Chemical Analysis Report

WQAP-2019-04-24-01

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

Event Description: **NEROC Algae Bloom Response-as needed**
Request ID: **RQ-2019-05-06-31**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

Send Reports to:
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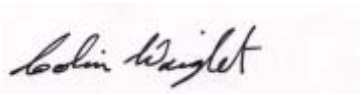
Date Certified: 06-MAY-2019 12:15



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: ARLINGTON RIVER AT CARLTON OAKS **Collection Date/Time: 04/23/2019 10:15**

Field ID: G2NE1152 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2080457	EPA 8321B	Anatoxin-a**	0.25	U	ug/L	P362734	
		Cylindrospermopsin**	0.25	U	ug/L	P362734	
		Microcystin LA**	0.25	U	ug/L	P362734	
		Microcystin LF**	0.25	U	ug/L	P362734	
		Microcystin LR**	0.25	U	ug/L	P362734	
		Microcystin LY**	0.25	U	ug/L	P362734	
		Microcystin RR**	0.25	U	ug/L	P362734	
		Microcystin YR**	0.25	U	ug/L	P362734	
		Saxitoxin**	0.25	UJ	ug/L	P362734	

Ref. Method and Comment:
EPA 8321B: Method validation for saxitoxin is still in progress. Second source was not analyzed.

Sample Location: ARLINGTON RIVER AT CARLTON OAKS **Collection Date/Time: 04/23/2019 10:15**

Field ID: G2NE1152 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2080459	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P363032	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.76		mg N/L	P362998	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P363156	
	EPA 365.1 Rev. 2.0	Total-P	0.098		mg P/L	P362940	
2080461	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.051		mg P/L	P362836	

Sample Location: JULINGTON CREEK @ MANDARIN PARK **Collection Date/Time: 04/23/2019 14:15**

Field ID: JULINGTON CREEK @ MANDARIN PAR Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2080458	EPA 8321B	Anatoxin-a**	0.25	U	ug/L	P362734	
		Cylindrospermopsin**	0.25	U	ug/L	P362734	
		Microcystin LA**	0.25	U	ug/L	P362734	
		Microcystin LF**	0.25	U	ug/L	P362734	
		Microcystin LR**	0.25	U	ug/L	P362734	
		Microcystin LY**	0.25	U	ug/L	P362734	
		Microcystin RR**	0.25	U	ug/L	P362734	
		Microcystin YR**	0.25	U	ug/L	P362734	
		Saxitoxin**	0.25	UJ	ug/L	P362734	

Ref. Method and Comment:
EPA 8321B: Method validation for saxitoxin is still in progress. Second source was not analyzed.

Sample Location: JULINGTON CREEK @ MANDARIN PARK **Collection Date/Time: 04/23/2019 14:15**

Field ID: JULINGTON CREEK @ MANDARIN PAR Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2080460	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P363039	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.79		mg N/L	P362996	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P363008	
	EPA 365.1 Rev. 2.0	Total-P	0.060		mg P/L	P362937	
2080462	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.021		mg P/L	P362838	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363032

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363039

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362996

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362998

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363008

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363156

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362937

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362940

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362836

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362838

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

Reference Method: EPA 8321B
Batch ID: P362734

Component	Result	Code	Units
Anatoxin-a	0.25	U	ug/L
Cylindrospermopsin	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 LY	0.25	U	ug/L
Microcystin RR	0.25	U	ug/L
Microcystin YR	0.25	U	ug/L
Saxitoxin	0.25	U	ug/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363032

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363039

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362996

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362998

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363008

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: P363156

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362937

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362940

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362836

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.6		P	90 - 110

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362838

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.6		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P362734

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	105		P	40 - 140
Cylindrospermopsin	134		P	40 - 140
Microcystin LA	118		P	40 - 140
Microcystin LF	124		P	40 - 140
Microcystin LR	107		P	40 - 140
Microcystin LY	102		P	40 - 140
Microcystin RR	90.5		P	40 - 140
Microcystin YR	89.7		P	40 - 140
Saxitoxin	95.9		P	40 - 140

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363032

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080020	Ammonia-N	104	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363039

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080481	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362996

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080481	Kjeldahl Nitrogen	104	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362998

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080415	Kjeldahl Nitrogen	107	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363008

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080460	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363156

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080409	NO2NO3-N	98.2	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362937

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080365	Total-P	99.8	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362940

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080412	Total-P	96.5	96.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362836

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080228	O-Phosphate-P	96.4	98.4	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362838

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080482	O-Phosphate-P	100	101	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P362734

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079948	Anatoxin-a	104	106	P/P	40 - 140
2079948	Cylindrospermopsin	113	108	P/P	40 - 140
2079948	Microcystin LA	117	117	P/P	40 - 140
2079948	Microcystin LF	111	119	P/P	40 - 140
2079948	Microcystin LR	118	112	P/P	40 - 140
2079948	Microcystin LY	107	96.3	P/P	40 - 140
2079948	Microcystin RR	103	108	P/P	40 - 140
2079948	Microcystin YR	97.1	108	P/P	40 - 140
2079948	Saxitoxin	46.0	45.9	P/P	40 - 140

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363032

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080020	Ammonia-N	1.26	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363039

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080481	Ammonia-N	0.461	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362996

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080481	Kjeldahl Nitrogen	1.48	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362998

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080415	Kjeldahl Nitrogen	1.48	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080460	NO2NO3-N	0.494	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363156

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080409	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362937

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080365	Total-P	0.947	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362940

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080412	Total-P	0.307	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362836

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080228	O-Phosphate-P	1.67	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080482	O-Phosphate-P	0.892	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P362734

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079948	Anatoxin-a	2.54	Spike	P	0 - 30
2079948	Cylindrospermopsin	4.23	Spike	P	0 - 30
2079948	Microcystin LA	0.0238	Spike	P	0 - 30
2079948	Microcystin LF	7.00	Spike	P	0 - 30
2079948	Microcystin LR	5.18	Spike	P	0 - 30
2079948	Microcystin LY	10.1	Spike	P	0 - 30
2079948	Microcystin RR	5.29	Spike	P	0 - 30
2079948	Microcystin YR	10.3	Spike	P	0 - 30
2079948	Saxitoxin	0.179	Spike	P	0 - 30

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report
Surrogates

Lab Sample ID: 2080457
Field Sample ID: G2NE1152

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Carbamazepine-d10	104	P	30 - 165
EPA 8321B	Carbamazepine-d10	104	P	30 - 165
EPA 8321B	Carbamazepine-d10	104	P	30 - 165

Lab Sample ID: 2080458
Field Sample ID: JULINGTON CREEK @ MANDARIN PAR

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Carbamazepine-d10	94.6	P	30 - 165
EPA 8321B	Carbamazepine-d10	94.6	P	30 - 165
EPA 8321B	Carbamazepine-d10	94.6	P	30 - 165

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8321B
Run ID: A90979
Included Lab Sample IDs: 2080457, 2080458

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	95.5	103	P/P	50 - 160
Cylindrospermopsin	111	118	P/P	60 - 160
Microcystin LA	104	106	P/P	50 - 160
Microcystin LF	105	120	P/P	60 - 160
Microcystin LR	99.5	102	P/P	60 - 160
Microcystin LY	102	98.4	P/P	60 - 160
Microcystin RR	84.3	80.8	P/P	60 - 160
Microcystin YR	87.7	82.8	P/P	60 - 160
Saxitoxin	86.8	90.2	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A90987
Included Lab Sample IDs: 2080461, 2080462

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	95.7	94.6	P/P	90 - 110
O-Phosphate-P	95.8	95.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A91059
Included Lab Sample IDs: 2080460

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A91070
Included Lab Sample IDs: 2080459

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A91072
Included Lab Sample IDs: 2080460

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A91075
Included Lab Sample IDs: 2080460

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A91076
Included Lab Sample IDs: 2080459

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A91076
Included Lab Sample IDs: 2080459

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A91123
Included Lab Sample IDs: 2080459

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A91153
Included Lab Sample IDs: 2080459, 2080460

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	98.3	P/P	90 - 110
Kjeldahl Nitrogen	98.0	97.8	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	101	104	103			1.26
	Ammonia-N	102	102	103			0.461
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.3	104	106			1.48
	Kjeldahl Nitrogen	100	107	105			1.48
EPA 353.2 Rev. 2.0	NO2NO3-N	100	102	101			0.494
	NO2NO3-N	101	98.2	98.2			0.0
EPA 365.1 Rev. 2.0	Total-P	102	99.8	101			0.947
	Total-P	101	96.5	96.9			0.307
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	96.4	98.4			1.67
	O-Phosphate-P	99.6	100	101			0.892
EPA 8321B	Anatoxin-a	105	104	106			2.54
	Cylindrospermopsin	134	113	108			4.23
	Microcystin LA	118	117	117			0.0238
	Microcystin LF	124	111	119			7.00
	Microcystin LR	107	118	112			5.18
	Microcystin LY	102	107	96.3			10.1
	Microcystin RR	90.5	103	108			5.29
	Microcystin YR	89.7	97.1	108			10.3
	Saxitoxin	95.9	46.0	45.9			0.179

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2080459, 2080460
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2080459, 2080460
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2080459, 2080460
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2080459, 2080460
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2080461, 2080462
EPA 8321B / E31780	Microcystins in water matrices by HPLC/MS/MS	2080457, 2080458

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	04/24/2019			04/26/2019 13:06	Ping Hua	2080459
	04/24/2019			04/29/2019 11:35	Ping Hua	2080460
EPA 351.2 Rev. 2.0	04/24/2019	04/29/2019 17:00	Adrian Shelby	05/02/2019 08:35	Joseph Suarez	2080460
	04/24/2019	04/29/2019 17:00	Adrian Shelby	05/02/2019 09:05	Joseph Suarez	2080459
EPA 353.2 Rev. 2.0	04/24/2019			04/29/2019 10:26	Beverly Y. Sanders	2080460
	04/24/2019			05/01/2019 10:07	Beverly Y. Sanders	2080459
EPA 365.1 Rev. 2.0	04/24/2019	04/26/2019 14:10	Sima Feizi	04/29/2019 13:59	Rosalyn Ballman	2080460
	04/24/2019	04/26/2019 14:10	Sima Feizi	04/29/2019 16:07	Rosalyn Ballman	2080459
EPA 365.1 Rev. 2.0 dissolved	04/24/2019			04/24/2019 19:47	Jhamieka S. Greenwood	2080461
	04/24/2019			04/24/2019 20:03	Jhamieka S. Greenwood	2080462
EPA 8321B	04/24/2019	04/24/2019 13:00	Juyoung Kim	04/24/2019 18:08	Juyoung Kim	2080457
	04/24/2019	04/24/2019 13:00	Juyoung Kim	04/24/2019 18:25	Juyoung Kim	2080458