

Chemical Analysis Report

CEN-DIST-2023-09-14-01

Florida DEP Laboratory
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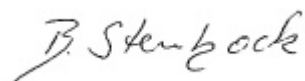
Event Description: **Algal Bloom Response - CEROC**
Request ID: **RQ-2023-07-03-50**
Customer: **CEN-DIST**
Project ID: **BLOOM-RESP**

Send Reports to:
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Date Certified: 05-OCT-2023 12:52



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: Tiger Lake-Center

Collection Date/Time: 09/13/2023 12:17

Field ID: HABCE0185

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2437021	DEP SOP: NU-094-1	Color (true)	38		PCU	P435014	
2437023	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P435139	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.9		mg N/L	P435554	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P435575	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P435228	
2437025	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P435006	
2437027	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P434961	
		Cylindrospermopsin	0.10	U	ug/L	P434960	
		Desmethyl microcystin LR	0.25	U	ug/L	P434960	
		Microcystin HILR	0.25	U	ug/L	P434960	
		Microcystin HtyR	0.25	U	ug/L	P434960	
		Microcystin LA	0.12	I	ug/L	P434960	
		Microcystin LF	0.10	U	ug/L	P434960	
		Microcystin LR	0.25	U	ug/L	P434960	
		Microcystin LW	0.25	U	ug/L	P434960	
		Microcystin LY	0.10	U	ug/L	P434960	
		Microcystin RR	0.10	U	ug/L	P434960	
		Microcystin WR	0.50	U	ug/L	P434960	
		Neosaxitoxin	0.50	U	ug/L	P434961	
		Microcystin YR	0.25	U	ug/L	P434960	
		Saxitoxin	0.50	U	ug/L	P434961	
		Nodularin-R	0.10	U	ug/L	P434960	

Ref. Method and Comment:

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Lake Weohyakapka-W Boat Ramp

Collection Date/Time: 09/13/2023 11:35

Field ID: HABCE0213

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2437022	DEP SOP: NU-094-1	Color (true)	50		PCU	P435014	
2437024	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P435140	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.90		mg N/L	P435786	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P435283	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P435228	
2437026	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P435006	
2437028	EPA 8321B	Anatoxin-a	0.25	U	ug/L	P434961	
		Cylindrospermopsin	0.10	U	ug/L	P434960	
		Desmethyl microcystin LR	0.25	U	ug/L	P434960	
		Microcystin HILR	0.25	U	ug/L	P434960	
		Microcystin HtyR	0.25	U	ug/L	P434960	
		Microcystin LA	0.10	U	ug/L	P434960	
		Microcystin LF	0.10	U	ug/L	P434960	
		Microcystin LR	0.25	U	ug/L	P434960	
		Microcystin LW	0.25	U	ug/L	P434960	
		Microcystin LY	0.10	U	ug/L	P434960	
		Microcystin RR	0.10	U	ug/L	P434960	
		Microcystin WR	0.50	U	ug/L	P434960	
		Neosaxitoxin	0.50	U	ug/L	P434961	
		Microcystin YR	0.25	U	ug/L	P434960	
		Saxitoxin	0.50	U	ug/L	P434961	
		Nodularin-R	0.10	U	ug/L	P434960	

Ref. Method and Comment:

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P435014

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P435139

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P435140

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435554

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435786

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P435283

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P435575

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P435228

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P435006

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 8321B

Batch ID: P434960

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
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: P434961

Component	Result	Code	Units
Anatoxin-a	0.25	U	ug/L
Neosaxitoxin	0.50	U	ug/L
Saxitoxin	0.50	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: DEP SOP: NU-094-1
Batch ID: P435014

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P435139

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P435140

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435554

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435786

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P435283

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P435575

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: P435228

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P435006

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 8321B
Batch ID: P434960

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Cylindrospermopsin	75.4		P	40 - 160
Desmethyl microcystin LR	106		P	40 - 160
Microcystin HilR	96.5		P	40 - 160
Microcystin HtyR	97.6		P	40 - 160
Microcystin LA	97.8		P	40 - 160
Microcystin LF	93.5		P	40 - 160
Microcystin LR	95.3		P	40 - 160
Microcystin LW	79.8		P	40 - 160
Microcystin LY	88.3		P	40 - 160
Microcystin RR	99.6		P	40 - 160
Microcystin WR	101		P	40 - 160
Microcystin YR	92.6		P	40 - 160
Nodularin-R	106		P	40 - 160

Reference Method: EPA 8321B
Batch ID: P434961

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Anatoxin-a	118		P	40 - 150
Neosaxitoxin	88.4		P	40 - 150
Saxitoxin	102		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P435139

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2436940	Ammonia-N	97.8	99.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P435140

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2437024	Ammonia-N	98.2	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435554

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2436972	Kjeldahl Nitrogen	101	108	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435786

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2437024	Kjeldahl Nitrogen	98.2	95.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P435283

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2436983	NO2NO3-N	103		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P435575

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2437023	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P435006

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2436973	O-Phosphate-P	97.6	96.6	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P434960

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2436001	Cylindrospermopsin	86.6	102	P/P	40 - 160
2436001	Desmethyl microcystin LR	117	119	P/P	40 - 160
2436001	Microcystin H1LR	102	109	P/P	40 - 160
2436001	Microcystin HtyR	97.3	102	P/P	40 - 160
2436001	Microcystin LA	102	108	P/P	40 - 160
2436001	Microcystin LF	111	114	P/P	40 - 160
2436001	Microcystin LR	98.6	102	P/P	40 - 160
2436001	Microcystin LW	95.3	94.6	P/P	40 - 160
2436001	Microcystin LY	93.7	95.3	P/P	40 - 160
2436001	Microcystin RR	95.7	99.7	P/P	40 - 160

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 8321B
Batch ID: P434960

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2436001	Microcystin WR	109	114	P/P	40 - 160
2436001	Microcystin YR	97.7	98.1	P/P	40 - 160
2436001	Nodularin-R	101	104	P/P	40 - 160

Reference Method: EPA 8321B
Batch ID: P434961

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2436001	Anatoxin-a	109	106	P/P	40 - 150
2436001	Neosaxitoxin	63.7	60.9	P/P	40 - 150
2436001	Saxitoxin	85.4	85.4	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P435014

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2436982	Color (true)	5.55	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P435139

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2436940	Ammonia-N	1.58	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P435140

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437024	Ammonia-N	0.547	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435554

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2436972	Kjeldahl Nitrogen	4.49	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P435786

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437024	Kjeldahl Nitrogen	2.00	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P435283

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2436983	NO2NO3-N	0.189	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P435575

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437023	NO2NO3-N	0.491	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P435228

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2437035	Total-P	0.680	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P435006

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2436973	O-Phosphate-P	1.03	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P434960

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2436001	Cylindrospermopsin	16.0	Spike	P	0 - 30
2436001	Desmethyl microcystin LR	1.48	Spike	P	0 - 30
2436001	Microcystin HILR	6.22	Spike	P	0 - 30
2436001	Microcystin HtyR	4.40	Spike	P	0 - 30
2436001	Microcystin LA	5.58	Spike	P	0 - 30
2436001	Microcystin LF	2.48	Spike	P	0 - 30
2436001	Microcystin LR	3.31	Spike	P	0 - 30
2436001	Microcystin LW	0.777	Spike	P	0 - 30
2436001	Microcystin LY	1.71	Spike	P	0 - 30
2436001	Microcystin RR	4.11	Spike	P	0 - 30
2436001	Microcystin WR	4.72	Spike	P	0 - 30
2436001	Microcystin YR	0.420	Spike	P	0 - 30
2436001	Nodularin-R	2.34	Spike	P	0 - 30

Reference Method: EPA 8321B
Batch ID: P434961

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2436001	Anatoxin-a	2.94	Spike	P	0 - 30
2436001	Neosaxitoxin	4.54	Spike	P	0 - 30
2436001	Saxitoxin	0.0726	Spike	P	0 - 30

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

Quality Assurance Report Surrogates

Lab Sample ID: 2437027
Field Sample ID: HABCE0185

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	98.8	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	113	P	30 - 160

Lab Sample ID: 2437028
Field Sample ID: HABCE0213

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Anatoxin-a 13C4	98.7	P	30 - 160
EPA 8321B	Microcystin LR ethyl-d5	119	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 8321B

Run ID: A121523

Included Lab Sample IDs: 2437027, 2437028

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Anatoxin-a	102	102	P/P	50 - 160
Neosaxitoxin	96.6	95.1	P/P	50 - 160
Saxitoxin	106	105	P/P	50 - 160

Reference Method: EPA 8321B

Run ID: A121534

Included Lab Sample IDs: 2437027, 2437028

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Cylindrospermopsin	107	113	P/P	60 - 160
Desmethyl microcystin LR	115	121	P/P	50 - 160
Microcystin HILR	109	105	P/P	60 - 160
Microcystin HtyR	110	106	P/P	60 - 160
Microcystin LA	117	116	P/P	50 - 160
Microcystin LF	113	111	P/P	60 - 160
Microcystin LR	103	97.1	P/P	60 - 160
Microcystin LW	94.2	93.4	P/P	60 - 160
Microcystin LY	100	101	P/P	60 - 160
Microcystin RR	105	99.6	P/P	60 - 160
Microcystin WR	114	117	P/P	60 - 160
Microcystin YR	101	99.8	P/P	60 - 160
Nodularin-R	110	109	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A121537

Included Lab Sample IDs: 2437025, 2437026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.3	98.3	P/P	90 - 110

Reference Method: DEP SOP: NU-094-1

Run ID: A121541

Included Lab Sample IDs: 2437021, 2437022

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.5	99.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A121599

Included Lab Sample IDs: 2437023, 2437024

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.5	97.4	P/P	90 - 110
Ammonia-N	98.5	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A121649

Included Lab Sample IDs: 2437023

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	98.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A121653

Included Lab Sample IDs: 2437024

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	96.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A121662

Included Lab Sample IDs: 2437024

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A121789

Included Lab Sample IDs: 2437023

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	90.0	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A121827

Included Lab Sample IDs: 2437023

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	108	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A121912

Included Lab Sample IDs: 2437024

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	98.3	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 SMP	MS
					LCS	
DEP SOP: NU-094-1	Color (true)	98.4			5.55	
EPA 350.1 Rev. 2.0	Ammonia-N	98.8	97.8	99.6		1.58
	Ammonia-N	98.0	98.2	98.8		0.547
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	101	108		4.49
	Kjeldahl Nitrogen	98.8	98.2	95.3		2.00
EPA 353.2 Rev. 2.0	NO2NO3-N	104	103			0.189
	NO2NO3-N	102	102	102		0.491
EPA 365.1 Rev. 2.0	Total-P	104				0.680
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	97.6	96.6		1.03
EPA 8321B	Anatoxin-a	118	109	106		2.94
	Cylindrospermopsin	75.4	102	86.6		16.0
	Desmethyl microcystin LR	106	117	119		1.48
	Microcystin HiLR	96.5	102	109		6.22
	Microcystin HtyR	97.6	97.3	102		4.40
	Microcystin LA	97.8	102	108		5.58
	Microcystin LF	93.5	111	114		2.48
	Microcystin LR	95.3	98.6	102		3.31
	Microcystin LW	79.8	95.3	94.6		0.777
	Microcystin LY	88.3	93.7	95.3		1.71
	Microcystin RR	99.6	99.7	95.7		4.11
	Microcystin WR	101	109	114		4.72
	Microcystin YR	92.6	97.7	98.1		0.420
	Neosaxitoxin	88.4	63.7	60.9		4.54
	Nodularin-R	106	104	101		2.34
	Saxitoxin	102	85.4	85.4		0.0726

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2437021, 2437022
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2437023, 2437024
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2437023, 2437024
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2437023, 2437024
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2437023, 2437024
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2437025, 2437026
EPA 8321B	Microcystins in water matrices by HPLC/MS/MS	2437027, 2437028
EPA 8321B	Saxitoxin in water matrices by HPLC/MS/MS	2437027, 2437028

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	09/14/2023			09/14/2023 13:50	Samantha L Bates	2437021
	09/14/2023			09/14/2023 13:51	Samantha L Bates	2437022
EPA 350.1 Rev. 2.0	09/14/2023			09/18/2023 12:21	Ping Hua	2437023
	09/14/2023			09/18/2023 12:33	Ping Hua	2437024
EPA 351.2 Rev. 2.0	09/14/2023	09/27/2023 12:06	Simonne.V. Calhoun	09/28/2023 14:17	Samantha L Bates	2437023
	09/14/2023	10/02/2023 11:13	Simonne.V. Calhoun	10/03/2023 10:29	Ping Hua	2437024
EPA 353.2 Rev. 2.0	09/14/2023			09/19/2023 14:50	Anna M. Plaviak	2437024
	09/14/2023			09/25/2023 12:09	Anna M. Plaviak	2437023
EPA 365.1 Rev. 2.0	09/14/2023	09/19/2023 16:30	Alexis Price	09/20/2023 12:13	Chandler E Cox	2437023
	09/14/2023	09/19/2023 16:30	Alexis Price	09/20/2023 13:29	Chandler E Cox	2437024
EPA 365.1 Rev. 2.0 dissolved	09/14/2023			09/14/2023 14:37	Elise M. Gillis	2437025
	09/14/2023			09/14/2023 14:38	Elise M. Gillis	2437026
EPA 8321B	09/14/2023	09/14/2023 12:00	Hana Lee	09/14/2023 15:57	Tae K Lee	2437027
	09/14/2023	09/14/2023 12:00	Hana Lee	09/14/2023 16:11	Tae K Lee	2437028
	09/14/2023	09/14/2023 12:00	Hana Lee	09/14/2023 16:58	Tae K Lee	2437027
	09/14/2023	09/14/2023 12:00	Hana Lee	09/14/2023 17:14	Tae K Lee	2437028