Chemical Analysis Report

WQAP-2021-06-11-02

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

Event Description: **Algal Bloom Response -SOROC**
Request ID: **RQ-2021-05-31-57**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

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Certified by: Colin Wright, Program Administrator

Date Certified: 06-JUL-2021 09:18

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 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: Caloosahatchee River - Sebastian Ct **Collection Date/Time: 06/10/2021 10:00**

Field ID: HAB-SD061021-003 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2254489	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P399663	
		Cylindrospermopsin	0.10	U	ug/L	P399663	
		Desmethyl microcystin LR	0.25	U	ug/L	P399663	
		Microcystin HilR**	0.25	U	ug/L	P399663	
		Microcystin HtyR**	0.25	U	ug/L	P399663	
		Microcystin LA	0.10	U	ug/L	P399663	
		Microcystin LF	0.10	U	ug/L	P399663	
		Microcystin LR	0.30	I	ug/L	P399663	
		Microcystin LW	0.25	U	ug/L	P399663	
		Microcystin LY	0.10	U	ug/L	P399663	
		Microcystin RR	0.10	U	ug/L	P399663	
		Microcystin WR	0.50	U	ug/L	P399663	
		Microcystin YR	0.25	U	ug/L	P399663	
		Nodularin-R**	0.10	U	ug/L	P399663	
2254493	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P399991	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P399716	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P399693	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P399983	
2254497	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.039		mg P/L	P399575	

Ref. Method and Comment:
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Caloosahatchee River - S Olga Dr. **Collection Date/Time: 06/10/2021 10:30**

Field ID: HAB-SD061021-004 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2254490	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P399663	
		Cylindrospermopsin	0.10	U	ug/L	P399663	
		Desmethyl microcystin LR	0.25	U	ug/L	P399663	
		Microcystin HilR**	0.25	U	ug/L	P399663	
		Microcystin HtyR**	0.25	U	ug/L	P399663	
		Microcystin LA	0.27	I	ug/L	P399663	
		Microcystin LF	0.10	U	ug/L	P399663	
		Microcystin LR	1.6		ug/L	P399663	
		Microcystin LW	0.25	U	ug/L	P399663	
		Microcystin LY	0.10	U	ug/L	P399663	
		Microcystin RR	0.10	U	ug/L	P399663	
		Microcystin WR	0.50	U	ug/L	P399663	
		Microcystin YR	0.25	U	ug/L	P399663	
		Nodularin-R**	0.10	U	ug/L	P399663	
2254494	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P399991	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P399716	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P399693	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P399983	
2254498	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.066		mg P/L	P399575	

Ref. Method and Comment:
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Caloosahatchee River - Baron Park **Collection Date/Time: 06/10/2021 09:05**

Field ID: HAB-SD061021-002 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2254491	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P399663	
		Cylindrospermopsin	0.10	U	ug/L	P399663	
		Desmethyl microcystin LR	0.25	U	ug/L	P399663	
		Microcystin HilR**	0.25	U	ug/L	P399663	
		Microcystin HtyR**	0.25	U	ug/L	P399663	
		Microcystin LA	0.10	U	ug/L	P399663	
		Microcystin LF	0.10	U	ug/L	P399663	
		Microcystin LR	4.0		ug/L	P399663	
		Microcystin LW	0.25	U	ug/L	P399663	
		Microcystin LY	0.10	U	ug/L	P399663	
		Microcystin RR	0.10	U	ug/L	P399663	
		Microcystin WR	0.50	U	ug/L	P399663	
		Microcystin YR	0.25	U	ug/L	P399663	
		Nodularin-R**	0.10	U	ug/L	P399663	
2254495	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P399991	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P399716	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.017		mg N/L	P399693	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P399983	
2254499	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.037		mg P/L	P399575	

Ref. Method and Comment:
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Orange River - Manatee Park **Collection Date/Time: 06/10/2021 08:05**

Field ID: HAB-SD061021-001 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2254492	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P399663	
		Cylindrospermopsin	0.10	U	ug/L	P399663	
		Desmethyl microcystin LR	0.25	U	ug/L	P399663	
		Microcystin HilR**	0.25	U	ug/L	P399663	
		Microcystin HtyR**	0.25	U	ug/L	P399663	
		Microcystin LA	0.10	U	ug/L	P399663	
		Microcystin LF	0.10	U	ug/L	P399663	
		Microcystin LR	0.25	U	ug/L	P399663	
		Microcystin LW	0.25	U	ug/L	P399663	
		Microcystin LY	0.10	U	ug/L	P399663	
		Microcystin RR	0.10	U	ug/L	P399663	
		Microcystin WR	0.50	U	ug/L	P399663	
		Microcystin YR	0.25	U	ug/L	P399663	
		Nodularin-R**	0.10	U	ug/L	P399663	
2254496	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P399991	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P399716	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.010		mg N/L	P399693	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P399983	
2254500	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.058		mg P/L	P399575	

Ref. Method and Comment:
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399991

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P399716

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399693

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P399983

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P399575

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

Reference Method: EPA 8321B
Batch ID: P399663

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 350.1 Rev. 2.0
Batch ID: P399991

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P399716

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.1		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399693

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P399983

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P399575

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

Reference Method: EPA 8321B
Batch ID: P399663

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	96.5		P	40 - 150
Cylindrospermopsin	109		P	40 - 150
Desmethyl microcystin LR	75.8		P	40 - 150
Microcystin HilR	84.2		P	40 - 150
Microcystin HtyR	83.4		P	40 - 150
Microcystin LA	108		P	40 - 150
Microcystin LF	113		P	40 - 150
Microcystin LR	82.4		P	40 - 150
Microcystin LW	87.5		P	40 - 150
Microcystin LY	113		P	40 - 150
Microcystin RR	107		P	40 - 150
Microcystin WR	76.8		P	40 - 150
Microcystin YR	104		P	40 - 150
Nodularin-R	103		P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399991

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254436	Ammonia-N	97.8	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399693

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254469	NO2NO3-N	99.5	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P399983

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254494	Total-P	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P399575

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254471	O-Phosphate-P	98.0	99.5	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P399663

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2254461	Anatoxin-a	108	111	P/P	40 - 150
2254461	Cylindrospermopsin	102	106	P/P	40 - 150
2254461	Desmethyl microcystin LR	72.6	79.7	P/P	40 - 150
2254461	Microcystin HilR	76.6	88.7	P/P	40 - 150
2254461	Microcystin HtyR	83.9	82.9	P/P	40 - 150
2254461	Microcystin LA	105	109	P/P	40 - 150
2254461	Microcystin LF	99.9	105	P/P	40 - 150
2254461	Microcystin LR	74.8	81.2	P/P	40 - 150
2254461	Microcystin LW	88.6	88.2	P/P	40 - 150
2254461	Microcystin LY	112	119	P/P	40 - 150
2254461	Microcystin RR	103	109	P/P	40 - 150
2254461	Microcystin WR	82.8	88.9	P/P	40 - 150
2254461	Microcystin YR	97.5	102	P/P	40 - 150
2254461	Nodularin-R	102	109	P/P	40 - 150

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P399991

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254436	Ammonia-N	1.11	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P399716

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254469	Kjeldahl Nitrogen	3.10	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P399693

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254469	NO2NO3-N	0.504	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P399983

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254494	Total-P	0.879	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P399575

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254471	O-Phosphate-P	1.05	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P399663

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2254461	Anatoxin-a	3.20	Spike	P	0 - 30
2254461	Cylindrospermopsin	3.93	Spike	P	0 - 30
2254461	Desmethyl microcystin LR	9.34	Spike	P	0 - 30
2254461	Microcystin HilR	14.6	Spike	P	0 - 30
2254461	Microcystin HtyR	1.12	Spike	P	0 - 30
2254461	Microcystin LA	3.15	Spike	P	0 - 30
2254461	Microcystin LF	5.40	Spike	P	0 - 30
2254461	Microcystin LR	7.34	Spike	P	0 - 30
2254461	Microcystin LW	0.433	Spike	P	0 - 30
2254461	Microcystin LY	5.95	Spike	P	0 - 30
2254461	Microcystin RR	5.31	Spike	P	0 - 30
2254461	Microcystin WR	7.12	Spike	P	0 - 30
2254461	Microcystin YR	4.97	Spike	P	0 - 30
2254461	Nodularin-R	6.63	Spike	P	0 - 30

Quality Assurance Report
Precision

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2254489
Field Sample ID: HAB-SD061021-003

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	98.1	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	90.1	P	30 - 160

Lab Sample ID: 2254490
Field Sample ID: HAB-SD061021-004

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	87.6	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	81.5	P	30 - 160

Lab Sample ID: 2254491
Field Sample ID: HAB-SD061021-002

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	89.3	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	84.6	P	30 - 160

Lab Sample ID: 2254492
Field Sample ID: HAB-SD061021-001

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	96.9	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	90.2	P	30 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A106023
Included Lab Sample IDs: 2254497, 2254498, 2254499, 2254500

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	99.3	P/P	90 - 110
O-Phosphate-P	99.3	99.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A106065
Included Lab Sample IDs: 2254493, 2254494, 2254495, 2254496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A106085
Included Lab Sample IDs: 2254489, 2254490, 2254491, 2254492

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	91.4	102	P/P	50 - 160
Cylindrospermopsin	120	108	P/P	50 - 160
Desmethyl microcystin LR	81.1	80.9	P/P	50 - 160
Microcystin HilR	83.3	85.4	P/P	50 - 160
Microcystin HtyR	87.9	89.3	P/P	50 - 160
Microcystin LA	112	110	P/P	50 - 160
Microcystin LF	116	124	P/P	50 - 160
Microcystin LR	85.6	81.3	P/P	50 - 160
Microcystin LW	90.0	99.2	P/P	50 - 160
Microcystin LY	118	128	P/P	50 - 160
Microcystin RR	118	112	P/P	50 - 160
Microcystin WR	83.2	97.1	P/P	50 - 160
Microcystin YR	101	118	P/P	50 - 160
Nodularin-R	118	109	P/P	50 - 160

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A106117
Included Lab Sample IDs: 2254493, 2254494, 2254495, 2254496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.9	94.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A106195
Included Lab Sample IDs: 2254493, 2254494, 2254495, 2254496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.2	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A106209
Included Lab Sample IDs: 2254493, 2254494, 2254495, 2254496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	103	P/P	90 - 110
Total-P	103	100	P/P	90 - 110

Quality Assurance Report
Calibration Verification

* 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	99.4	97.8	99.0			1.11
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.1					3.10
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	99.5	99.0			0.504
EPA 365.1 Rev. 2.0	Total-P	102	103	102			0.879
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	98.0	99.5			1.05
EPA 8321B	Anatoxin-a	96.5	108	111			3.20
	Cylindrospermopsin	109	102	106			3.93
	Desmethyl microcystin LR	75.8	72.6	79.7			9.34
	Microcystin HilR	84.2	76.6	88.7			14.6
	Microcystin HtyR	83.4	83.9	82.9			1.12
	Microcystin LA	108	105	109			3.15
	Microcystin LF	113	99.9	105			5.40
	Microcystin LR	82.4	74.8	81.2			7.34
	Microcystin LW	87.5	88.6	88.2			0.433
	Microcystin LY	113	112	119			5.95
	Microcystin RR	107	103	109			5.31
	Microcystin WR	76.8	82.8	88.9			7.12
	Microcystin YR	104	97.5	102			4.97
	Nodularin-R	103	102	109			6.63

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2254493, 2254494, 2254495, 2254496
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2254493, 2254494, 2254495, 2254496
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2254493, 2254494, 2254495, 2254496
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2254493, 2254494, 2254495, 2254496
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2254497, 2254498, 2254499, 2254500
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2254489, 2254490, 2254491, 2254492

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	06/11/2021			06/21/2021 12:49	Ping Hua	2254493
	06/11/2021			06/21/2021 12:50	Ping Hua	2254494
	06/11/2021			06/21/2021 12:51	Ping Hua	2254495
	06/11/2021			06/21/2021 12:53	Ping Hua	2254496
EPA 351.2 Rev. 2.0	06/11/2021	06/15/2021 14:18	Benjamin T. Nordmann	06/16/2021 12:12	Virginia P. Brown	2254493
	06/11/2021	06/15/2021 14:18	Benjamin T. Nordmann	06/16/2021 12:14	Virginia P. Brown	2254494
	06/11/2021	06/15/2021 14:18	Benjamin T. Nordmann	06/16/2021 12:15	Virginia P. Brown	2254495
	06/11/2021	06/15/2021 14:18	Benjamin T. Nordmann	06/16/2021 12:17	Virginia P. Brown	2254496
EPA 353.2 Rev. 2.0	06/11/2021			06/15/2021 10:28	Beverly Y. Sanders	2254493
	06/11/2021			06/15/2021 10:30	Beverly Y. Sanders	2254494
	06/11/2021			06/15/2021 10:31	Beverly Y. Sanders	2254495
	06/11/2021			06/15/2021 10:32	Beverly Y. Sanders	2254496
EPA 365.1 Rev. 2.0	06/11/2021	06/21/2021 16:53	Madeline Gruver	06/22/2021 10:57	Shengyu Ding	2254493
	06/11/2021	06/21/2021 16:53	Madeline Gruver	06/22/2021 10:58	Shengyu Ding	2254494
	06/11/2021	06/21/2021 16:53	Madeline Gruver	06/22/2021 11:03	Shengyu Ding	2254495
	06/11/2021	06/21/2021 16:53	Madeline Gruver	06/22/2021 11:04	Shengyu Ding	2254496
EPA 365.1 Rev. 2.0 dissolved	06/11/2021			06/11/2021 13:55	Ping Hua	2254497
	06/11/2021			06/11/2021 14:00	Ping Hua	2254498
	06/11/2021			06/11/2021 14:01	Ping Hua	2254499
	06/11/2021			06/11/2021 14:02	Ping Hua	2254500
EPA 8321B	06/11/2021	06/15/2021 12:00	Pramila Ghimire	06/15/2021 16:07	Pramila Ghimire	2254489
	06/11/2021	06/15/2021 12:00	Pramila Ghimire	06/15/2021 16:24	Pramila Ghimire	2254490
	06/11/2021	06/15/2021 12:00	Pramila Ghimire	06/15/2021 16:40	Pramila Ghimire	2254491
	06/11/2021	06/15/2021 12:00	Pramila Ghimire	06/15/2021 16:57	Pramila Ghimire	2254492