581, 2250582, 2250583
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2250581, 2250582, 2250583
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2250584, 2250585, 2250586
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2250578, 2250579, 2250580

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 350.1 Rev. 2.0	05/27/2021			06/07/2021 12:19	Roberta Tatti	2250583
	05/27/2021			06/07/2021 13:55	Ping Hua	2250581
	05/27/2021			06/07/2021 13:56	Ping Hua	2250582
EPA 351.2 Rev. 2.0	05/27/2021	06/01/2021 13:29	Benjamin T. Nordmann	06/02/2021 16:14	Virginia P. Brown	2250581
	05/27/2021	06/01/2021 13:29	Benjamin T. Nordmann	06/02/2021 16:16	Virginia P. Brown	2250582
	05/27/2021	06/01/2021 13:29	Benjamin T. Nordmann	06/02/2021 16:18	Virginia P. Brown	2250583
EPA 353.2 Rev. 2.0	05/27/2021			05/28/2021 09:39	Beverly Y. Sanders	2250583
	05/27/2021			06/01/2021 11:34	Beverly Y. Sanders	2250581
	05/27/2021			06/01/2021 11:40	Beverly Y. Sanders	2250582
EPA 365.1 Rev. 2.0	05/27/2021	05/28/2021 13:30	Yen Ta	05/28/2021 16:32	Shengyu Ding	2250581
	05/27/2021	05/28/2021 13:30	Yen Ta	05/28/2021 16:33	Shengyu Ding	2250582
	05/27/2021	05/28/2021 13:30	Yen Ta	06/01/2021 14:30	Shengyu Ding	2250583
EPA 365.1 Rev. 2.0 dissolved	05/27/2021			05/27/2021 15:30	Blanca Fach	2250584
	05/27/2021			05/27/2021 15:35	Blanca Fach	2250585
	05/27/2021			05/27/2021 15:36	Blanca Fach	2250586
EPA 8321B	05/27/2021	05/27/2021 11:30	Pramila Ghimire	05/27/2021 15:53	Pramila Ghimire	2250578
	05/27/2021	05/27/2021 11:30	Pramila Ghimire	05/27/2021 16:10	Pramila Ghimire	2250579
	05/27/2021	05/27/2021 11:30	Pramila Ghimire	05/27/2021 16:27	Pramila Ghimire	2250580