

Chemical Analysis Report

WQAP-2019-06-28-01

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-2019-06-24-60**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

Send Reports to:
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Date Certified: 10-JUL-2019 13:11



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: Tidewater Preserve Lock - Manatee River

Collection Date/Time: 06/27/2019 10:10

Field ID: Tidewater Preserve Lock

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2099271	EPA 8321B	Anatoxin-a**	0.25	U	ug/L	P366373	
		Cylindrospermopsin**	0.25	U	ug/L	P366373	
		Microcystin LA**	0.25	U	ug/L	P366373	
		Microcystin LF**	0.25	U	ug/L	P366373	
		Microcystin LR**	0.25	U	ug/L	P366373	
		Microcystin LY**	0.25	U	ug/L	P366373	
		Microcystin RR**	0.25	U	ug/L	P366373	
		Microcystin YR**	0.25	U	ug/L	P366373	
		Saxitoxin**	0.25	UJ	ug/L	P366373	MS

Ref. Method and Comment:

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

Sample Location: Tidewater Preserve Lock - Manatee River

Collection Date/Time: 06/27/2019 10:10

Field ID: Tidewater Preserve Lock

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2099276	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P366786	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.2		mg N/L	P366768	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P366599	
	EPA 365.1 Rev. 2.0	Total-P	0.30		mg P/L	P366558	
2099281	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.19		mg P/L	P366503	

Sample Location: Manatee River - Near Redfish Point

Collection Date/Time: 06/27/2019 10:35

Field ID: Manatee River

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2099272	EPA 8321B	Anatoxin-a**	0.25	U	ug/L	P366373	
		Cylindrospermopsin**	0.25	U	ug/L	P366373	
		Microcystin LA**	0.25	U	ug/L	P366373	
		Microcystin LF**	0.25	U	ug/L	P366373	
		Microcystin LR**	0.25	U	ug/L	P366373	
		Microcystin LY**	0.25	U	ug/L	P366373	
		Microcystin RR**	0.25	U	ug/L	P366373	
		Microcystin YR**	0.25	U	ug/L	P366373	
		Saxitoxin**	0.25	UJ	ug/L	P366373	MS

Ref. Method and Comment:

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

Sample Location: Manatee River - Near Redfish Point

Collection Date/Time: 06/27/2019 10:35

Field ID: Manatee River

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2099277	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P366786	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.5		mg N/L	P366768	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P366599	
	EPA 365.1 Rev. 2.0	Total-P	0.31		mg P/L	P366558	
2099282	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.20		mg P/L	P366503	

Sample Location: Braden River Mouth @ 64

Collection Date/Time: 06/27/2019 11:25

Field ID: Braden River Mouth @ 64

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2099273	EPA 8321B	Anatoxin-a**	0.25	U	ug/L	P366373	
		Cylindrospermopsin**	0.25	U	ug/L	P366373	
		Microcystin LA**	0.25	U	ug/L	P366373	
		Microcystin LF**	0.25	U	ug/L	P366373	
		Microcystin LR**	0.25	U	ug/L	P366373	
		Microcystin LY**	0.25	U	ug/L	P366373	
		Microcystin RR**	0.25	U	ug/L	P366373	
		Microcystin YR**	0.25	U	ug/L	P366373	
		Saxitoxin**	0.25	UJ	ug/L	P366373	MS

Ref. Method and Comment:

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

Sample Location: Braden River Mouth @ 64

Collection Date/Time: 06/27/2019 11:25

Field ID: Braden River Mouth @ 64

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2099278	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P366786	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.0		mg N/L	P366768	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P366599	
	EPA 365.1 Rev. 2.0	Total-P	0.27		mg P/L	P366558	
2099283	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.15		mg P/L	P366503	

Sample Location: Braden River - Near 14th Ave E

Collection Date/Time: 06/27/2019 11:50

Field ID: Braden River - Near 14th Ave E

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2099274	EPA 8321B	Anatoxin-a**	0.25	U	ug/L	P366373	
		Cylindrospermopsin**	0.25	U	ug/L	P366373	
		Microcystin LA**	0.25	U	ug/L	P366373	
		Microcystin LF**	0.25	U	ug/L	P366373	
		Microcystin LR**	0.25	U	ug/L	P366373	
		Microcystin LY**	0.25	U	ug/L	P366373	
		Microcystin RR**	0.25	U	ug/L	P366373	
		Microcystin YR**	0.25	U	ug/L	P366373	
		Saxitoxin**	0.25	UJ	ug/L	P366373	MS

Ref. Method and Comment:

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

Sample Location: Braden River - Near 14th Ave E

Collection Date/Time: 06/27/2019 11:50

Field ID: Braden River - Near 14th Ave E

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2099279	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P366786	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.3		mg N/L	P366768	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P366599	
	EPA 365.1 Rev. 2.0	Total-P	0.23		mg P/L	P366558	
2099284	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.10		mg P/L	P366503	

Sample Location: Leona Ave Canal - Near Ellenton

Collection Date/Time: 06/27/2019 12:20

Field ID: Leona Ave Canal

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2099275	EPA 8321B	Anatoxin-a**	0.25	U	ug/L	P366373	
		Cylindrospermopsin**	0.25	U	ug/L	P366373	
		Microcystin LA**	0.25	U	ug/L	P366373	
		Microcystin LF**	0.25	U	ug/L	P366373	
		Microcystin LR**	0.25	U	ug/L	P366373	
		Microcystin LY**	0.25	U	ug/L	P366373	
		Microcystin RR**	0.25	U	ug/L	P366373	
		Microcystin YR**	0.25	U	ug/L	P366373	
		Saxitoxin**	0.25	UJ	ug/L	P366373	MS

Ref. Method and Comment:

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

Sample Location: Leona Ave Canal - Near Ellenton

Collection Date/Time: 06/27/2019 12:20

Field ID: Leona Ave Canal

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2099280	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P366786	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.0		mg N/L	P366768	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P366599	
	EPA 365.1 Rev. 2.0	Total-P	0.26		mg P/L	P366560	
2099285	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.15		mg P/L	P366503	

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P366786

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P366768

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P366599

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P366558

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P366560

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P366503

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

Reference Method: EPA 8321B
Batch ID: P366373

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: P366786

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P366768

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P366599

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P366558

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P366560

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P366503

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

Reference Method: EPA 8321B
Batch ID: P366373

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	107		P	40 - 140
Cylindrospermopsin	102		P	40 - 140
Microcystin LA	90.6		P	40 - 140
Microcystin LF	114		P	40 - 140
Microcystin LR	88.9		P	40 - 140
Microcystin LY	98.3		P	40 - 140
Microcystin RR	101		P	40 - 140
Microcystin YR	85.8		P	40 - 140
Saxitoxin	140		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P366786

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2099464	Ammonia-N	107	108	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P366768

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2098725	Kjeldahl Nitrogen	94.0	95.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P366599

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2099276	NO2NO3-N	101	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P366558

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2098951	Total-P	98.8	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P366560

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2099280	Total-P	99.6	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P366503

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2099244	O-Phosphate-P	96.9	96.0	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P366373

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2098384	Anatoxin-a	104	104	P/P	40 - 140
2098384	Cylindrospermopsin	92.0	93.0	P/P	40 - 140
2098384	Microcystin LA	81.8	80.3	P/P	40 - 140
2098384	Microcystin LF	103	102	P/P	40 - 140
2098384	Microcystin LR	83.4	85.8	P/P	40 - 140
2098384	Microcystin LY	86.3	84.9	P/P	40 - 140
2098384	Microcystin RR	93.7	92.2	P/P	40 - 140
2098384	Microcystin YR	87.3	83.7	P/P	40 - 140
2098384	Saxitoxin	38.8	44.7	F/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P366786

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2099464	Ammonia-N	0.908	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P366768

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2098725	Kjeldahl Nitrogen	1.27	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P366599

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2099276	NO2NO3-N	0.999	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P366558

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2098951	Total-P	0.391	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P366560

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2099280	Total-P	0.0942	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P366503

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2099244	O-Phosphate-P	0.933	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P366373

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2098384	Anatoxin-a	0.144	Spike	P	0 - 30
2098384	Cylindrospermopsin	1.12	Spike	P	0 - 30
2098384	Microcystin LA	1.76	Spike	P	0 - 30
2098384	Microcystin LF	1.48	Spike	P	0 - 30
2098384	Microcystin LR	2.85	Spike	P	0 - 30
2098384	Microcystin LY	1.67	Spike	P	0 - 30
2098384	Microcystin RR	1.62	Spike	P	0 - 30
2098384	Microcystin YR	4.25	Spike	P	0 - 30
2098384	Saxitoxin	14.3	Spike	P	0 - 30

Quality Assurance Report

Precision

* 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: 2099271

Field Sample ID: Tidewater Preserve Lock

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Carbamazepine-d10	103	P	30 - 165

Lab Sample ID: 2099272

Field Sample ID: Manatee River

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Carbamazepine-d10	98.1	P	30 - 165

Lab Sample ID: 2099273

Field Sample ID: Braden River Mouth @ 64

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

Lab Sample ID: 2099274

Field Sample ID: Braden River - Near 14th Ave E

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Carbamazepine-d10	90.8	P	30 - 165

Lab Sample ID: 2099275

Field Sample ID: Leona Ave Canal

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Carbamazepine-d10	88.5	P	30 - 165

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A92441

Included Lab Sample IDs: 2099271, 2099272, 2099273, 2099274, 2099275

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	104	92.1	P/P	50 - 160
Cylindrospermopsin	98.4	102	P/P	60 - 160
Microcystin LA	87.8	90.1	P/P	50 - 160
Microcystin LF	84.1	88.0	P/P	60 - 160
Microcystin LR	82.0	88.5	P/P	60 - 160
Microcystin LY	89.8	95.1	P/P	60 - 160
Microcystin RR	95.7	93.6	P/P	60 - 160
Microcystin YR	83.4	87.3	P/P	60 - 160
Saxitoxin	114	108	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A92447

Included Lab Sample IDs: 2099281, 2099282, 2099283, 2099284, 2099285

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.1	98.6	P/P	90 - 110
O-Phosphate-P	98.6	96.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A92496

Included Lab Sample IDs: 2099276, 2099277, 2099278, 2099279, 2099280

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A92503

Included Lab Sample IDs: 2099276, 2099277, 2099278, 2099279, 2099280

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A92579

Included Lab Sample IDs: 2099276, 2099277, 2099278, 2099279, 2099280

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	104	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A92606

Included Lab Sample IDs: 2099276, 2099277, 2099278, 2099279, 2099280

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.4	92.5	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	104	107	108		0.908
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.9	94.0	95.4		1.27
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	101	99.6		0.999
EPA 365.1 Rev. 2.0	Total-P	101	98.8	98.4		0.391
	Total-P	103	99.6	99.5		0.0942
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	96.9	96.0		0.933
EPA 8321B	Anatoxin-a	107	104	104		0.144
	Cylindrospermopsin	102	92.0	93.0		1.12
	Microcystin LA	90.6	81.8	80.3		1.76
	Microcystin LF	114	103	102		1.48
	Microcystin LR	88.9	83.4	85.8		2.85
	Microcystin LY	98.3	86.3	84.9		1.67
	Microcystin RR	101	93.7	92.2		1.62
	Microcystin YR	85.8	87.3	83.7		4.25
	Saxitoxin	140	38.8	44.7		14.3

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2099276, 2099277, 2099278, 2099279, 2099280
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2099276, 2099277, 2099278, 2099279, 2099280
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2099276, 2099277, 2099278, 2099279, 2099280
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2099276, 2099277, 2099278, 2099279, 2099280
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2099281, 2099282, 2099283, 2099284, 2099285
EPA 8321B / E31780	Microcystins in water matrices by HPLC/MS/MS	2099271, 2099272, 2099273, 2099274, 2099275

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	06/28/2019			07/05/2019 13:40	Ping Hua	2099276
	06/28/2019			07/05/2019 13:41	Ping Hua	2099277
	06/28/2019			07/05/2019 13:43	Ping Hua	2099278
	06/28/2019			07/05/2019 13:44	Ping Hua	2099279
	06/28/2019			07/05/2019 13:46	Ping Hua	2099280
EPA 351.2 Rev. 2.0	06/28/2019	07/05/2019 13:30	Adrian Shelby	07/08/2019 12:37	Virginia P. Brown	2099276
	06/28/2019	07/05/2019 13:30	Adrian Shelby	07/08/2019 12:39	Virginia P. Brown	2099277
	06/28/2019	07/05/2019 13:30	Adrian Shelby	07/08/2019 12:40	Virginia P. Brown	2099278
	06/28/2019	07/05/2019 13:30	Adrian Shelby	07/08/2019 12:42	Virginia P. Brown	2099279
	06/28/2019	07/05/2019 13:30	Adrian Shelby	07/08/2019 12:44	Virginia P. Brown	2099280
EPA 353.2 Rev. 2.0	06/28/2019			07/02/2019 11:49	Beverly Y. Sanders	2099276
	06/28/2019			07/02/2019 11:57	Beverly Y. Sanders	2099277
	06/28/2019			07/02/2019 11:58	Beverly Y. Sanders	2099278
	06/28/2019			07/02/2019 11:59	Beverly Y. Sanders	2099279
	06/28/2019			07/02/2019 12:00	Beverly Y. Sanders	2099280
EPA 365.1 Rev. 2.0	06/28/2019	07/01/2019 12:00	Lipi Saha	07/02/2019 13:26	Rosalyn Ballman	2099276
	06/28/2019	07/01/2019 12:00	Lipi Saha	07/02/2019 13:27	Rosalyn Ballman	2099277
	06/28/2019	07/01/2019 12:00	Lipi Saha	07/02/2019 13:28	Rosalyn Ballman	2099278
	06/28/2019	07/01/2019 12:00	Lipi Saha	07/02/2019 13:29	Rosalyn Ballman	2099279
	06/28/2019	07/01/2019 12:00	Lipi Saha	07/02/2019 13:35	Rosalyn Ballman	2099280
EPA 365.1 Rev. 2.0 dissolved	06/28/2019			06/28/2019 16:17	Jhamieka S. Greenwood	2099281
	06/28/2019			06/28/2019 16:18	Jhamieka S. Greenwood	2099282
	06/28/2019			06/28/2019 16:19	Jhamieka S. Greenwood	2099283
	06/28/2019			06/28/2019 16:26	Jhamieka S. Greenwood	2099284
	06/28/2019			06/28/2019 16:27	Jhamieka S. Greenwood	2099285
EPA 8321B	06/28/2019	06/28/2019 12:00	Juyoung Kim	06/28/2019 15:46	Juyoung Kim	2099271
	06/28/2019	06/28/2019 12:00	Juyoung Kim	06/28/2019 16:03	Juyoung Kim	2099272
	06/28/2019	06/28/2019 12:00	Juyoung Kim	06/28/2019 16:19	Juyoung Kim	2099273
	06/28/2019	06/28/2019 12:00	Juyoung Kim	06/28/2019 16:36	Juyoung Kim	2099274
	06/28/2019	06/28/2019 12:00	Juyoung Kim	06/28/2019 16:52	Juyoung Kim	2099275