

Chemical Analysis Report

NW-DIST-2021-03-10-01

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

Event Description: **Project Greenshores**
Request ID: **RQ-2021-03-08-14**
Customer: **NW-DIST**
Project ID: **DISTRICT**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 308
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 30-MAR-2021 12:00

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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: Range Marker East of Bayou Texar

Collection Date/Time: 03/09/2021 10:07

Field ID: 1

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2230241	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P394757	
	SM 2120 B-2011	Color (true)	12	A	PCU	P394749	
	SM 2540 D-2011	TSS	5	I	mg/L	P395155	
2230255	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P394929	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30	I	mg N/L	P394972	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.042		mg N/L	P394780	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P394986	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Midpoint between Bay Bridge and Muscogee Wharf

Collection Date/Time: 03/09/2021 10:27

Field ID: 2

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2230242	EPA 180.1 Rev. 2.0	Turbidity	2.7	A	NTU	P394757	
	SM 2120 B-2011	Color (true)	13		PCU	P394749	
	SM 2540 D-2011	TSS	3	U	mg/L	P395155	
2230256	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P394929	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32	I	mg N/L	P394972	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.039		mg N/L	P394781	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P394986	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: East end of Primary Stormdrain

Collection Date/Time: 03/09/2021 10:35

Field ID: 3

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2230243	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P394757	
	SM 2120 B-2011	Color (true)	11		PCU	P394749	
	SM 2540 D-2011	TSS	4	I	mg/L	P395155	
2230257	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P394929	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30	I	mg N/L	P394972	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.045		mg N/L	P394781	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P394986	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: South of Primary Stormdrain

Collection Date/Time: 03/09/2021 10:42

Field ID: 4

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2230244	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P394757	
	SM 2120 B-2011	Color (true)	10		PCU	P394749	
	SM 2540 D-2011	TSS	3	U	mg/L	P395155	
2230258	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P394929	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29	I	mg N/L	P394972	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.045		mg N/L	P394781	
	EPA 365.1 Rev. 2.0	Total-P	0.01	I	mg P/L	P394986	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: End of Chase Street

Collection Date/Time: 03/09/2021 10:59

Field ID: 5

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2230245	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P394757	
	SM 2120 B-2011	Color (true)	12		PCU	P394749	
	SM 2540 D-2011	TSS	6	I	mg/L	P395155	
2230259	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P394929	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31	I	mg N/L	P394972	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.044		mg N/L	P394781	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P394986	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Midpoint between Muscogee and Hawkshaw

Collection Date/Time: 03/09/2021 11:05

Field ID: 6

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2230246	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P394757	
	SM 2120 B-2011	Color (true)	13		PCU	P394749	
	SM 2540 D-2011	TSS	3	I	mg/L	P395155	
2230260	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P394929	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24	I	mg N/L	P394972	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.039		mg N/L	P394781	
	EPA 365.1 Rev. 2.0	Total-P	0.01	I	mg P/L	P394986	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Midpoint between bridge and port Spoil Pond Collection Date/Time: 03/09/2021 11:11

Field ID: 7

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2230247	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P394757	
	SM 2120 B-2011	Color (true)	12		PCU	P394749	
	SM 2540 D-2011	TSS	5	I	mg/L	P395156	
2230261	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P394930	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27	I	mg N/L	P394972	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.037		mg N/L	P394781	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P394986	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: West of Primary Stormdrain

Collection Date/Time: 03/09/2021 10:49

Field ID: 8

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2230248	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P394757	
	SM 2120 B-2011	Color (true)	9.9		PCU	P394749	
	SM 2540 D-2011	TSS	5	I	mg/L	P395156	
2230262	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P394930	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27	I	mg N/L	P394972	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.048		mg N/L	P394781	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P394986	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: West of Hawkshaw Lagoon

Collection Date/Time: 03/09/2021 11:38

Field ID: 9

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2230249	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P394757	
	SM 2120 B-2011	Color (true)	12		PCU	P394749	
	SM 2540 D-2011	TSS	6	I	mg/L	P395156	
2230263	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P394930	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28	I	mg N/L	P394972	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.033		mg N/L	P394781	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P394986	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: South of Bayfront Stormdrain

Collection Date/Time: 03/09/2021 11:32

Field ID: 10

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2230250	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P394757	
	SM 2120 B-2011	Color (true)	11		PCU	P394749	
	SM 2540 D-2011	TSS	6	I	mg/L	P395156	
2230264	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P394930	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23	I	mg N/L	P394972	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.032		mg N/L	P394781	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P394987	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Seville Marina Inlet

Collection Date/Time: 03/09/2021 11:24

Field ID: 11

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2230251	EPA 180.1 Rev. 2.0	Turbidity	2.0	A	NTU	P394758	
	SM 2120 B-2011	Color (true)	11	A	PCU	P394750	
	SM 2540 D-2011	TSS	5	I	mg/L	P395156	
2230265	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P394930	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22	I	mg N/L	P394973	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.035		mg N/L	P394781	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P394987	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: East of Port Spoil Pond

Collection Date/Time: 03/09/2021 11:16

Field ID: 12

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2230252	EPA 180.1 Rev. 2.0	Turbidity	2.9		NTU	P394758	
	SM 2120 B-2011	Color (true)	13		PCU	P394750	
	SM 2540 D-2011	TSS	6	IA	mg/L	P395156	
2230266	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P394930	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29	I	mg N/L	P394973	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P394782	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P394987	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Hawkshaw Lagoon at Memorial Bridge

Collection Date/Time: 03/09/2021 11:45

Field ID: 13

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2230253	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P394758	
	SM 2120 B-2011	Color (true)	8.1		PCU	P394750	
	SM 2540 D-2011	TSS	3	I	mg/L	P395154	
2230267	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P394930	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32	I	mg N/L	P394973	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.01	I	mg N/L	P394782	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P394987	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

**Sample Location: 150 ft South of Hawkshaw Lagoon East
Stormdrain**

Collection Date/Time: 03/09/2021 12:00

Field ID: 14

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2230254	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P394758	
	SM 2120 B-2011	Color (true)	12		PCU	P394750	
	SM 2540 D-2011	TSS	4	I	mg/L	P395156	
2230268	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P394930	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22	I	mg N/L	P394973	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.035		mg N/L	P394782	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P394987	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P394757

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P394758

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394929

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394930

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394972

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394973

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394780

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394781

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394782

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394986

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394987

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

Reference Method: SM 2120 B-2011
Batch ID: P394749

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P394750

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2540 D-2011
Batch ID: P395154

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P395155

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P395156

Component	Result	Code	Units
TSS	3	U	mg/L

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394929

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: P394930

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394972

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394973

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394780

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394781

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394782

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394986

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394987

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B-2011
Batch ID: P394749

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P394750

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.1		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394929

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2230132	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394930

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2230261	Ammonia-N	98.2	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394972

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2230255	Kjeldahl Nitrogen	103	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394973

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2230265	Kjeldahl Nitrogen	101	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394780

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2230098	NO2NO3-N	99.4	98.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394781

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2230256	NO2NO3-N	100	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394782

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2230266	NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394986

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2230134	Total-P	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394987

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2230264	Total-P	105	103	P/P	90 - 110

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P394757

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2230242	Turbidity	2.94	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P394758

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2230251	Turbidity	1.96	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394929

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2230132	Ammonia-N	1.63	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P394930

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2230261	Ammonia-N	1.50	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394972

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2230255	Kjeldahl Nitrogen	1.35	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P394973

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2230265	Kjeldahl Nitrogen	1.26	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394780

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2230098	NO2NO3-N	0.445	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394781

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2230256	NO2NO3-N	0.418	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P394782

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2230266	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394986

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2230134	Total-P	1.04	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P394987

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2230264	Total-P	2.45	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P394749

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2230241	Color (true)	3.01	Sample	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P394750

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2230251	Color (true)	1.42	Sample	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B-2011

Run ID: A103991

Included Lab Sample IDs: 2230241, 2230242, 2230243, 2230244, 2230245, 2230246, 2230247, 2230248, 2230249, 2230250, 2230251, 2230252, 2230253, 2230254

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	104	P/P	85 - 115
Color (true)	101	101	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A103994

Included Lab Sample IDs: 2230241, 2230242, 2230243, 2230244, 2230245, 2230246, 2230247, 2230248, 2230249, 2230250, 2230251, 2230252, 2230253, 2230254

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	101	P/P	95 - 105
Turbidity	99.0	101	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A104003

Included Lab Sample IDs: 2230255, 2230256, 2230257, 2230258, 2230259, 2230260, 2230261, 2230262, 2230263, 2230264, 2230265, 2230266, 2230267, 2230268

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A104047

Included Lab Sample IDs: 2230255, 2230256, 2230257, 2230258, 2230259, 2230260, 2230261, 2230262, 2230263, 2230264, 2230265, 2230266, 2230267, 2230268

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.0	101	P/P	90 - 110
Ammonia-N	99.0	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A104096

Included Lab Sample IDs: 2230255, 2230256, 2230257, 2230258, 2230259, 2230260, 2230261, 2230262, 2230263, 2230264

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	95.3	P/P	90 - 110
Kjeldahl Nitrogen	95.3	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A104098

Included Lab Sample IDs: 2230265, 2230266, 2230267, 2230268

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.3	94.1	P/P	90 - 110
Kjeldahl Nitrogen	97.6	95.3	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A104108

Included Lab Sample IDs: 2230255, 2230256, 2230257, 2230258, 2230259, 2230260, 2230261, 2230262, 2230264, 2230265, 2230266, 2230267, 2230268

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A104109

Included Lab Sample IDs: 2230263

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	101	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 180.1 Rev. 2.0	Turbidity				2.94	
	Turbidity				1.96	
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	101	103		1.63
	Ammonia-N	101	98.2	99.8		1.50
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	103	104		1.35
	Kjeldahl Nitrogen	108	101	99.8		1.26
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	99.4	98.9		0.445
	NO2NO3-N	100	100	99.8		0.418
	NO2NO3-N	100	99.5	99.5		0.0
EPA 365.1 Rev. 2.0	Total-P	104	104	103		1.04
	Total-P	105	105	103		2.45
SM 2120 B-2011	Color (true)	100			3.01	
	Color (true)	99.1			1.42	

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2230241, 2230242, 2230243, 2230244, 2230245, 2230246, 2230247, 2230248, 2230249, 2230250, 2230251, 2230252, 2230253, 2230254
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2230255, 2230256, 2230257, 2230258, 2230259, 2230260, 2230261, 2230262, 2230263, 2230264, 2230265, 2230266, 2230267, 2230268
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2230255, 2230256, 2230257, 2230258, 2230259, 2230260, 2230261, 2230262, 2230263, 2230264, 2230265, 2230266, 2230267, 2230268
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2230255, 2230256, 2230257, 2230258, 2230259, 2230260, 2230261, 2230262, 2230263, 2230264, 2230265, 2230266, 2230267, 2230268
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2230255, 2230256, 2230257, 2230258, 2230259, 2230260, 2230261, 2230262, 2230263, 2230264, 2230265, 2230266, 2230267, 2230268
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2230241, 2230242, 2230243, 2230244, 2230245, 2230246, 2230247, 2230248, 2230249, 2230250, 2230251, 2230252, 2230253, 2230254
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2230241, 2230242, 2230243, 2230244, 2230245, 2230246, 2230247, 2230248, 2230249, 2230250, 2230251, 2230252, 2230253, 2230254

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	03/10/2021			03/10/2021 15:21	Yen Ta	2230241, 2230242, 2230243, 2230244, 2230245, 2230246, 2230247, 2230248, 2230249, 2230250, 2230251, 2230252, 2230253, 2230254
EPA 350.1 Rev. 2.0	03/10/2021			03/13/2021 17:20	Ping Hua	2230255
	03/10/2021			03/13/2021 17:21	Ping Hua	2230256
	03/10/2021			03/13/2021 17:23	Ping Hua	2230257
	03/10/2021			03/13/2021 17:24	Ping Hua	2230258
	03/10/2021			03/13/2021 17:25	Ping Hua	2230259
	03/10/2021			03/13/2021 17:27	Ping Hua	2230260
	03/10/2021			03/13/2021 17:37	Ping Hua	2230261
	03/10/2021			03/13/2021 17:41	Ping Hua	2230262
	03/10/2021			03/13/2021 17:43	Ping Hua	2230263
	03/10/2021			03/13/2021 17:44	Ping Hua	2230264
	03/10/2021			03/13/2021 17:45	Ping Hua	2230265
	03/10/2021			03/13/2021 17:47	Ping Hua	2230266
	03/10/2021			03/13/2021 17:48	Ping Hua	2230267
	03/10/2021			03/13/2021 17:49	Ping Hua	2230268
EPA 351.2 Rev. 2.0	03/10/2021	03/15/2021 11:34	Benjamin T. Nordmann	03/16/2021 12:51	Virginia P. Brown	2230255
	03/10/2021	03/15/2021 11:34	Benjamin T. Nordmann	03/16/2021 12:59	Virginia P. Brown	2230256
	03/10/2021	03/15/2021 11:34	Benjamin T. Nordmann	03/16/2021 13:01	Virginia P. Brown	2230257
	03/10/2021	03/15/2021 11:34	Benjamin T. Nordmann	03/16/2021 13:02	Virginia P. Brown	2230258
	03/10/2021	03/15/2021 11:34	Benjamin T. Nordmann	03/16/2021 13:04	Virginia P. Brown	2230259
	03/10/2021	03/15/2021 11:34	Benjamin T. Nordmann	03/16/2021 13:06	Virginia P. Brown	2230260
	03/10/2021	03/15/2021 11:34	Benjamin T. Nordmann	03/16/2021 13:07	Virginia P. Brown	2230261
	03/10/2021	03/15/2021 11:34	Benjamin T. Nordmann	03/16/2021 13:09	Virginia P. Brown	2230262
	03/10/2021	03/15/2021 11:34	Benjamin T. Nordmann	03/16/2021 13:11	Virginia P. Brown	2230263
	03/10/2021	03/15/2021 11:34	Benjamin T. Nordmann	03/16/2021 13:12	Virginia P. Brown	2230264
	03/10/2021	03/15/2021 11:34	Benjamin T. Nordmann	03/16/2021 15:58	Virginia P. Brown	2230265
	03/10/2021	03/15/2021 11:34	Benjamin T. Nordmann	03/16/2021 16:03	Virginia P. Brown	2230266
	03/10/2021	03/15/2021 11:34	Benjamin T. Nordmann	03/16/2021 16:08	Virginia P. Brown	2230267
	03/10/2021	03/15/2021 11:34	Benjamin T. Nordmann	03/16/2021 16:10	Virginia P. Brown	2230268
EPA 353.2 Rev. 2.0	03/10/2021			03/11/2021 09:11	Beverly Y. Sanders	2230255
	03/10/2021			03/11/2021 09:18	Beverly Y. Sanders	2230256
	03/10/2021			03/11/2021 09:24	Beverly Y. Sanders	2230257
	03/10/2021			03/11/2021 09:25	Beverly Y. Sanders	2230258
	03/10/2021			03/11/2021 09:26	Beverly Y. Sanders	2230259
	03/10/2021			03/11/2021 09:27	Beverly Y. Sanders	2230260
	03/10/2021			03/11/2021 09:29	Beverly Y. Sanders	2230261
	03/10/2021			03/11/2021 09:30	Beverly Y. Sanders	2230262

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 353.2 Rev. 2.0	03/10/2021			03/11/2021 09:31	Beverly Y. Sanders	2230263
	03/10/2021			03/11/2021 09:32	Beverly Y. Sanders	2230264
	03/10/2021			03/11/2021 09:33	Beverly Y. Sanders	2230265
	03/10/2021			03/11/2021 09:40	Beverly Y. Sanders	2230266
	03/10/2021			03/11/2021 09:46	Beverly Y. Sanders	2230267
	03/10/2021			03/11/2021 09:48	Beverly Y. Sanders	2230268
	03/10/2021			03/11/2021 09:48	Beverly Y. Sanders	2230268
EPA 365.1 Rev. 2.0	03/10/2021	03/15/2021 13:12	Yen Ta	03/17/2021 13:24	Shengyu Ding	2230255
	03/10/2021	03/15/2021 13:12	Yen Ta	03/17/2021 13:25	Shengyu Ding	2230256
	03/10/2021	03/15/2021 13:12	Yen Ta	03/17/2021 13:26	Shengyu Ding	2230257
	03/10/2021	03/15/2021 13:12	Yen Ta	03/17/2021 13:27	Shengyu Ding	2230258
	03/10/2021	03/15/2021 13:12	Yen Ta	03/17/2021 13:28	Shengyu Ding	2230259
	03/10/2021	03/15/2021 13:12	Yen Ta	03/17/2021 13:29	Shengyu Ding	2230260
	03/10/2021	03/15/2021 13:12	Yen Ta	03/17/2021 13:30	Shengyu Ding	2230261
	03/10/2021	03/15/2021 13:12	Yen Ta	03/17/2021 13:31	Shengyu Ding	2230262
	03/10/2021	03/15/2021 13:12	Yen Ta	03/17/2021 13:40	Shengyu Ding	2230264
	03/10/2021	03/15/2021 13:12	Yen Ta	03/17/2021 13:41	Shengyu Ding	2230265
	03/10/2021	03/15/2021 13:12	Yen Ta	03/17/2021 13:42	Shengyu Ding	2230266
	03/10/2021	03/15/2021 13:12	Yen Ta	03/17/2021 13:43	Shengyu Ding	2230267
	03/10/2021	03/15/2021 13:12	Yen Ta	03/17/2021 13:44	Shengyu Ding	2230268
	03/10/2021	03/15/2021 13:12	Yen Ta	03/17/2021 15:47	Shengyu Ding	2230263
	03/10/2021			03/10/2021 15:59	Benjamin T. Nordmann	2230241
SM 2120 B-2011	03/10/2021			03/10/2021 16:00	Benjamin T. Nordmann	2230242
	03/10/2021			03/10/2021 16:01	Benjamin T. Nordmann	2230243, 2230244
	03/10/2021			03/10/2021 16:02	Benjamin T. Nordmann	2230245
	03/10/2021			03/10/2021 16:03	Benjamin T. Nordmann	2230246, 2230247
	03/10/2021			03/10/2021 16:04	Benjamin T. Nordmann	2230248
	03/10/2021			03/10/2021 16:05	Benjamin T. Nordmann	2230249, 2230250
	03/10/2021			03/10/2021 16:09	Benjamin T. Nordmann	2230251
	03/10/2021			03/10/2021 16:10	Benjamin T. Nordmann	2230252, 2230253
	03/10/2021			03/10/2021 16:11	Benjamin T. Nordmann	2230254
	03/10/2021			03/12/2021 14:32	Yijie Li	2230241, 2230242, 2230243, 2230244, 2230245, 2230246, 2230247, 2230248, 2230249, 2230250, 2230251, 2230252, 2230253, 2230254
SM 2540 D-2011	03/10/2021			03/12/2021 14:32	Yijie Li	2230241, 2230242, 2230243, 2230244, 2230245, 2230246, 2230247, 2230248, 2230249, 2230250, 2230251, 2230252, 2230253, 2230254