

Chemical Analysis Report

NW-DIST-2020-03-03-01

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-2020-02-24-10**
Customer: **NW-DIST**
Project ID: **DISTRICT**

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Date Certified: 20-MAR-2020 10:21



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: Pen. Bay Range Marker E. of Texar

Collection Date/Time: 03/02/2020 10:19

Field ID: 1

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2161322	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P380029	
	SM 2120 B-2011	Color (true)	25		PCU	P379993	
	SM 2540 D-2011	TSS	4	I	mg/L	P380428	
2161332	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P380069	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.35	I	mg N/L	P380380	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.085		mg N/L	P380212	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P380140	

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: Pen. Bay midpoint between Bay Bridge & Muscogee Wharf

Collection Date/Time: 03/02/2020 10:40

Field ID: 2

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2161323	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P380029	
	SM 2120 B-2011	Color (true)	24	A	PCU	P379993	
	SM 2540 D-2011	TSS	5	IA	mg/L	P380428	
2161333	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P380069	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32	I	mg N/L	P380380	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.083		mg N/L	P380212	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P380140	

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: Pen. Bay, East end of primary Stormdrain

Collection Date/Time: 03/02/2020 10:49

Field ID: 3

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2161324	EPA 180.1 Rev. 2.0	Turbidity	5.1		NTU	P380029	
	SM 2120 B-2011	Color (true)	32		PCU	P379993	
	SM 2540 D-2011	TSS	4	I	mg/L	P380425	
2161334	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P380069	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32	I	mg N/L	P380380	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.096		mg N/L	P380212	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P380140	

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: Pen. Bay, South of Primary Stormdrain

Collection Date/Time: 03/02/2020 10:57

Field ID: 4

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2161325	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P380029	
	SM 2120 B-2011	Color (true)	33		PCU	P379993	
	SM 2540 D-2011	TSS	6	I	mg/L	P380425	
2161335	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P380069	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33	I	mg N/L	P380380	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P380212	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P380140	

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: Pen. Bay, End of Chase Street

Collection Date/Time: 03/02/2020 11:05

Field ID: 5

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2161326	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P380029	
	SM 2120 B-2011	Color (true)	31		PCU	P379993	
	SM 2540 D-2011	TSS	3	I	mg/L	P380425	
2161336	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P380069	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32	I	mg N/L	P380380	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P380212	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P380140	

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: Pen. Bay, Midpoint btw Muscogee & Hawkshaw Collection Date/Time: 03/02/2020 11:24

Field ID: 6

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2161327	EPA 180.1 Rev. 2.0	Turbidity	4.5		NTU	P380029	
	SM 2120 B-2011	Color (true)	30		PCU	P379993	
	SM 2540 D-2011	TSS	4	I	mg/L	P380425	
2161337	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P380069	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34	I	mg N/L	P380380	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.092		mg N/L	P380354	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P380140	

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: Pen. Bay, Midpoint between bridge & port spoil pond **Collection Date/Time: 03/02/2020 11:33**

Field ID: 7

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2161328	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P380029	
	SM 2120 B-2011	Color (true)	28		PCU	P379993	
	SM 2540 D-2011	TSS	4	I	mg/L	P380425	
2161338	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P380069	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31	I	mg N/L	P380380	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.091		mg N/L	P380212	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P380225	

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: Pen. Bay, West of primary stormdrain

Collection Date/Time: 03/02/2020 11:15

Field ID: 8

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2161329	EPA 180.1 Rev. 2.0	Turbidity	3.5		NTU	P380029	
	SM 2120 B-2011	Color (true)	32		PCU	P379993	
	SM 2540 D-2011	TSS	4	I	mg/L	P380425	
2161339	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P380071	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32	I	mg N/L	P380380	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.098		mg N/L	P380354	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P380225	

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: Pen. Bay, West of Hawkshaw Lagoon

Collection Date/Time: 03/02/2020 12:11

Field ID: 9

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2161330	EPA 180.1 Rev. 2.0	Turbidity	4.9		NTU	P380029	
	SM 2120 B-2011	Color (true)	32		PCU	P379993	
	SM 2540 D-2011	TSS	4	I	mg/L	P380425	
2161340	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P380071	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.36	I	mg N/L	P380380	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P380354	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P380225	

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: Pen. Bay, So. of Bayfront stormdrain

Collection Date/Time: 03/02/2020 12:02

Field ID: 10

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2161331	EPA 180.1 Rev. 2.0	Turbidity	4.4	A	NTU	P380029	
	SM 2120 B-2011	Color (true)	31		PCU	P379993	
	SM 2540 D-2011	TSS	4	I	mg/L	P380425	
2161341	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P380071	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31	I	mg N/L	P380380	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.095		mg N/L	P380355	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P380225	

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: Pen. Bay @ Seville Marina Inlet

Collection Date/Time: 03/02/2020 11:52

Field ID: 11

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2161373	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P380030	
	SM 2120 B-2011	Color (true)	24		PCU	P379994	
	SM 2540 D-2011	TSS	2	I	mg/L	P380425	
2161377	EPA 350.1 Rev. 2.0	Ammonia-N	0.062		mg N/L	P380071	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.35	I	mg N/L	P380015	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.57		mg N/L	P380355	
	EPA 365.1 Rev. 2.0	Total-P	0.044		mg P/L	P380225	

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: Pen. Bay, East of port spoil pond

Collection Date/Time: 03/02/2020 11:41

Field ID: 12

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2161374	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P380030	
	SM 2120 B-2011	Color (true)	29	A	PCU	P379994	
	SM 2540 D-2011	TSS	5	IA	mg/L	P380426	
2161378	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P380071	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27	I	mg N/L	P380015	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.081		mg N/L	P380355	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P380225	

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: 03/02/2020 12:27

Field ID: 13

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2161375	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P380030	
	SM 2120 B-2011	Color (true)	19		PCU	P379994	
	SM 2540 D-2011	TSS	4	I	mg/L	P380426	
2161379	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P380071	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33	I	mg N/L	P380015	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P380355	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P380225	

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: Pen. Bay, 150 FT So of Hawkshaw Lagoon East Stormdrain **Collection Date/Time: 03/02/2020 12:40**

Field ID: 14

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2161376	EPA 180.1 Rev. 2.0	Turbidity	4.6		NTU	P380030	
	SM 2120 B-2011	Color (true)	33		PCU	P379994	
	SM 2540 D-2011	TSS	4	I	mg/L	P380426	
2161380	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P380071	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34	I	mg N/L	P380015	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.077		mg N/L	P380355	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P380225	

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: P380029

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P380030

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380069

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380071

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380015

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380380

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380212

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380354

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380355

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: P380140

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380225

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

Reference Method: SM 2120 B-2011
Batch ID: P379993

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P379994

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2540 D-2011
Batch ID: P380425

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P380426

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P380428

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: P380069

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: P380071

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380015

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380380

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380212

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: P380354

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380355

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380140

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380225

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B-2011
Batch ID: P379993

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.5		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P379994

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380069

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2161195	Ammonia-N	98.7	99.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380071

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2161610	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380015

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2161569	Kjeldahl Nitrogen	105	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380380

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2161332	Kjeldahl Nitrogen	99.4	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380212

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2161201	NO2NO3-N	97.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380354

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2159121	NO2NO3-N	98.0	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380355

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2161341	NO2NO3-N	97.5	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380140

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2161165	Total-P	98.6	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380225

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2161338	Total-P	102	102	P/P	90 - 110

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P380029

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2161331	Turbidity	2.72	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P380030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2161528	Turbidity	2.22	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380069

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2161195	Ammonia-N	0.624	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P380071

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2161610	Ammonia-N	0.0923	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380015

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2161569	Kjeldahl Nitrogen	2.12	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P380380

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2161332	Kjeldahl Nitrogen	0.998	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380212

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2161201	NO2NO3-N	0.694	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2159121	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P380355

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2161341	NO2NO3-N	0.344	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380140

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2161165	Total-P	0.733	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P380225

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2161338	Total-P	0.311	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P379993

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2161323	Color (true)	1.35	Sample	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P379994

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2161374	Color (true)	4.75	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: A97970

Included Lab Sample IDs: 2161322, 2161323, 2161324, 2161325, 2161326, 2161327, 2161328, 2161329, 2161330, 2161331, 2161373, 2161374, 2161375, 2161376

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	99.7	P/P	85 - 115
Color (true)	99.7	100	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A97987

Included Lab Sample IDs: 2161322, 2161323, 2161324, 2161325, 2161326, 2161327, 2161328, 2161329, 2161330, 2161331, 2161373, 2161374, 2161375, 2161376

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.0	P/P	95 - 105
Turbidity	98.5	100	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A97999

Included Lab Sample IDs: 2161332, 2161333, 2161334, 2161335, 2161336, 2161337, 2161338, 2161339, 2161340, 2161341, 2161377, 2161378, 2161379, 2161380

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A98032

Included Lab Sample IDs: 2161377, 2161378, 2161379, 2161380

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	104	P/P	90 - 110
Kjeldahl Nitrogen	104	109	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A98039

Included Lab Sample IDs: 2161332, 2161333, 2161334, 2161335, 2161336, 2161338

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A98071

Included Lab Sample IDs: 2161332, 2161333, 2161334, 2161335, 2161336

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A98072

Included Lab Sample IDs: 2161337

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A98101

Included Lab Sample IDs: 2161337, 2161339, 2161340, 2161341, 2161377, 2161378, 2161379, 2161380

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A98128

Included Lab Sample IDs: 2161338, 2161339, 2161340, 2161341, 2161377, 2161378, 2161379, 2161380

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A98141

Included Lab Sample IDs: 2161332, 2161333, 2161334, 2161335, 2161336, 2161337, 2161338, 2161339, 2161340, 2161341

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.7	99.5	P/P	90 - 110
Kjeldahl Nitrogen	99.5	104	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				2.72	
	Turbidity				2.22	
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	98.7	99.4		0.624
	Ammonia-N	98.7	102	102		0.0923
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.4	105	107		2.12
	Kjeldahl Nitrogen	97.8	99.4	101		0.998
EPA 353.2 Rev. 2.0	NO2NO3-N	100	97.5			0.694
	NO2NO3-N	99.0	98.0	98.0		0.0
	NO2NO3-N	99.5	97.5	98.0		0.344
EPA 365.1 Rev. 2.0	Total-P	105	98.6	99.3		0.733
	Total-P	102	102	102		0.311
SM 2120 B-2011	Color (true)	98.5			1.35	
	Color (true)	98.4			4.75	

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2161322, 2161323, 2161324, 2161325, 2161326, 2161327, 2161328, 2161329, 2161330, 2161331, 2161373, 2161374, 2161375, 2161376
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2161332, 2161333, 2161334, 2161335, 2161336, 2161337, 2161338, 2161339, 2161340, 2161341, 2161377, 2161378, 2161379, 2161380
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2161332, 2161333, 2161334, 2161335, 2161336, 2161337, 2161338, 2161339, 2161340, 2161341, 2161377, 2161378, 2161379, 2161380
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2161332, 2161333, 2161334, 2161335, 2161336, 2161337, 2161338, 2161339, 2161340, 2161341, 2161377, 2161378, 2161379, 2161380
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2161332, 2161333, 2161334, 2161335, 2161336, 2161337, 2161338, 2161339, 2161340, 2161341, 2161377, 2161378, 2161379, 2161380
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2161322, 2161323, 2161324, 2161325, 2161326, 2161327, 2161328, 2161329, 2161330, 2161331, 2161373, 2161374, 2161375, 2161376
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2161322, 2161323, 2161324, 2161325, 2161326, 2161327, 2161328, 2161329, 2161330, 2161331, 2161373, 2161374, 2161375, 2161376

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	03/03/2020			03/03/2020 17:21	Yen Ta	2161322, 2161323, 2161324, 2161325, 2161326, 2161327, 2161328, 2161329, 2161330, 2161331, 2161373, 2161374, 2161375, 2161376
EPA 350.1 Rev. 2.0	03/03/2020			03/04/2020 12:51	Ping Hua	2161332
	03/03/2020			03/04/2020 12:53	Ping Hua	2161333
	03/03/2020			03/04/2020 13:00	Ping Hua	2161334
	03/03/2020			03/04/2020 13:02	Ping Hua	2161335
	03/03/2020			03/04/2020 13:03	Ping Hua	2161336
	03/03/2020			03/04/2020 13:05	Ping Hua	2161337
	03/03/2020			03/04/2020 13:06	Ping Hua	2161338
	03/03/2020			03/04/2020 13:48	Ping Hua	2161339
	03/03/2020			03/04/2020 13:50	Ping Hua	2161340
	03/03/2020			03/04/2020 13:51	Ping Hua	2161341
	03/03/2020			03/04/2020 13:59	Ping Hua	2161377
	03/03/2020			03/04/2020 14:00	Ping Hua	2161378
	03/03/2020			03/04/2020 14:02	Ping Hua	2161379
	03/03/2020			03/04/2020 14:03	Ping Hua	2161380
EPA 351.2 Rev. 2.0	03/03/2020	03/04/2020 11:35	Sima Feizi	03/06/2020 09:23	Jhamieka S. Greenwood	2161377
	03/03/2020	03/04/2020 11:35	Sima Feizi	03/06/2020 09:24	Jhamieka S. Greenwood	2161378
	03/03/2020	03/04/2020 11:35	Sima Feizi	03/06/2020 09:26	Jhamieka S. Greenwood	2161379
	03/03/2020	03/04/2020 11:35	Sima Feizi	03/06/2020 09:31	Jhamieka S. Greenwood	2161380
	03/03/2020	03/10/2020 12:36	Sima Feizi	03/11/2020 17:02	Jhamieka S. Greenwood	2161332
	03/03/2020	03/10/2020 12:36	Sima Feizi	03/11/2020 17:10	Jhamieka S. Greenwood	2161333
	03/03/2020	03/10/2020 12:36	Sima Feizi	03/11/2020 17:12	Jhamieka S. Greenwood	2161334
	03/03/2020	03/10/2020 12:36	Sima Feizi	03/11/2020 17:13	Jhamieka S. Greenwood	2161335
	03/03/2020	03/10/2020 12:36	Sima Feizi	03/11/2020 17:15	Jhamieka S. Greenwood	2161336
	03/03/2020	03/10/2020 12:36	Sima Feizi	03/11/2020 17:16	Jhamieka S. Greenwood	2161337
	03/03/2020	03/10/2020 12:36	Sima Feizi	03/11/2020 17:18	Jhamieka S. Greenwood	2161338
	03/03/2020	03/10/2020 12:36	Sima Feizi	03/11/2020 17:19	Jhamieka S. Greenwood	2161339
	03/03/2020	03/10/2020 12:36	Sima Feizi	03/11/2020 17:21	Jhamieka S. Greenwood	2161340
	03/03/2020	03/10/2020 12:36	Sima Feizi	03/11/2020 17:22	Jhamieka S. Greenwood	2161341
EPA 353.2 Rev. 2.0	03/03/2020			03/06/2020 11:46	Lauren Lees	2161332
	03/03/2020			03/06/2020 11:47	Lauren Lees	2161333
	03/03/2020			03/06/2020 11:48	Lauren Lees	2161334
	03/03/2020			03/06/2020 11:49	Lauren Lees	2161335
	03/03/2020			03/06/2020 11:51	Lauren Lees	2161336
	03/03/2020			03/06/2020 11:53	Lauren Lees	2161338
	03/03/2020			03/10/2020 09:20	Beverly Y. Sanders	2161337
	03/03/2020			03/10/2020 09:22	Beverly Y. Sanders	2161339

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	03/03/2020			03/10/2020 09:23	Beverly Y. Sanders	2161340
	03/03/2020			03/10/2020 09:30	Beverly Y. Sanders	2161341
	03/03/2020			03/10/2020 09:36	Beverly Y. Sanders	2161377
	03/03/2020			03/10/2020 09:37	Beverly Y. Sanders	2161378
	03/03/2020			03/10/2020 09:38	Beverly Y. Sanders	2161379
	03/03/2020			03/10/2020 09:39	Beverly Y. Sanders	2161380
	03/03/2020	03/05/2020 13:48	Yen Ta	03/09/2020 13:49	Benjamin T. Nordmann	2161332
	03/03/2020	03/05/2020 13:48	Yen Ta	03/09/2020 13:50	Benjamin T. Nordmann	2161333
EPA 365.1 Rev. 2.0	03/03/2020	03/05/2020 13:48	Yen Ta	03/09/2020 13:51	Benjamin T. Nordmann	2161334
	03/03/2020	03/05/2020 13:48	Yen Ta	03/09/2020 13:52	Benjamin T. Nordmann	2161335
	03/03/2020	03/05/2020 13:48	Yen Ta	03/09/2020 13:53	Benjamin T. Nordmann	2161336
	03/03/2020	03/05/2020 13:48	Yen Ta	03/09/2020 15:15	Benjamin T. Nordmann	2161337
	03/03/2020	03/06/2020 13:21	Yen Ta	03/10/2020 14:19	Benjamin T. Nordmann	2161338
	03/03/2020	03/06/2020 13:21	Yen Ta	03/10/2020 14:24	Benjamin T. Nordmann	2161339
	03/03/2020	03/06/2020 13:21	Yen Ta	03/10/2020 14:25	Benjamin T. Nordmann	2161340
	03/03/2020	03/06/2020 13:21	Yen Ta	03/10/2020 14:26	Benjamin T. Nordmann	2161341
	03/03/2020	03/06/2020 13:21	Yen Ta	03/10/2020 14:27	Benjamin T. Nordmann	2161377
	03/03/2020	03/06/2020 13:21	Yen Ta	03/10/2020 14:34	Benjamin T. Nordmann	2161378
	03/03/2020	03/06/2020 13:21	Yen Ta	03/10/2020 14:35	Benjamin T. Nordmann	2161379
	03/03/2020	03/06/2020 13:21	Yen Ta	03/10/2020 14:36	Benjamin T. Nordmann	2161380
	03/03/2020			03/03/2020 16:36		2161322
	03/03/2020			03/03/2020 16:38		2161323
	03/03/2020			03/03/2020 16:39		2161324
	03/03/2020			03/03/2020 16:40		2161325, 2161326
SM 2120 B-2011	03/03/2020			03/03/2020 16:41		2161327
	03/03/2020			03/03/2020 16:42		2161328
	03/03/2020			03/03/2020 16:43		2161329, 2161330
	03/03/2020			03/03/2020 16:44		2161331
	03/03/2020			03/03/2020 16:48		2161373
	03/03/2020			03/03/2020 16:49		2161374
	03/03/2020			03/03/2020 16:50		2161375
	03/03/2020			03/03/2020 16:51		2161376
	03/03/2020			03/05/2020 15:08	Yijie Li	2161322, 2161323, 2161324, 2161325, 2161326, 2161327, 2161328, 2161329, 2161330, 2161331, 2161373, 2161374, 2161375, 2161376
	03/03/2020					
SM 2540 D-2011	03/03/2020					