

Chemical Analysis Report

WQAP-2020-12-17-01

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

Event Description: **Algal Bloom Response - CEROC**
Request ID: **RQ-2020-12-07-65**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

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Date Certified: 08-JAN-2021 12:34



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: IRL @ Cocoa Village Marina

Collection Date/Time: 12/16/2020 10:20

Field ID: HABCE0051_IRLFishKill1

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2214293	EPA 8321B	Anatoxin-a**	0.25	U	ug/L	P391353	
		Cylindrospermopsin**	0.25	U	ug/L	P391353	
		Desmethyl microcystin LR**	0.25	U	ug/L	P391353	
		Microcystin LA**	0.25	U	ug/L	P391353	
		Microcystin LF**	0.25	U	ug/L	P391353	
		Microcystin LR**	0.32	I	ug/L	P391353	
		Microcystin LW**	0.25	U	ug/L	P391353	
		Microcystin LY**	0.25	U	ug/L	P391353	
		Microcystin RR**	0.25	U	ug/L	P391353	
		Microcystin WR**	0.50	U	ug/L	P391353	
		Microcystin YR**	0.25	U	ug/L	P391353	
		Saxitoxin**	5.0	U	ug/L	P391212	MS
2214297	EPA 350.1 Rev. 2.0	Ammonia-N	0.036		mg N/L	P391563	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.1		mg N/L	P391712	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P391401	
	EPA 365.1 Rev. 2.0	Total-P	0.086		mg P/L	P391443	
2214301	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P391374	

Ref. Method and Comment:

EPA 8321B: MDL elevated due to required dilution of sample matrix.

Sample Location: IRL @ N of Magnolia Point

Collection Date/Time: 12/16/2020 10:45

Field ID: HABCE0052_IRLFishKill2

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2214294	EPA 8321B	Anatoxin-a**	0.25	U	ug/L	P391353	
		Cylindrospermopsin**	0.25	U	ug/L	P391353	
		Desmethyl microcystin LR**	0.25	U	ug/L	P391353	
		Microcystin LA**	0.25	U	ug/L	P391353	
		Microcystin LF**	0.25	U	ug/L	P391353	
		Microcystin LR**	0.25	U	ug/L	P391353	
		Microcystin LW**	0.25	U	ug/L	P391353	
		Microcystin LY**	0.25	U	ug/L	P391353	
		Microcystin RR**	0.25	U	ug/L	P391353	
		Microcystin WR**	0.50	U	ug/L	P391353	
		Microcystin YR**	0.25	U	ug/L	P391353	
		Saxitoxin**	5.0	U	ug/L	P391212	MS
2214298	EPA 350.1 Rev. 2.0	Ammonia-N	0.042		mg N/L	P391563	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.7		mg N/L	P391712	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P391401	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P391443	
2214302	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P391374	

Ref. Method and Comment:

EPA 8321B: MDL elevated due to required dilution of sample matrix.

Sample Location: IRL @ 528 Bridge N

Collection Date/Time: 12/16/2020 11:28

Field ID: HABCE0053_IRLFishKill3

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2214295	EPA 8321B	Anatoxin-a**	0.25	U	ug/L	P391353	
		Cylindrospermopsin**	0.25	U	ug/L	P391353	
		Desmethyl microcystin LR**	0.25	U	ug/L	P391353	
		Microcystin LA**	0.25	U	ug/L	P391353	
		Microcystin LF**	0.25	U	ug/L	P391353	
		Microcystin LR**	0.31	I	ug/L	P391353	
		Microcystin LW**	0.25	U	ug/L	P391353	
		Microcystin LY**	0.25	U	ug/L	P391353	
		Microcystin RR**	0.25	U	ug/L	P391353	
		Microcystin WR**	0.50	U	ug/L	P391353	
		Microcystin YR**	0.25	U	ug/L	P391353	
		Saxitoxin**	5.0	U	ug/L	P391212	MS
2214299	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P391563	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.0		mg N/L	P391712	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P391401	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P391443	
2214303	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P391374	

Ref. Method and Comment:

EPA 8321B: MDL elevated due to required dilution of sample matrix.

Sample Location: IRL @ 528 Bridge S

Collection Date/Time: 12/16/2020 11:10

Field ID: HABCE0054_IRLFishKill4

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2214296	EPA 8321B	Anatoxin-a**	0.25	U	ug/L	P391353	
		Cylindrospermopsin**	0.25	U	ug/L	P391353	
		Desmethyl microcystin LR**	0.25	U	ug/L	P391353	
		Microcystin LA**	0.25	U	ug/L	P391353	
		Microcystin LF**	0.25	U	ug/L	P391353	
		Microcystin LR**	0.25	U	ug/L	P391353	
		Microcystin LW**	0.25	U	ug/L	P391353	
		Microcystin LY**	0.25	U	ug/L	P391353	
		Microcystin RR**	0.25	U	ug/L	P391353	
		Microcystin WR**	0.50	U	ug/L	P391353	
		Microcystin YR**	0.25	U	ug/L	P391353	
		Saxitoxin**	5.0	U	ug/L	P391212	MS
2214300	EPA 350.1 Rev. 2.0	Ammonia-N	0.030		mg N/L	P391563	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.4		mg N/L	P391712	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P391401	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P391443	
2214304	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P391374	

Ref. Method and Comment:

EPA 8321B: MDL elevated due to required dilution of sample matrix.

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391563

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391712

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391401

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391443

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391374

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

Reference Method: EPA 8321B
Batch ID: P391212

Component	Result	Code	Units
Saxitoxin	0.50	U	ug/L

Reference Method: EPA 8321B
Batch ID: P391353

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 350.1 Rev. 2.0
Batch ID: P391563

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391712

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.1		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391401

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391443

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: P391374

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

Reference Method: EPA 8321B
Batch ID: P391212

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Saxitoxin	106		P	40 - 160

Reference Method: EPA 8321B
Batch ID: P391353

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	96.6		P	40 - 150
Cylindrospermopsin	99.6		P	40 - 150
Desmethyl microcystin LR	94.8		P	40 - 150
Microcystin LA	79.3		P	40 - 150
Microcystin LF	90.2		P	40 - 150
Microcystin LR	87.8		P	40 - 150
Microcystin LW	91.8		P	40 - 150
Microcystin LY	89.5		P	40 - 150
Microcystin RR	121		P	40 - 150
Microcystin WR	97.4		P	40 - 150
Microcystin YR	96.2		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P391563

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2214258	Ammonia-N	97.6	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P391712

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2214297	Kjeldahl Nitrogen	99.2	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P391401

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2214258	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P391443

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2213360	Total-P	98.0	96.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P391374

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2214260	O-Phosphate-P	101	102	P/P	90 - 110

Reference Method: EPA 8321B
 Batch ID: P391212

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212430	Saxitoxin	37.6	33.7	F/F	40 - 160

Reference Method: EPA 8321B
 Batch ID: P391353

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2214419	Anatoxin-a	89.3	85.7	P/P	40 - 150
2214419	Cylindrospermopsin	93.3	85.3	P/P	40 - 150
2214419	Desmethyl microcystin LR	92.1	90.5	P/P	40 - 150
2214419	Microcystin LA	76.5	74.0	P/P	40 - 150
2214419	Microcystin LF	76.2	71.9	P/P	40 - 150
2214419	Microcystin LR	84.4	82.7	P/P	40 - 150
2214419	Microcystin LW	80.1	74.7	P/P	40 - 150
2214419	Microcystin LY	84.3	85.3	P/P	40 - 150
2214419	Microcystin RR	102	103	P/P	40 - 150
2214419	Microcystin WR	93.1	87.2	P/P	40 - 150
2214419	Microcystin YR	85.8	82.1	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391563

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2214258	Ammonia-N	3.15	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391712

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2214297	Kjeldahl Nitrogen	2.68	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391401

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2214258	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391443

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213360	Total-P	1.13	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P391374

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2214260	O-Phosphate-P	1.08	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P391212

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212430	Saxitoxin	11.0	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P391353

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2214419	Anatoxin-a	4.11	Spike	P	0 - 30
2214419	Cylindrospermopsin	8.91	Spike	P	0 - 30
2214419	Desmethyl microcystin LR	1.76	Spike	P	0 - 30
2214419	Microcystin LA	3.42	Spike	P	0 - 30
2214419	Microcystin LF	5.91	Spike	P	0 - 30
2214419	Microcystin LR	1.96	Spike	P	0 - 30
2214419	Microcystin LW	6.91	Spike	P	0 - 30
2214419	Microcystin LY	1.29	Spike	P	0 - 30
2214419	Microcystin RR	1.68	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P391353

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2214419	Microcystin WR	6.44	Spike	P	0 - 30
2214419	Microcystin YR	4.30	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2214293

Field Sample ID: HABCE0051_IRLFishKill1

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	83.8	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	63.3	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	35.1	P	30 - 160

Lab Sample ID: 2214294

Field Sample ID: HABCE0052_IRLFishKill2

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	86.5	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	72.8	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	37.2	P	30 - 160

Lab Sample ID: 2214295

Field Sample ID: HABCE0053_IRLFishKill3

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	85.8	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	68.5	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	36.2	P	30 - 160

Lab Sample ID: 2214296

Field Sample ID: HABCE0054_IRLFishKill4

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR-d7	83.7	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	67.5	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	37.7	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A102650

Included Lab Sample IDs: 2214301, 2214302, 2214303, 2214304

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.1	99.6	P/P	90 - 110
O-Phosphate-P	99.6	98.9	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A102659

Included Lab Sample IDs: 2214293, 2214294, 2214295, 2214296

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	102	104	P/P	50 - 160
Cylindrospermopsin	105	104	P/P	60 - 160
Desmethyl microcystin LR	109	110	P/P	60 - 160
Microcystin LA	85.4	82.5	P/P	50 - 160
Microcystin LF	84.0	82.7	P/P	50 - 160
Microcystin LR	92.8	102	P/P	60 - 160
Microcystin LW	92.9	88.8	P/P	60 - 160
Microcystin LY	90.1	96.0	P/P	60 - 160
Microcystin RR	129	122	P/P	60 - 160
Microcystin WR	108	103	P/P	60 - 160
Microcystin YR	89.2	93.1	P/P	60 - 160

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A102660

Included Lab Sample IDs: 2214297, 2214298, 2214299, 2214300

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

Reference Method: EPA 8321B

Run ID: A102675

Included Lab Sample IDs: 2214293, 2214294, 2214295, 2214296

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Saxitoxin	99.0	94.9	P/P	60 - 160
Saxitoxin	99.7	99.0	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A102700

Included Lab Sample IDs: 2214298, 2214300

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	99.0	P/P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A102703

Included Lab Sample IDs: 2214297, 2214298, 2214299, 2214300

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	98.9	P/P	90 - 110
Ammonia-N	99.9	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A102705

Included Lab Sample IDs: 2214297, 2214299

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A102804

Included Lab Sample IDs: 2214297, 2214298, 2214299, 2214300

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	96.3	P/P	90 - 110
Kjeldahl Nitrogen	96.3	102	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	MS
EPA 350.1 Rev. 2.0	Ammonia-N	99.6	97.6	101		3.15
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.1	99.2	104		2.68
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	101	101		0.0
EPA 365.1 Rev. 2.0	Total-P	101	98.0	96.7		1.13
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.3	101	102		1.08
EPA 8321B	Anatoxin-a	96.6	85.7	89.3		4.11
	Cylindrospermopsin	99.6	85.3	93.3		8.91
	Desmethyl microcystin LR	94.8	90.5	92.1		1.76
	Microcystin LA	79.3	76.5	74.0		3.42
	Microcystin LF	90.2	76.2	71.9		5.91
	Microcystin LR	87.8	82.7	84.4		1.96
	Microcystin LW	91.8	80.1	74.7		6.91
	Microcystin LY	89.5	84.3	85.3		1.29
	Microcystin RR	121	103	102		1.68
	Microcystin WR	97.4	87.2	93.1		6.44
	Microcystin YR	96.2	82.1	85.8		4.30
	Saxitoxin	106	37.6	33.7		11.0

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2214297, 2214298, 2214299, 2214300
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2214297, 2214298, 2214299, 2214300
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2214297, 2214298, 2214299, 2214300
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2214297, 2214298, 2214299, 2214300
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2214301, 2214302, 2214303, 2214304
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2214293, 2214294, 2214295, 2214296
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2214293, 2214294, 2214295, 2214296

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	12/17/2020			12/21/2020 17:26	Ping Hua	2214297
	12/17/2020			12/21/2020 17:27	Ping Hua	2214298
	12/17/2020			12/21/2020 17:29	Ping Hua	2214299
	12/17/2020			12/21/2020 17:37	Ping Hua	2214300
EPA 351.2 Rev. 2.0	12/17/2020	12/23/2020 15:00	David Boose	12/28/2020 18:10	Julia Storbeck	2214297
	12/17/2020	12/23/2020 15:00	David Boose	12/28/2020 18:21	Julia Storbeck	2214298
	12/17/2020	12/23/2020 15:00	David Boose	12/28/2020 18:26	Julia Storbeck	2214299
	12/17/2020	12/23/2020 15:00	David Boose	12/28/2020 18:28	Julia Storbeck	2214300
EPA 353.2 Rev. 2.0	12/17/2020			12/18/2020 10:28	Beverly Y. Sanders	2214297
	12/17/2020			12/18/2020 10:29	Beverly Y. Sanders	2214298
	12/17/2020			12/18/2020 10:30	Beverly Y. Sanders	2214299
	12/17/2020			12/18/2020 10:32	Beverly Y. Sanders	2214300
EPA 365.1 Rev. 2.0	12/17/2020	12/18/2020 13:00	Yen Ta	12/21/2020 12:48	Benjamin T. Nordmann	2214298
	12/17/2020	12/18/2020 13:00	Yen Ta	12/21/2020 12:51	Benjamin T. Nordmann	2214300
	12/17/2020	12/18/2020 13:00	Yen Ta	12/21/2020 15:56	Shengyu Wang	2214297
	12/17/2020	12/18/2020 13:00	Yen Ta	12/21/2020 15:57	Shengyu Wang	2214299
EPA 365.1 Rev. 2.0 dissolved	12/17/2020			12/17/2020 15:36	Blanca Fach	2214301
	12/17/2020			12/17/2020 15:41	Blanca Fach	2214302
	12/17/2020			12/17/2020 15:42	Blanca Fach	2214303
	12/17/2020			12/17/2020 15:43	Blanca Fach	2214304
EPA 8321B	12/17/2020	12/17/2020 14:03	Juyoung Kim	12/17/2020 20:04	Juyoung Kim	2214293
	12/17/2020	12/17/2020 14:03	Juyoung Kim	12/17/2020 20:21	Juyoung Kim	2214294
	12/17/2020	12/17/2020 14:03	Juyoung Kim	12/17/2020 20:38	Juyoung Kim	2214295
	12/17/2020	12/17/2020 14:03	Juyoung Kim	12/17/2020 20:54	Juyoung Kim	2214296
	12/17/2020	12/18/2020 14:03	Juyoung Kim	12/18/2020 16:41	Juyoung Kim	2214293
	12/17/2020	12/18/2020 14:03	Juyoung Kim	12/18/2020 16:53	Juyoung Kim	2214294
	12/17/2020	12/18/2020 14:03	Juyoung Kim	12/18/2020 17:06	Juyoung Kim	2214295
	12/17/2020	12/18/2020 14:03	Juyoung Kim	12/18/2020 17:31	Juyoung Kim	2214296