Chemical Analysis Report

WQAP-2022-09-16-02

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Algal Bloom Response -SOROC**
Request ID: **RQ-2022-09-19-39**
Customer: **WQAP**
Project ID: **BLOOM-RESP**

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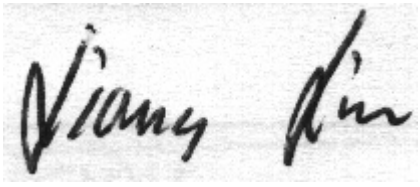
Date Certified: 07-OCT-2022 10:14



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: Saddlebags Lake - Dock **Collection Date/Time: 09/15/2022 10:15**

Field ID: HAB-SD-091522-1015 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2357137	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P419632	
		Cylindrospermopsin	0.10	U	ug/L	P419631	
		Desmethyl microcystin LR	0.25	U	ug/L	P419631	
		Microcystin HilR	0.25	U	ug/L	P419631	
		Microcystin HtyR	0.25	U	ug/L	P419631	
		Microcystin LA	0.10	U	ug/L	P419631	
		Microcystin LF	0.10	U	ug/L	P419631	
		Microcystin LR	0.25	U	ug/L	P419631	
		Microcystin LW	0.25	U	ug/L	P419631	
		Microcystin LY	0.10	U	ug/L	P419631	
		Microcystin RR	0.10	U	ug/L	P419631	
		Microcystin WR	0.50	U	ug/L	P419631	
		Microcystin YR	0.25	U	ug/L	P419631	
		Nodularin-R	0.10	U	ug/L	P419631	MS
2357150	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P420111	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.55		mg N/L	P419876	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.098		mg N/L	P420162	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P419839	
2357153	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P419736	

Sample Location: Lake Clay - Boat Ramp **Collection Date/Time: 09/15/2022 10:48**

Field ID: HAB-SD-091522-1048 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2357138	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P419632	
		Cylindrospermopsin	0.10	U	ug/L	P419631	
		Desmethyl microcystin LR	0.25	U	ug/L	P419631	
		Microcystin HilR	0.25	U	ug/L	P419631	
		Microcystin HtyR	0.25	U	ug/L	P419631	
		Microcystin LA	0.10	U	ug/L	P419631	
		Microcystin LF	0.10	U	ug/L	P419631	
		Microcystin LR	0.25	U	ug/L	P419631	
		Microcystin LW	0.25	U	ug/L	P419631	
		Microcystin LY	0.10	U	ug/L	P419631	
		Microcystin RR	0.10	U	ug/L	P419631	
		Microcystin WR	0.50	U	ug/L	P419631	
		Microcystin YR	0.25	U	ug/L	P419631	
		Nodularin-R	0.10	U	ug/L	P419631	MS
2357151	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P420112	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P419876	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P420162	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P419839	
2357154	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P419736	

Sample Location: Persimmon Lake - Boat Ramp **Collection Date/Time: 09/15/2022 11:13**

Field ID: HAB-SD-091522-1113 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2357139	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P419632	
		Cylindrospermopsin	0.10	U	ug/L	P419631	
		Desmethyl microcystin LR	0.25	U	ug/L	P419631	
		Microcystin HilR	0.25	U	ug/L	P419631	
		Microcystin HtyR	0.25	U	ug/L	P419631	
		Microcystin LA	0.10	U	ug/L	P419631	
		Microcystin LF	0.10	U	ug/L	P419631	
		Microcystin LR	0.25	U	ug/L	P419631	
		Microcystin LW	0.25	U	ug/L	P419631	
		Microcystin LY	0.10	U	ug/L	P419631	
		Microcystin RR	0.10	U	ug/L	P419631	
		Microcystin WR	0.50	U	ug/L	P419631	
		Microcystin YR	0.25	U	ug/L	P419631	
		Nodularin-R	0.10	U	ug/L	P419631	MS
2357152	EPA 350.1 Rev. 2.0	Ammonia-N	0.34		mg N/L	P420112	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.7		mg N/L	P419937	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.28		mg N/L	P420162	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P419839	
2357155	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P419736	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420111

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420112

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419876

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419937

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420162

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419839

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P419736

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

Reference Method: EPA 8321B
Batch ID: P419631

Component	Result	Code	Units
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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 8321B
Batch ID: P419631

Component	Result	Code	Units
Microcystin WR	0.50	U	ug/L
Microcystin YR	0.25	U	ug/L
Nodularin-R	0.10	U	ug/L

Reference Method: EPA 8321B
Batch ID: P419632

Component	Result	Code	Units
Anatoxin-a	0.25	U	ug/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420111

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420112

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419876

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419937

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420162

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419839

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	105		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P419736

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.6		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P419631

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	99.2		P	40 - 150
Desmethyl microcystin LR	128		P	40 - 150
Microcystin HilR	133		P	40 - 150
Microcystin HtyR	135		P	40 - 150
Microcystin LA	142		P	40 - 150
Microcystin LF	147		P	40 - 150
Microcystin LR	128		P	40 - 150
Microcystin LW	143		P	40 - 150
Microcystin LY	147		P	40 - 150
Microcystin RR	136		P	40 - 150

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P419631

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Microcystin WR	129		P	40 - 150
Microcystin YR	125		P	40 - 150
Nodularin-R	129		P	40 - 150

Reference Method: EPA 8321B
Batch ID: P419632

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	88.8		P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420111

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2357150	Ammonia-N	99.4	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420112

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2357046	Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419876

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2357150	Kjeldahl Nitrogen	100	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419937

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2357285	Kjeldahl Nitrogen	97.5	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420162

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2356924	NO2NO3-N	94.6	95.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2357151	Total-P	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P419736

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2357154	O-Phosphate-P	91.3	90.0	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P419631

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2356286	Cylindrospermopsin	102	93.0	P/P	40 - 150
2356286	Desmethyl microcystin LR	135	136	P/P	40 - 150
2356286	Microcystin HilR	135	135	P/P	40 - 150
2356286	Microcystin HtyR	140	137	P/P	40 - 150
2356286	Microcystin LA	132	133	P/P	40 - 150
2356286	Microcystin LF	141	145	P/P	40 - 150
2356286	Microcystin LR	133	133	P/P	40 - 150
2356286	Microcystin LW	130	129	P/P	40 - 150
2356286	Microcystin LY	139	137	P/P	40 - 150
2356286	Microcystin RR	144	141	P/P	40 - 150

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P419631

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2356286	Microcystin WR	124	124	P/P	40 - 150
2356286	Microcystin YR	129	125	P/P	40 - 150
2356286	Nodularin-R	164	164	F/F	40 - 150

Reference Method: EPA 8321B
Batch ID: P419632

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2356286	Anatoxin-a	89.3	87.9	P/P	40 - 150

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420111

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2357150	Ammonia-N	2.95	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420112

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2357046	Ammonia-N	0.888	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419876

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2357150	Kjeldahl Nitrogen	1.79	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P419937

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2357285	Kjeldahl Nitrogen	3.15	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420162

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2356924	NO2NO3-N	0.487	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P419839

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2357151	Total-P	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P419736

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2357154	O-Phosphate-P	1.43	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P419631

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2356286	Cylindrospermopsin	9.03	Spike	P	0 - 30
2356286	Desmethyl microcystin LR	0.558	Spike	P	0 - 30

Quality Assurance Report
Precision

Reference Method: EPA 8321B
Batch ID: P419631

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2356286	Microcystin HilR	0.0124	Spike	P	0 - 30
2356286	Microcystin HtyR	2.31	Spike	P	0 - 30
2356286	Microcystin LA	0.692	Spike	P	0 - 30
2356286	Microcystin LF	2.99	Spike	P	0 - 30
2356286	Microcystin LR	0.640	Spike	P	0 - 30
2356286	Microcystin LW	0.891	Spike	P	0 - 30
2356286	Microcystin LY	0.929	Spike	P	0 - 30
2356286	Microcystin RR	2.11	Spike	P	0 - 30
2356286	Microcystin WR	0.302	Spike	P	0 - 30
2356286	Microcystin YR	3.11	Spike	P	0 - 30
2356286	Nodularin-R	0.00519	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P419632

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2356286	Anatoxin-a	1.66	Spike	P	0 - 30

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

Quality Assurance Report
Surrogates

Lab Sample ID: 2357137
Field Sample ID: HAB-SD-091522-1015

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	106	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	72.2	P	30 - 160

Lab Sample ID: 2357138
Field Sample ID: HAB-SD-091522-1048

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	109	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	78.3	P	30 - 160

Lab Sample ID: 2357139
Field Sample ID: HAB-SD-091522-1113

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Microcystin LR ethyl-d5	123	P	30 - 160
EPA 8321B	Neosaxitoxin-15N7	65.7	P	30 - 160

Quality Assurance Report
Calibration Verification

Reference Method: EPA 8321B
Run ID: A114759
Included Lab Sample IDs: 2357137, 2357138, 2357139

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	107	112	P/P	60 - 160
Desmethyl microcystin LR	121	126	P/P	60 - 160
Microcystin HilR	127	132	P/P	60 - 160
Microcystin HtyR	133	130	P/P	60 - 160
Microcystin LA	144	145	P/P	50 - 160
Microcystin LF	131	132	P/P	60 - 160
Microcystin LR	125	127	P/P	60 - 160
Microcystin LW	139	134	P/P	60 - 160
Microcystin LY	139	140	P/P	60 - 160
Microcystin RR	130	127	P/P	60 - 160
Microcystin WR	126	128	P/P	60 - 160
Microcystin YR	113	106	P/P	60 - 160
Nodularin-R	117	125	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A114788
Included Lab Sample IDs: 2357153, 2357154, 2357155

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	95.7	98.4	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A114791
Included Lab Sample IDs: 2357137, 2357138, 2357139

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	85.0	94.6	P/P	50 - 160

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A114864
Included Lab Sample IDs: 2357151, 2357152

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.0	96.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A114892
Included Lab Sample IDs: 2357150, 2357151

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.8	97.9	P/P	90 - 110
Kjeldahl Nitrogen	97.9	97.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A114940
Included Lab Sample IDs: 2357150

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.8	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A114942
Included Lab Sample IDs: 2357150, 2357151, 2357152

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.6	98.5	P/P	90 - 110
Ammonia-N	98.0	97.6	P/P	90 - 110
Ammonia-N	98.6	98.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A114960
Included Lab Sample IDs: 2357150, 2357151, 2357152

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	95.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A115027
Included Lab Sample IDs: 2357152

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	103	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	103	99.4	103			2.95
	Ammonia-N	95.2	102	103			0.888
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.0	100	103			1.79
	Kjeldahl Nitrogen	106	97.5	101			3.15
EPA 353.2 Rev. 2.0	NO2NO3-N	97.0	94.6	95.2			0.487
EPA 365.1 Rev. 2.0	Total-P	105	106	106			0.0
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.6	91.3	90.0			1.43
EPA 8321B	Anatoxin-a	88.8	89.3	87.9			1.66
	Cylindrospermopsin	99.2	102	93.0			9.03
	Desmethyl microcystin LR	128	135	136			0.558
	Microcystin HilR	133	135	135			0.0124
	Microcystin HtyR	135	140	137			2.31
	Microcystin LA	142	132	133			0.692
	Microcystin LF	147	141	145			2.99
	Microcystin LR	128	133	133			0.640
	Microcystin LW	143	130	129			0.891
	Microcystin LY	147	139	137			0.929
	Microcystin RR	136	144	141			2.11
	Microcystin WR	129	124	124			0.302
	Microcystin YR	125	129	125			3.11
	Nodularin-R	129	164	164			0.0051

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2357150, 2357151, 2357152
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2357150, 2357151, 2357152
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2357150, 2357151, 2357152
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2357150, 2357151, 2357152
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2357153, 2357154, 2357155
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2357137, 2357138, 2357139
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2357137, 2357138, 2357139

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	09/16/2022			09/26/2022 12:53	Judith K. Clark	2357150
	09/16/2022			09/26/2022 13:26	Judith K. Clark	2357151
	09/16/2022			09/26/2022 14:16	Judith K. Clark	2357152
EPA 351.2 Rev. 2.0	09/16/2022	09/21/2022 13:07	Samantha L Bates	09/22/2022 13:14	Samantha L Bates	2357150
	09/16/2022	09/21/2022 13:07	Samantha L Bates	09/22/2022 13:22	Samantha L Bates	2357151
	09/16/2022	09/22/2022 09:22	Alexandra J Mattheus	09/29/2022 11:18	Samantha L Bates	2357152
EPA 353.2 Rev. 2.0	09/16/2022			09/27/2022 11:26	Beverly Y. Sanders	2357150
	09/16/2022			09/27/2022 11:27	Beverly Y. Sanders	2357151
	09/16/2022			09/27/2022 11:28	Beverly Y. Sanders	2357152
EPA 365.1 Rev. 2.0	09/16/2022	09/21/2022 08:40	Adam P Silver	09/21/2022 16:52	Simonne.V. Calhoun	2357151
	09/16/2022	09/21/2022 08:40	Adam P Silver	09/21/2022 16:53	Simonne.V. Calhoun	2357152
	09/16/2022	09/21/2022 08:40	Adam P Silver	09/26/2022 13:05	James L Waggerby	2357150
EPA 365.1 Rev. 2.0 dissolved	09/16/2022			09/16/2022 14:27	Elise M. Gillis	2357154
	09/16/2022			09/16/2022 14:32	Elise M. Gillis	2357153, 2357155
EPA 8321B	09/16/2022	09/16/2022 12:00	Manjita Shrestha	09/16/2022 15:27	Manjita Shrestha	2357137
	09/16/2022	09/16/2022 12:00	Manjita Shrestha	09/16/2022 15:41	Manjita Shrestha	2357138
	09/16/2022	09/16/2022 12:00	Manjita Shrestha	09/16/2022 15:55	Manjita Shrestha	2357139
	09/16/2022	09/16/2022 12:00	Umesh Chiluwal	09/16/2022 15:21	Umesh Chiluwal	2357137
	09/16/2022	09/16/2022 12:00	Umesh Chiluwal	09/16/2022 15:38	Umesh Chiluwal	2357138
	09/16/2022	09/16/2022 12:00	Umesh Chiluwal	09/16/2022 15:54	Umesh Chiluwal	2357139