

Chemical Analysis Report

NW-DIST-2017-09-06-02

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-2017-08-28-15**
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: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 21-SEP-2017 11:50



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: 09/05/2017 11:07

Field ID: 1

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927646	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P331387	
	SM 2120 B	Color (true)	23	A	PCU	P331368	
	SM 2540 D-97	TSS	4	I	mg/L	P331682	
1927658	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P331516	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P331366	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P331418	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P331465	

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: 09/05/2017 11:16

Field ID: 2

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927647	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P331387	
	SM 2120 B	Color (true)	20		PCU	P331368	
	SM 2540 D-97	TSS	3	I	mg/L	P331682	
1927659	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P331516	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38	I	mg N/L	P331366	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P331418	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P331465	

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: 09/05/2017 11:25

Field ID: 3

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927648	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P331387	
	SM 2120 B	Color (true)	15		PCU	P331368	
	SM 2540 D-97	TSS	3	I	mg/L	P331682	
1927660	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P331516	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38	I	mg N/L	P331366	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P331419	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P331465	

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: 100 Ft. South of Stormdrain

Collection Date/Time: 09/05/2017 11:32

Field ID: 4

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927649	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P331387	
	SM 2120 B	Color (true)	16		PCU	P331368	
	SM 2540 D-97	TSS	3	U	mg/L	P331682	
1927661	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P331516	

Field ID: 4

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927661	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.43		mg N/L	P331366	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P331419	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P331465	

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: 09/05/2017 11:47

Field ID: 5

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927650	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P331387	
	SM 2120 B	Color (true)	19		PCU	P331368	
	SM 2540 D-97	TSS	3	U	mg/L	P331682	
1927662	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P331516	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P331366	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P331419	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P331465	

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

Collection Date/Time: 09/05/2017 11:56

Field ID: 6

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927651	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P331387	
	SM 2120 B	Color (true)	19		PCU	P331368	
	SM 2540 D-97	TSS	3	U	mg/L	P331682	
1927663	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P331516	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.52		mg N/L	P331366	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P331419	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P331465	

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 Port

Collection Date/Time: 09/05/2017 12:03

Field ID: 7

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927652	EPA 180.1 Rev. 2.0	Turbidity	2.6	A	NTU	P331388	
	SM 2120 B	Color (true)	21		PCU	P331368	
	SM 2540 D-97	TSS	4	I	mg/L	P331682	
1927664	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P331516	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31	I	mg N/L	P331366	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P331419	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P331465	

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: West of Stormdrain Inside Rocks

Collection Date/Time: 09/05/2017 11:40

Field ID: 8

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927653	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P331388	
	SM 2120 B	Color (true)	17		PCU	P331368	
	SM 2540 D-97	TSS	3	I	mg/L	P331682	
1927665	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P331516	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27	I	mg N/L	P331366	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P331419	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P331465	

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: West End of Hawkshaw 100 ft S of Outfall

Collection Date/Time: 09/05/2017 12:31

Field ID: 9

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927654	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P331388	
	SM 2120 B	Color (true)	20		PCU	P331368	
	SM 2540 D-97	TSS	3	IA	mg/L	P331682	
1927666	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P331516	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31	I	mg N/L	P331366	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P331419	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P331465	

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: Between Marina and Outfall

Collection Date/Time: 09/05/2017 12:26

Field ID: 10

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927655	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P331388	
	SM 2120 B	Color (true)	19		PCU	P331368	
	SM 2540 D-97	TSS	3	I	mg/L	P331683	
1927667	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P331516	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26	I	mg N/L	P331366	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P331419	
	EPA 365.1 Rev. 2.0	Total-P	0.46		mg P/L	P331465	

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: Entrance of Marina

Collection Date/Time: 09/05/2017 12:19

Field ID: 11

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927656	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P331388	
	SM 2120 B	Color (true)	19	A	PCU	P331369	
	SM 2540 D-97	TSS	3	U	mg/L	P331683	
1927668	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P331653	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26	I	mg N/L	P331504	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P331419	

Field ID: 11

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927668	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P331466	

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: 1/4 between bridge and port 400 ft from shore **Collection Date/Time: 09/05/2017 12:11**

Field ID: 12

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927657	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P331388	
	SM 2120 B	Color (true)	20		PCU	P331369	
	SM 2540 D-97	TSS	3	UA	mg/L	P331683	
1927669	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P331653	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26	I	mg N/L	P331504	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P331419	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P331466	

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: Inside Hawkshaw Lagoon **Collection Date/Time: 09/05/2017 12:47**

Field ID: 13

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927865	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P331392	
	SM 2120 B	Color (true)	20	A	PCU	P331378	
	SM 2540 D-97	TSS	3	U	mg/L	P331683	
1927867	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P331653	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.69		mg N/L	P331575	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P331422	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P331469	

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 PGSII **Collection Date/Time: 09/05/2017 13:01**

Field ID: 14

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1927866	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P331392	
	SM 2120 B	Color (true)	20		PCU	P331378	
	SM 2540 D-97	TSS	3	I	mg/L	P331683	
1927868	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P331653	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P331575	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P331422	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P331469	

Ref. Method and Comment:

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

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P331387

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P331388

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P331392

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331516

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331653

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331366

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331504

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331575

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331418

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331419

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331422

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331465

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331466

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331469

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

Reference Method: SM 2120 B
Batch ID: P331368

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P331369

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P331378

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2540 D-97
Batch ID: P331682

Component	Result	Code	Units
TSS	3	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P331683

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: P331516

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331653

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331366

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331504

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331575

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331418

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331419

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	105		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331422

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P331422

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	105		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P331465

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	92.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P331466

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	93.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P331469

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P331516

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927658	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P331653

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927668	Ammonia-N	109	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P331366

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927659	Kjeldahl Nitrogen	108	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P331504

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927668	Kjeldahl Nitrogen	93.7	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P331575

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331575

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927817	Kjeldahl Nitrogen	107	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331418

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1926711	NO2NO3-N	106	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331419

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927660	NO2NO3-N	106	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331422

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927815	NO2NO3-N	105	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331465

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927658	Total-P	93.1	93.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331466

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927789	Total-P	93.8	95.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331469

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1927813	Total-P	93.8	100	P/P	90 - 110

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P331387

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927594	Turbidity	1.76	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P331388

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927652	Turbidity	5.74	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P331392

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927786	Turbidity	2.87	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331516

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927658	Ammonia-N	1.48	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331653

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927668	Ammonia-N	2.11	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331366

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927659	Kjeldahl Nitrogen	3.00	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331504

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927668	Kjeldahl Nitrogen	8.47	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331575

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927817	Kjeldahl Nitrogen	1.54	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331418

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1926711	NO2NO3-N	0.475	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331419

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927660	NO2NO3-N	0.946	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331422

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927815	NO2NO3-N	0.347	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331465

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927658	Total-P	0.343	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331466

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927789	Total-P	1.71	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331469

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927813	Total-P	6.39	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P331368

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927646	Color (true)	2.82	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P331369

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927656	Color (true)	1.85	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P331378

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1927865	Color (true)	5.02	Sample	P	0 - 20

Quality Assurance Report Precision

* 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: SM 2120 B

Run ID: A78822

Included Lab Sample IDs: 1927646, 1927647, 1927648, 1927649, 1927650, 1927651, 1927652, 1927653, 1927654, 1927655, 1927656, 1927657

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	85 - 115
Color (true)	102	101	P/P	85 - 115

Reference Method: SM 2120 B

Run ID: A78828

Included Lab Sample IDs: 1927865, 1927866

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	104	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A78829

Included Lab Sample IDs: 1927646, 1927647, 1927648, 1927649, 1927650, 1927651, 1927652, 1927653, 1927654, 1927655, 1927656, 1927657, 1927865, 1927866

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: A78844

Included Lab Sample IDs: 1927658, 1927659, 1927660, 1927661, 1927662, 1927663, 1927664, 1927665, 1927666, 1927667, 1927668, 1927669, 1927867, 1927868

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110
NO2NO3-N	100	100	P/P	90 - 110
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A78868

Included Lab Sample IDs: 1927658, 1927659, 1927660, 1927661, 1927662, 1927663, 1927664, 1927665, 1927666, 1927667

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	101	P/P	90 - 110
Ammonia-N	101	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A78905

Included Lab Sample IDs: 1927667

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A78910

Included Lab Sample IDs: 1927658, 1927659, 1927660, 1927661, 1927662, 1927663, 1927664, 1927665, 1927666, 1927668, 1927669, 1927867, 1927868

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	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A78917

Included Lab Sample IDs: 1927658, 1927659, 1927660, 1927661, 1927662, 1927663, 1927664, 1927665, 1927667

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	104	P/P	90 - 110
Kjeldahl Nitrogen	104	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A78921

Included Lab Sample IDs: 1927668, 1927669, 1927867, 1927868

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	106	106	P/P	90 - 110
Ammonia-N	106	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A78922

Included Lab Sample IDs: 1927666

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A78933

Included Lab Sample IDs: 1927668, 1927669

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	103	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	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				1.76	
	Turbidity				5.74	
	Turbidity				2.87	
EPA 350.1 Rev. 2.0	Ammonia-N	103	102 101			1.48
	Ammonia-N	107	109 107			2.11
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	108 105			3.00

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	93.7	103		8.47
	Kjeldahl Nitrogen	105	107	105		1.54
EPA 353.2 Rev. 2.0	NO2NO3-N	104	106	105		0.475
	NO2NO3-N	105	106	105		0.946
	NO2NO3-N	105	105	106		0.347
EPA 365.1 Rev. 2.0	Total-P	92.5	93.1	93.4		0.343
	Total-P	93.8	93.8	95.7		1.71
	Total-P	98.8	93.8	100		6.39
SM 2120 B	Color (true)				2.82	
	Color (true)				1.85	
	Color (true)				5.02	

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1927646, 1927647, 1927648, 1927649, 1927650, 1927651, 1927652, 1927653, 1927654, 1927655, 1927656, 1927657, 1927865, 1927866
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1927658, 1927659, 1927660, 1927661, 1927662, 1927663, 1927664, 1927665, 1927666, 1927667, 1927668, 1927669, 1927867, 1927868
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1927658, 1927659, 1927660, 1927661, 1927662, 1927663, 1927664, 1927665, 1927666, 1927667, 1927668, 1927669, 1927867, 1927868
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1927658, 1927659, 1927660, 1927661, 1927662, 1927663, 1927664, 1927665, 1927666, 1927667, 1927668, 1927669, 1927867, 1927868
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1927658, 1927659, 1927660, 1927661, 1927662, 1927663, 1927664, 1927665, 1927666, 1927667, 1927668, 1927669, 1927867, 1927868
SM 2120 B / E31780	True Color measured at 450 nm	1927646, 1927647, 1927648, 1927649, 1927650, 1927651, 1927652, 1927653, 1927654, 1927655, 1927656, 1927657, 1927865, 1927866
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1927646, 1927647, 1927648, 1927649, 1927650, 1927651, 1927652, 1927653, 1927654, 1927655, 1927656, 1927657, 1927865, 1927866

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	09/06/2017			09/06/2017 17:24	DeAsia Armster	1927646, 1927647, 1927648, 1927649, 1927650, 1927651, 1927652, 1927653, 1927654, 1927655, 1927656, 1927657, 1927865, 1927866
EPA 350.1 Rev. 2.0	09/06/2017			09/07/2017	Sofia Elnemr	1927658, 1927659, 1927660, 1927661, 1927662, 1927663, 1927664, 1927665, 1927666, 1927667
EPA 351.2 Rev. 2.0	09/06/2017	09/07/2017	Adrian Shelby	09/14/2017	Sofia Elnemr	1927668, 1927669, 1927867, 1927868
	09/06/2017			09/13/2017	Joseph Suarez	1927658, 1927659, 1927660, 1927661, 1927662, 1927663, 1927664, 1927665, 1927667
	09/06/2017	09/07/2017	Adrian Shelby	09/15/2017	Joseph Suarez	1927666
	09/06/2017	09/13/2017	Adrian Shelby	09/15/2017	Joseph Suarez	1927668, 1927669
	09/06/2017	09/13/2017	Adrian Shelby	09/18/2017	Joseph Suarez	1927867, 1927868
EPA 353.2 Rev. 2.0	09/06/2017			09/07/2017	Beverly Y. Sanders	1927658, 1927659, 1927660, 1927661, 1927662, 1927663, 1927664, 1927665, 1927666, 1927667, 1927668, 1927669, 1927867, 1927868
EPA 365.1 Rev. 2.0	09/06/2017	09/07/2017	Sima Feizi	09/14/2017	Lipi Saha	1927658, 1927659, 1927660, 1927661, 1927662, 1927663, 1927664, 1927665, 1927666, 1927667, 1927668, 1927669, 1927867, 1927868
SM 2120 B	09/06/2017			09/06/2017 14:15	Tanya Welborn	1927646, 1927647
	09/06/2017			09/06/2017 14:16	Tanya Welborn	1927648
	09/06/2017			09/06/2017 14:17	Tanya Welborn	1927649
	09/06/2017			09/06/2017 14:18	Tanya Welborn	1927650, 1927651
	09/06/2017			09/06/2017 14:19	Tanya Welborn	1927652
	09/06/2017			09/06/2017 14:20	Tanya Welborn	1927653
	09/06/2017			09/06/2017 14:21	Tanya Welborn	1927654
	09/06/2017			09/06/2017 14:22	Tanya Welborn	1927655
	09/06/2017			09/06/2017 14:25	Tanya Welborn	1927656
	09/06/2017			09/06/2017 14:26	Tanya Welborn	1927657
	09/06/2017			09/06/2017 15:59	Tanya Welborn	1927865
	09/06/2017			09/06/2017 16:00	Tanya Welborn	1927866
SM 2540 D-97	09/06/2017			09/07/2017	Yijie Li	1927646, 1927647, 1927648, 1927649, 1927650, 1927651, 1927652, 1927653, 1927654, 1927655, 1927656, 1927657, 1927865, 1927866