

Chemical Analysis Report

NW-DIST-2018-11-29-01

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-2018-11-26-12**
Customer: **NW-DIST**
Project ID: **DISTRICT**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 308
Pensacola, FL 32502-5794
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 19-DEC-2018 16:16

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 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 E. of Texar

Collection Date/Time: 11/28/2018 10:16

Field ID: 1

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044686	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P355353	
	SM 2120 B	Color (true)	5.2	I	PCU	P355392	
	SM 2540 D-97	TSS	3	U	mg/L	P355825	
2044701	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P355591	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21	I	mg N/L	P355404	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.042		mg N/L	P355483	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P355409	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: 1/2 Bridge and Muscogee

Collection Date/Time: 11/28/2018 10:33

Field ID: 2

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044687	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P355353	
	SM 2120 B	Color (true)	6.5		PCU	P355392	
	SM 2540 D-97	TSS	3	U	mg/L	P355825	
2044702	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P355591	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24	I	mg N/L	P355404	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P355483	
	EPA 365.1 Rev. 2.0	Total-P	0.01	I	mg P/L	P355409	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: East of Primary Stormdrain

Collection Date/Time: 11/28/2018 10:42

Field ID: 3

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044688	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P355353	
	SM 2120 B	Color (true)	6.4		PCU	P355392	
	SM 2540 D-97	TSS	3	U	mg/L	P355825	
2044703	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P355591	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23	I	mg N/L	P355404	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.094		mg N/L	P355483	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P355409	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: 100ft South of Stormdrain

Collection Date/Time: 11/28/2018 10:49

Field ID: 4

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044689	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P355353	
	SM 2120 B	Color (true)	6.0	I	PCU	P355392	
	SM 2540 D-97	TSS	3	U	mg/L	P355825	
2044704	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P355591	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26	I	mg N/L	P355404	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P355483	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P355409	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: End of Chase St

Collection Date/Time: 11/28/2018 11:04

Field ID: 5

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044690	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P355353	
	SM 2120 B	Color (true)	5.6	I	PCU	P355392	
	SM 2540 D-97	TSS	3	U	mg/L	P355825	
2044705	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P355539	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24	I	mg N/L	P355406	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P355483	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P355409	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: 1/2 Muscogee and Hawkshaw 400ft from shore Collection Date/Time: 11/28/2018 11:11

Field ID: 6

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044691	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P355353	
	SM 2120 B	Color (true)	7.3		PCU	P355392	
	SM 2540 D-97	TSS	3	U	mg/L	P355826	
2044706	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P355539	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33	I	mg N/L	P355406	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P355483	
	EPA 365.1 Rev. 2.0	Total-P	0.01	I	mg P/L	P355409	

Sample Location: 1/2 Bridge and Port

Collection Date/Time: 11/28/2018 11:18

Field ID: 7

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044692	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P355353	
	SM 2120 B	Color (true)	6.3		PCU	P355391	
	SM 2540 D-97	TSS	3	U	mg/L	P355826	
2044707	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P355539	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29	I	mg N/L	P355406	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.095		mg N/L	P355483	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P355409	

Sample Location: West of Stormdrain Inside Rocks

Collection Date/Time: 11/28/2018 10:56

Field ID: 8

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044693	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P355353	
	SM 2120 B	Color (true)	6.1		PCU	P355393	
	SM 2540 D-97	TSS	3	U	mg/L	P355826	
2044708	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P355539	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27	I	mg N/L	P355406	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.075		mg N/L	P355483	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P355409	

Sample Location: West end of Hawkshaw 100ft S of Outfall

Collection Date/Time: 11/28/2018 11:44

Field ID: 9

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044694	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P355354	
	SM 2120 B	Color (true)	6.7		PCU	P355393	
	SM 2540 D-97	TSS	3	U	mg/L	P355826	
2044709	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P355539	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24	I	mg N/L	P355406	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P355483	
	EPA 365.1 Rev. 2.0	Total-P	0.01	I	mg P/L	P355409	

Sample Location: Between Marina and Outfall

Collection Date/Time: 11/28/2018 11:37

Field ID: 10

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044695	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P355354	
	SM 2120 B	Color (true)	6.7		PCU	P355393	
	SM 2540 D-97	TSS	3	U	mg/L	P355826	
2044710	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P355539	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26	I	mg N/L	P355406	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.099		mg N/L	P355483	
	EPA 365.1 Rev. 2.0	Total-P	0.01	I	mg P/L	P355409	

Sample Location: Entrance of Marina

Collection Date/Time: 11/28/2018 11:31

Field ID: 11

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044696	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P355354	
	SM 2120 B	Color (true)	6.0		PCU	P355393	
	SM 2540 D-97	TSS	3	I	mg/L	P355826	
2044711	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P355539	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26	I	mg N/L	P355406	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.085		mg N/L	P355484	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P355410	

Sample Location: 1/4 Between Bridge and Port 400ft from Shore Collection Date/Time: 11/28/2018 11:25

Field ID: 12

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044697	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P355354	
	SM 2120 B	Color (true)	8.3		PCU	P355393	
	SM 2540 D-97	TSS	3	U	mg/L	P355826	
2044712	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P355539	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25	I	mg N/L	P355406	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.074		mg N/L	P355484	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P355410	

Sample Location: Inside Hawkshaw Lagoon

Collection Date/Time: 11/28/2018 11:53

Field ID: 13

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044698	EPA 180.1 Rev. 2.0	Turbidity	8.6		NTU	P355354	
	SM 2120 B	Color (true)	9.2		PCU	P355393	
	SM 2540 D-97	TSS	26	A	mg/L	P355826	
2044713	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P355539	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P355406	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P355484	
	EPA 365.1 Rev. 2.0	Total-P	0.060		mg P/L	P355410	

Sample Location: Inside Hawkshaw Lagoon FB

Collection Date/Time: 11/28/2018 11:57

Field ID: 13 FB

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044699	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P355355	
	SM 2120 B	Color (true)	2.5	U	PCU	P355393	
	SM 2540 D-97	TSS	2	U	mg/L	P355823	
2044714	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P355592	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P355403	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P355382	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P355411	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: East of Stormdrain inside PGS2

Collection Date/Time: 11/28/2018 11:07

Field ID: 14

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044700	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P355354	
	SM 2120 B	Color (true)	6.3		PCU	P355393	
	SM 2540 D-97	TSS	3	U	mg/L	P355826	
2044715	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P355539	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31	I	mg N/L	P355406	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.086		mg N/L	P355484	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P355410	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P355353

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P355354

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P355355

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355539

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355591

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355592

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355403

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355404

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355406

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355382

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355483

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355484

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355409

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355410

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355411

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

Reference Method: SM 2120 B
Batch ID: P355391

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P355392

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P355393

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P355823

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P355825

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P355826

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: P355539

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355591

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355592

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355403

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355404

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355406

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355382

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: P355483

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355484

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355409

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355410

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355411

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

Reference Method: SM 2120 B
Batch ID: P355391

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Reference Method: SM 2120 B
Batch ID: P355392

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	103		P	85 - 115

Reference Method: SM 2120 B
Batch ID: P355393

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	103		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355539

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044705	Ammonia-N	101	99.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355591

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044460	Ammonia-N	99.7	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355592

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044619	Ammonia-N	98.2	99.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355403

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044614	Kjeldahl Nitrogen	102	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355404

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044471	Kjeldahl Nitrogen	105	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355406

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044705	Kjeldahl Nitrogen	104	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355382

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044658	NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355483

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044701	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355484

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044711	NO2NO3-N	102	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355409

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044701	Total-P	96.8	97.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355410

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044711	Total-P	97.2	96.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355411

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044760	Total-P	97.2	104	P/P	90 - 110

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P355353

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044664	Turbidity	2.76	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P355354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044756	Turbidity	0.512	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P355355

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2045067	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044705	Ammonia-N	0.482	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044460	Ammonia-N	0.636	Spike	P	0 - 15

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355592

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044619	Ammonia-N	0.636	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355403

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044614	Kjeldahl Nitrogen	0.386	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355404

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044471	Kjeldahl Nitrogen	0.0567	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355406

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044705	Kjeldahl Nitrogen	0.736	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355382

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044658	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355483

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044701	NO2NO3-N	0.406	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355484

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044711	NO2NO3-N	0.690	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355409

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044701	Total-P	0.361	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355410

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044711	Total-P	0.335	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044760	Total-P	5.68	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P355391

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044613	Color (true)	2.28	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P355392

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044656	Color (true)	0.619	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P355393

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044525	Color (true)	0.178	Sample	P	0 - 20

Reference Method: SM 2540 D-97
Batch ID: P355826

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044698	TSS	6.25	Sample	P	0 - 10

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A88051

Included Lab Sample IDs: 2044686, 2044687, 2044688, 2044689, 2044690, 2044691, 2044692, 2044693, 2044694, 2044695, 2044696, 2044697, 2044698, 2044699, 2044700

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88055

Included Lab Sample IDs: 2044714

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

Reference Method: SM 2120 B

Run ID: A88059

Included Lab Sample IDs: 2044686, 2044687, 2044688, 2044689, 2044690, 2044691, 2044692, 2044693, 2044694, 2044695, 2044696, 2044697, 2044698, 2044699, 2044700

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	103	P/P	90 - 115
Color (true)	102	103	P/P	90 - 115
Color (true)	103	101	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88100

Included Lab Sample IDs: 2044701, 2044702, 2044703, 2044704, 2044705, 2044706, 2044707, 2044708, 2044709, 2044710, 2044711, 2044712, 2044713, 2044714, 2044715

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	101	P/P	90 - 110
NO2NO3-N	99.0	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A88120

Included Lab Sample IDs: 2044701, 2044702, 2044703, 2044704, 2044705, 2044706, 2044707, 2044708, 2044709, 2044710, 2044711, 2044712, 2044713, 2044714, 2044715

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	97.5	P/P	90 - 110
Kjeldahl Nitrogen	97.2	99.3	P/P	90 - 110
Kjeldahl Nitrogen	97.5	102	P/P	90 - 110
Kjeldahl Nitrogen	99.3	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88126

Included Lab Sample IDs: 2044705, 2044706, 2044707, 2044708, 2044709, 2044710, 2044711, 2044712, 2044713, 2044715

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88130

Included Lab Sample IDs: 2044701, 2044702, 2044703, 2044704, 2044705, 2044706, 2044707, 2044708, 2044709, 2044710, 2044711, 2044712, 2044713, 2044714, 2044715

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88149

Included Lab Sample IDs: 2044701, 2044702, 2044703, 2044704, 2044714

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	101	P/P	90 - 110
Ammonia-N	102	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	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				2.76	
	Turbidity				0.512	
	Turbidity				0.0	
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	101 99.9			0.482
	Ammonia-N	97.0	99.7 101			0.636
	Ammonia-N	96.9	98.2 99.1			0.636
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	102 102			0.386
	Kjeldahl Nitrogen	104	105 105			0.0567
	Kjeldahl Nitrogen	102	104 103			0.736
EPA 353.2 Rev. 2.0	NO2NO3-N	101	99.5 99.5			0.0
	NO2NO3-N	102	102 103			0.406
	NO2NO3-N	102	102 103			0.690
EPA 365.1 Rev. 2.0	Total-P	108	96.8 97.1			0.361
	Total-P	102	97.2 96.9			0.335
	Total-P	104	97.2 104			5.68
SM 2120 B	Color (true)	102			2.28	
	Color (true)	103			0.619	
	Color (true)	103			0.178	
SM 2540 D-97	TSS				6.25	

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2044686, 2044687, 2044688, 2044689, 2044690, 2044691, 2044692, 2044693, 2044694, 2044695, 2044696, 2044697, 2044698, 2044699, 2044700
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2044701, 2044702, 2044703, 2044704, 2044705, 2044706, 2044707, 2044708, 2044709, 2044710, 2044711, 2044712, 2044713, 2044714, 2044715
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2044701, 2044702, 2044703, 2044704, 2044705, 2044706, 2044707, 2044708, 2044709, 2044710, 2044711, 2044712, 2044713, 2044714, 2044715
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2044701, 2044702, 2044703, 2044704, 2044705, 2044706, 2044707, 2044708, 2044709, 2044710, 2044711, 2044712, 2044713, 2044714, 2044715
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2044701, 2044702, 2044703, 2044704, 2044705, 2044706, 2044707, 2044708, 2044709, 2044710, 2044711, 2044712, 2044713, 2044714, 2044715
SM 2120 B / E31780	True Color measured at 450 nm	2044686, 2044687, 2044688, 2044689, 2044690, 2044691, 2044692, 2044693, 2044694, 2044695, 2044696, 2044697, 2044698, 2044699, 2044700
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2044686, 2044687, 2044688, 2044689, 2044690, 2044691, 2044692, 2044693, 2044694, 2044695, 2044696, 2044697, 2044698, 2044699, 2044700

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	11/29/2018			11/29/2018 17:05	Megan Treadwell	2044686, 2044687, 2044688, 2044689, 2044690, 2044691, 2044692, 2044693, 2044694, 2044695, 2044696, 2044697, 2044698, 2044699, 2044700
EPA 350.1 Rev. 2.0	11/29/2018			12/04/2018 11:26	Adrian Shelby	2044707
	11/29/2018			12/04/2018 11:27	Adrian Shelby	2044708
	11/29/2018			12/04/2018 11:29	Adrian Shelby	2044709
	11/29/2018			12/04/2018 11:30	Adrian Shelby	2044710
	11/29/2018			12/04/2018 11:32	Adrian Shelby	2044711
	11/29/2018			12/04/2018 11:33	Adrian Shelby	2044712
	11/29/2018			12/04/2018 11:35	Adrian Shelby	2044713
	11/29/2018			12/04/2018 11:36	Adrian Shelby	2044715
	11/29/2018			12/04/2018 13:15	Ping Hua	2044701
	11/29/2018			12/04/2018 13:17	Ping Hua	2044702
	11/29/2018			12/04/2018 13:18	Ping Hua	2044703
	11/29/2018			12/04/2018 13:20	Ping Hua	2044704
	11/29/2018			12/04/2018 13:29	Adrian Shelby	2044705
	11/29/2018			12/04/2018 13:33	Adrian Shelby	2044706
	11/29/2018			12/04/2018 13:46	Ping Hua	2044714
EPA 351.2 Rev. 2.0	11/29/2018	11/30/2018 12:15	Adrian Shelby	12/04/2018 10:30	Joseph Suarez	2044714
	11/29/2018	11/30/2018 12:15	Adrian Shelby	12/04/2018 10:52	Joseph Suarez	2044701
	11/29/2018	11/30/2018 12:15	Adrian Shelby	12/04/2018 10:54	Joseph Suarez	2044702
	11/29/2018	11/30/2018 12:15	Adrian Shelby	12/04/2018 10:59	Joseph Suarez	2044703
	11/29/2018	11/30/2018 12:15	Adrian Shelby	12/04/2018 11:00	Joseph Suarez	2044704
	11/29/2018	11/30/2018 12:15	Adrian Shelby	12/04/2018 11:05	Joseph Suarez	2044705
	11/29/2018	11/30/2018 12:15	Adrian Shelby	12/04/2018 11:10	Joseph Suarez	2044706
	11/29/2018	11/30/2018 12:15	Adrian Shelby	12/04/2018 11:11	Joseph Suarez	2044707
	11/29/2018	11/30/2018 12:15	Adrian Shelby	12/04/2018 11:13	Joseph Suarez	2044708
	11/29/2018	11/30/2018 12:15	Adrian Shelby	12/04/2018 11:17	Joseph Suarez	2044709
	11/29/2018	11/30/2018 12:15	Adrian Shelby	12/04/2018 11:19	Joseph Suarez	2044710
	11/29/2018	11/30/2018 12:15	Adrian Shelby	12/04/2018 11:21	Joseph Suarez	2044711
	11/29/2018	11/30/2018 12:15	Adrian Shelby	12/04/2018 11:22	Joseph Suarez	2044712
	11/29/2018	11/30/2018 12:15	Adrian Shelby	12/04/2018 11:24	Joseph Suarez	2044713
	11/29/2018	11/30/2018 12:15	Adrian Shelby	12/04/2018 11:25	Joseph Suarez	2044715
EPA 353.2 Rev. 2.0	11/29/2018			11/30/2018 11:17	Beverly Y. Sanders	2044714
	11/29/2018			12/03/2018 12:40	Lauren Bottorf	2044701
	11/29/2018			12/03/2018 12:46	Lauren Bottorf	2044702
	11/29/2018			12/03/2018 12:47	Lauren Bottorf	2044703
	11/29/2018			12/03/2018 12:49	Lauren Bottorf	2044704
	11/29/2018			12/03/2018 12:50	Lauren Bottorf	2044705

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	11/29/2018			12/03/2018 12:51	Lauren Bottorf	2044706
	11/29/2018			12/03/2018 12:52	Lauren Bottorf	2044707
	11/29/2018			12/03/2018 12:53	Lauren Bottorf	2044708
	11/29/2018			12/03/2018 12:54	Lauren Bottorf	2044709
	11/29/2018			12/03/2018 12:56	Lauren Bottorf	2044710
	11/29/2018			12/03/2018 13:03	Lauren Bottorf	2044711
	11/29/2018			12/03/2018 13:09	Lauren Bottorf	2044712
	11/29/2018			12/03/2018 13:10	Lauren Bottorf	2044713
	11/29/2018			12/03/2018 13:11	Lauren Bottorf	2044715
	11/29/2018			12/03/2018 16:13	Beverly Y. Sanders	2044701
EPA 365.1 Rev. 2.0	11/29/2018	11/30/2018 13:35	Sima Feizi	12/03/2018 16:14	Beverly Y. Sanders	2044702
	11/29/2018	11/30/2018 13:35	Sima Feizi	12/03/2018 16:15	Beverly Y. Sanders	2044703
	11/29/2018	11/30/2018 13:35	Sima Feizi	12/03/2018 16:23	Beverly Y. Sanders	2044704
	11/29/2018	11/30/2018 13:35	Sima Feizi	12/03/2018 16:24	Beverly Y. Sanders	2044705
	11/29/2018	11/30/2018 13:35	Sima Feizi	12/03/2018 16:25	Beverly Y. Sanders	2044706
	11/29/2018	11/30/2018 13:35	Sima Feizi	12/03/2018 16:26	Beverly Y. Sanders	2044707
	11/29/2018	11/30/2018 13:35	Sima Feizi	12/03/2018 16:27	Beverly Y. Sanders	2044708
	11/29/2018	11/30/2018 13:35	Sima Feizi	12/03/2018 16:28	Beverly Y. Sanders	2044709
	11/29/2018	11/30/2018 13:35	Sima Feizi	12/03/2018 16:29	Beverly Y. Sanders	2044710
	11/29/2018	11/30/2018 13:35	Sima Feizi	12/03/2018 16:31	Beverly Y. Sanders	2044711
SM 2120 B	11/29/2018	11/30/2018 13:35	Sima Feizi	12/03/2018 16:32	Beverly Y. Sanders	2044712
	11/29/2018	11/30/2018 13:35	Sima Feizi	12/03/2018 16:39	Beverly Y. Sanders	2044713
	11/29/2018	11/30/2018 13:35	Sima Feizi	12/03/2018 16:40	Beverly Y. Sanders	2044715
	11/29/2018	11/30/2018 13:35	Sima Feizi	12/03/2018 16:42	Beverly Y. Sanders	2044714
	11/29/2018			11/29/2018 15:35	Chelsea Hernandez	2044692
	11/29/2018			11/29/2018 15:49	Chelsea Hernandez	2044686
	11/29/2018			11/29/2018 15:50	Chelsea Hernandez	2044687
	11/29/2018			11/29/2018 15:51	Chelsea Hernandez	2044688, 2044689
	11/29/2018			11/29/2018 15:52	Chelsea Hernandez	2044690
	11/29/2018			11/29/2018 15:53	Chelsea Hernandez	2044691
SM 2540 D-97	11/29/2018			11/29/2018 15:58	Chelsea Hernandez	2044693
	11/29/2018			11/29/2018 15:59	Chelsea Hernandez	2044694
	11/29/2018			11/29/2018 16:00	Chelsea Hernandez	2044695, 2044696
	11/29/2018			11/29/2018 16:01	Chelsea Hernandez	2044697
	11/29/2018			11/29/2018 16:02	Chelsea Hernandez	2044698
	11/29/2018			11/29/2018 16:03	Chelsea Hernandez	2044699, 2044700
	11/29/2018			11/30/2018 16:02	Yijie Li	2044686, 2044687, 2044688, 2044689, 2044690, 2044691, 2044692, 2044693, 2044694, 2044695, 2044696, 2044697, 2044698, 2044699, 2044700