Chemical Analysis Report

NE-DIST-2020-12-10-01

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

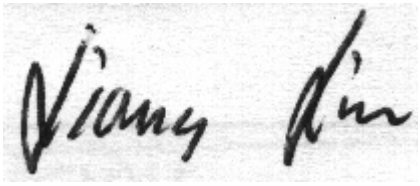
Event Description: **Nutrient makeup**
Request ID: **RQ-2020-12-07-71**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256
Attn: Jeremy Parrish

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 04-JAN-2021 13:44



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 group are included in this report: Nutrients.

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: Big Pottsburg CR Bowden Rd. **Collection Date/Time: 12/09/2020 13:45**

Field ID: 20030068 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2212346	EPA 350.1 Rev. 2.0	Ammonia-N	0.034		mg N/L	P391083	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P391435	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P391024	
	EPA 365.1 Rev. 2.0	Total-P	0.066		mg P/L	P391109	
	SM 5310 B-2011	Organic Carbon	12		mg C/L	P391173	

Sample Location: Little Pottsburg Creek at Emerson **Collection Date/Time: 12/09/2020 13:00**

Field ID: 20030070 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2212347	EPA 350.1 Rev. 2.0	Ammonia-N	0.19		mg N/L	P391083	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.74		mg N/L	P391435	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.37		mg N/L	P391024	
	EPA 365.1 Rev. 2.0	Total-P	0.094		mg P/L	P391109	
	SM 5310 B-2011	Organic Carbon	7.7		mg C/L	P391173	

Sample Location: Drainage Ditch Parental Home Rd. **Collection Date/Time: 12/09/2020 13:25**

Field ID: 20030071 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2212348	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P391083	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.53		mg N/L	P391435	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.25		mg N/L	P391025	
	EPA 365.1 Rev. 2.0	Total-P	0.034		mg P/L	P391109	
	SM 5310 B-2011	Organic Carbon	8.0		mg C/L	P391173	

Sample Location: Trout River at Garden St. **Collection Date/Time: 12/09/2020 13:30**

Field ID: 20030751 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2212349	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P391083	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33		mg N/L	P391435	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.082		mg N/L	P391025	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P391109	
	SM 5310 B-2011	Organic Carbon	9.4		mg C/L	P391173	

Sample Location: Newcastle CR @ Ft. Caroline Hills Rd. **Collection Date/Time: 12/09/2020 12:25**

Field ID: 20030872 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2212350	EPA 350.1 Rev. 2.0	Ammonia-N	0.068		mg N/L	P391083	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P391435	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.39		mg N/L	P391025	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P391109	
	SM 5310 B-2011	Organic Carbon	2.3		mg C/L	P391173	

Sample Location: Greenfield Creek @ Queens Harbour Blvd. **Collection Date/Time: 12/09/2020 11:00**

Field ID: 20030809 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2212351	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P391491	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.85		mg N/L	P391645	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P391100	
	EPA 365.1 Rev. 2.0	Total-P	0.071		mg P/L	P391108	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P391173	

Sample Location: Deep Creek @ HYWY 441 **Collection Date/Time: 12/09/2020 10:30**

Field ID: 21010051 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2212352	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P391480	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.91		mg N/L	P391647	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P391333	
	EPA 365.1 Rev. 2.0	Total-P	0.070		mg P/L	P391616	
	SM 5310 B-2011	Organic Carbon	50		mg C/L	P391173	

Sample Location: Yellow Water CR at SR 228 **Collection Date/Time: 12/09/2020 12:55**

Field ID: 20030549 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2212353	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P391480	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P391435	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P391333	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P391517	
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P391173	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391083

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391480

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391491

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391435

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391645

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391647

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391024

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391025

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391100

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391333

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391108

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391109

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391517

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391616

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

Reference Method: SM 5310 B-2011
Batch ID: P391173

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391083

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391480

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391491

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391435

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391645

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391647

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391024

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: P391025

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391100

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391333

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391108

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391109

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391517

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391616

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

Reference Method: SM 5310 B-2011
Batch ID: P391173

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	104		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391083

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212245	Ammonia-N	92.6	93.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391480

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212353	Ammonia-N	97.6	98.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391491

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212278	Ammonia-N	105	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391435

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212349	Kjeldahl Nitrogen	101	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391645

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212280	Kjeldahl Nitrogen	97.7	94.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391647

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2213049	Kjeldahl Nitrogen	100	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391024

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212325	NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391025

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212348	NO2NO3-N	97.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391100

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212351	NO2NO3-N	99.5	101	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391333

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2213300	NO2NO3-N	99.6	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391108

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212279	Total-P	96.4	95.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391109

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212346	Total-P	104	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391517

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2214262	Total-P	103	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391616

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2213256	Total-P	106	103	P/P	90 - 110

Reference Method: SM 5310 B-2011
Batch ID: P391173

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2212351	Organic Carbon	110	110	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391083

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212245	Ammonia-N	0.649	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391480

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212353	Ammonia-N	0.951	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212278	Ammonia-N	0.766	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391435

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212349	Kjeldahl Nitrogen	3.71	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391645

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212280	Kjeldahl Nitrogen	3.00	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391647

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213049	Kjeldahl Nitrogen	0.583	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391024

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212325	NO2NO3-N	0.484	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391025

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212348	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391100

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212351	NO2NO3-N	0.931	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391333

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213300	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391108

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212279	Total-P	0.964	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212346	Total-P	1.61	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2214262	Total-P	1.76	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391616

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213256	Total-P	2.20	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P391173

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2212351	Organic Carbon	0.0271	Spike	P	0 - 20

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A102539
Included Lab Sample IDs: 2212346, 2212347, 2212348, 2212349, 2212350

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A102553
Included Lab Sample IDs: 2212346, 2212347, 2212348, 2212349, 2212350

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	93.7	94.7	P/P	90 - 110
Ammonia-N	94.7	98.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A102566
Included Lab Sample IDs: 2212351

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

Reference Method: SM 5310 B-2011
Run ID: A102590
Included Lab Sample IDs: 2212346, 2212347, 2212348, 2212349, 2212350, 2212351, 2212352, 2212353

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	107	P/P	90 - 110
Organic Carbon	107	107	P/P	90 - 110
Organic Carbon	107	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A102638
Included Lab Sample IDs: 2212352, 2212353

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A102645
Included Lab Sample IDs: 2212346, 2212347

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	101	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A102672
Included Lab Sample IDs: 2212348, 2212349, 2212350, 2212351

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A102685
Included Lab Sample IDs: 2212352, 2212353

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.5	P/P	90 - 110
Ammonia-N	99.5	99.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A102686
Included Lab Sample IDs: 2212351

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A102694
Included Lab Sample IDs: 2212346, 2212347, 2212348, 2212349, 2212350, 2212353

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	105	P/P	90 - 110
Kjeldahl Nitrogen	99.7	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A102753
Included Lab Sample IDs: 2212353

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A102758
Included Lab Sample IDs: 2212352

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	103	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A102770
Included Lab Sample IDs: 2212351, 2212352

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	101	P/P	90 - 110
Kjeldahl Nitrogen	101	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	SMP	MS
EPA 350.1 Rev. 2.0	Ammonia-N	96.4	92.6	93.4			0.649
	Ammonia-N	98.6	97.6	98.8			0.951
	Ammonia-N	97.4	105	106			0.766
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	101	106			3.71
	Kjeldahl Nitrogen	97.1	97.7	94.5			3.00
	Kjeldahl Nitrogen	101	100	101			0.583
EPA 353.2 Rev. 2.0	NO2NO3-N	104	100	101			0.484
	NO2NO3-N	101	97.5				0.0
	NO2NO3-N	101	99.5	101			0.931
	NO2NO3-N	101	99.6	99.6			0.0
EPA 365.1 Rev. 2.0	Total-P	103	96.4	95.5			0.964
	Total-P	103	104	102			1.61
	Total-P	103	103	101			1.76
	Total-P	101	106	103			2.20
SM 5310 B-2011	Organic Carbon	104	110	110			0.0271

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2212346, 2212347, 2212348, 2212349, 2212350, 2212351, 2212352, 2212353
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2212346, 2212347, 2212348, 2212349, 2212350, 2212351, 2212352, 2212353
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2212346, 2212347, 2212348, 2212349, 2212350, 2212351, 2212352, 2212353
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2212346, 2212347, 2212348, 2212349, 2212350, 2212351, 2212352, 2212353
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2212346, 2212347, 2212348, 2212349, 2212350, 2212351, 2212352, 2212353

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	12/10/2020			12/13/2020 17:07	Ping Hua	2212346
	12/10/2020			12/13/2020 17:08	Ping Hua	2212348
	12/10/2020			12/13/2020 17:10	Ping Hua	2212349
	12/10/2020			12/13/2020 17:19	Ping Hua	2212347
	12/10/2020			12/13/2020 17:20	Ping Hua	2212350
	12/10/2020			12/20/2020 09:32	Ping Hua	2212353
	12/10/2020			12/20/2020 09:49	Ping Hua	2212352
	12/10/2020			12/20/2020 19:52	Ping Hua	2212351
EPA 351.2 Rev. 2.0	12/10/2020	12/18/2020 10:54	David Boose	12/20/2020 18:04	Julia Storbeck	2212349
	12/10/2020	12/18/2020 10:54	David Boose	12/20/2020 18:09	Julia Storbeck	2212346
	12/10/2020	12/18/2020 10:54	David Boose	12/20/2020 18:11	Julia Storbeck	2212347
	12/10/2020	12/18/2020 10:54	David Boose	12/20/2020 18:12	Julia Storbeck	2212348
	12/10/2020	12/18/2020 10:54	David Boose	12/20/2020 18:17	Julia Storbeck	2212350
	12/10/2020	12/18/2020 10:54	David Boose	12/20/2020 18:21	Julia Storbeck	2212353
	12/10/2020	12/22/2020 14:29	David Boose	12/23/2020 15:54	Julia Storbeck	2212351
	12/10/2020	12/22/2020 14:29	David Boose	12/23/2020 16:17	Julia Storbeck	2212352
EPA 353.2 Rev. 2.0	12/10/2020			12/11/2020 11:26	Beverly Y. Sanders	2212346
	12/10/2020			12/11/2020 11:27	Beverly Y. Sanders	2212347
	12/10/2020			12/11/2020 11:34	Beverly Y. Sanders	2212348
	12/10/2020			12/11/2020 11:40	Beverly Y. Sanders	2212349
	12/10/2020			12/11/2020 11:42	Beverly Y. Sanders	2212350
	12/10/2020			12/14/2020 11:45	Beverly Y. Sanders	2212351
	12/10/2020			12/17/2020 09:52	Beverly Y. Sanders	2212352
	12/10/2020			12/17/2020 09:54	Beverly Y. Sanders	2212353
EPA 365.1 Rev. 2.0	12/10/2020	12/14/2020 17:37	Shengyu Wang	12/17/2020 14:19	Benjamin T. Nordmann	2212346
	12/10/2020	12/14/2020 17:37	Shengyu Wang	12/17/2020 14:22	Benjamin T. Nordmann	2212347
	12/10/2020	12/14/2020 17:37	Shengyu Wang	12/18/2020 12:28	Shengyu Wang	2212351
	12/10/2020	12/14/2020 17:37	Shengyu Wang	12/18/2020 12:34	Shengyu Wang	2212348
	12/10/2020	12/14/2020 17:37	Shengyu Wang	12/18/2020 12:35	Shengyu Wang	2212349
	12/10/2020	12/14/2020 17:37	Shengyu Wang	12/18/2020 12:36	Shengyu Wang	2212350
	12/10/2020	12/21/2020 12:50	Yen Ta	12/23/2020 11:22	Shengyu Wang	2212353
	12/10/2020	12/22/2020 13:26	Yen Ta	12/23/2020 12:51	Benjamin T. Nordmann	2212352
SM 5310 B-2011	12/10/2020			12/14/2020 22:39	Touraj Touran	2212351
	12/10/2020			12/15/2020 00:57	Touraj Touran	2212346
	12/10/2020			12/15/2020 01:09	Touraj Touran	2212347
	12/10/2020			12/15/2020 01:21	Touraj Touran	2212348
	12/10/2020			12/15/2020 01:58	Touraj Touran	2212349
	12/10/2020			12/15/2020 02:10	Touraj Touran	2212350
	12/10/2020			12/15/2020 02:22	Touraj Touran	2212352
	12/10/2020			12/15/2020 02:35	Touraj Touran	2212353