

Chemical Analysis Report

NW-DIST-2016-11-17-01

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-2016-11-14-41**
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

For additional information please contact
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Certified by: Colin Wright, Environmental Administrator

Date Certified: 13-DEC-2016 17:11

A handwritten signature in black ink, appearing to read "Colin Wright", is written on a light-colored rectangular background.

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: 11/16/2016 10:33

Field ID: 1

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1851062	EPA 180.1 Rev. 2.0	Turbidity	1.7	A	NTU	P315418	
	SM 2120 B	Color (true)	2.5	U	PCU	P315392	
	SM 2540 D-97	TSS	6	I	mg/L	P315758	
1851077	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P315787	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27	I	mg N/L	P316144	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P315914	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P315907	

Ref. Method and Comment:

SM 2120 B: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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: 11/16/2016 10:44

Field ID: 2

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1851063	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P315418	
	SM 2120 B	Color (true)	7.5	U	PCU	P315392	
	SM 2540 D-97	TSS	5	I	mg/L	P315758	
1851078	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P315787	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30	I	mg N/L	P316144	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.067		mg N/L	P315914	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P315907	

Ref. Method and Comment:

SM 2120 B: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The MDL was elevated due to sample matrix interference.

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

Sample Location: East of Primary Storm Drain

Collection Date/Time: 11/16/2016 10:52

Field ID: 3

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1851064	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P315418	
	SM 2120 B	Color (true)	2.5	U	PCU	P315392	
	SM 2540 D-97	TSS	4	I	mg/L	P315758	
1851079	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P315787	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22	I	mg N/L	P316145	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.024		mg N/L	P315914	
	EPA 365.1 Rev. 2.0	Total-P	0.037		mg P/L	P315907	

Ref. Method and Comment:

SM 2120 B: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Sample Location: 100ft S of Storm Drain

Collection Date/Time: 11/16/2016 10:59

Field ID: 4

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1851065	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P315418	
	SM 2120 B	Color (true)	2.5	U	PCU	P315392	

Field ID: 4

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1851065	SM 2540 D-97	TSS	7	I	mg/L	P315758	
1851080	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P315787	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25	I	mg N/L	P316145	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.023		mg N/L	P315915	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P315907	

Ref. Method and Comment:

SM 2120 B: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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: 11/16/2016 11:16

Field ID: 5

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1851066	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P315418	
	SM 2120 B	Color (true)	2.5	U	PCU	P315392	
	SM 2540 D-97	TSS	4	I	mg/L	P315758	
1851081	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P315787	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20	I	mg N/L	P316145	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.041		mg N/L	P315915	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P315907	

Ref. Method and Comment:

SM 2120 B: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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: 11/16/2016 11:23

Field ID: 6

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1851067	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P315418	
	SM 2120 B	Color (true)	7.5	U	PCU	P315393	
	SM 2540 D-97	TSS	3	U	mg/L	P315758	
1851082	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P315787	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25	I	mg N/L	P316145	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P315915	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P315907	

Ref. Method and Comment:

SM 2120 B: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The MDL was elevated due to sample matrix interference.

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: 11/16/2016 11:30

Field ID: 7

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1851068	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P315418	
	SM 2120 B	Color (true)	7.5	U	PCU	P315393	
	SM 2540 D-97	TSS	6	I	mg/L	P315758	
1851083	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P315788	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33	I	mg N/L	P316145	

Field ID: 7

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1851083	EPA 353.2 Rev. 2.0	NO2NO3-N	0.034		mg N/L	P315915	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P315907	

Ref. Method and Comment:

SM 2120 B: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The MDL was elevated due to sample matrix interference.

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: 11/16/2016 11:06

Field ID: 8

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1851069	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P315418	
	SM 2120 B	Color (true)	7.5	U	PCU	P315393	
	SM 2540 D-97	TSS	4	I	mg/L	P315758	
1851084	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P315788	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28	I	mg N/L	P316145	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.030		mg N/L	P315915	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P315907	

Ref. Method and Comment:

SM 2120 B: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The MDL was elevated due to sample matrix interference.

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 100ft from Shore

Collection Date/Time: 11/16/2016 12:01

Field ID: 9

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1851070	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P315418	
	SM 2120 B	Color (true)	7.5	U	PCU	P315393	
	SM 2540 D-97	TSS	5	I	mg/L	P315758	
1851085	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P315788	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28	I	mg N/L	P316145	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.035		mg N/L	P315915	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P315907	

Ref. Method and Comment:

SM 2120 B: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The MDL was elevated due to sample matrix interference.

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: 11/16/2016 11:55

Field ID: 10

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1851071	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P315418	
	SM 2120 B	Color (true)	7.5	U	PCU	P315393	
	SM 2540 D-97	TSS	4	I	mg/L	P315759	
1851086	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P315788	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28	I	mg N/L	P316145	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P315915	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P315909	

Field ID: 10

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
Ref. Method and Comment: SM 2120 B: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The MDL was elevated due to sample matrix interference. 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: 11/16/2016 11:46

Field ID: 11

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1851072	EPA 180.1 Rev. 2.0	Turbidity	1.5	A	NTU	P315419	
	SM 2120 B	Color (true)	7.5	U	PCU	P315393	
	SM 2540 D-97	TSS	3	U	mg/L	P315759	
1851087	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P315788	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24	I	mg N/L	P316143	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P315915	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P315909	

Ref. Method and Comment:
 SM 2120 B: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The MDL was elevated due to sample matrix interference.
 SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
 EPA 353.2 Rev. 2.0: NO2NO3-N: The result was confirmed on 11/30/2016.

Sample Location: Entrance of Marina Duplicate

Collection Date/Time: 11/16/2016 11:49

Field ID: 11 Dup

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1851073	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P315419	
	SM 2120 B	Color (true)	7.5	U	PCU	P315393	
	SM 2540 D-97	TSS	3	U	mg/L	P315759	
1851088	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P315788	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23	I	mg N/L	P316143	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.026		mg N/L	P315915	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P315909	

Ref. Method and Comment:
 SM 2120 B: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The MDL was elevated due to sample matrix interference.
 SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
 EPA 353.2 Rev. 2.0: NO2NO3-N: The result was confirmed on 11/30/2016.

Sample Location: 1/4 Between Bridge and Port

Collection Date/Time: 11/16/2016 11:38

Field ID: 12

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1851074	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P315419	
	SM 2120 B	Color (true)	7.5	U	PCU	P315393	
	SM 2540 D-97	TSS	5	I	mg/L	P315759	
1851089	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P315788	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30	I	mg N/L	P316145	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.024		mg N/L	P315915	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P315909	

Field ID: 12

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Ref. Method and Comment:

SM 2120 B: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. The MDL was elevated due to sample matrix interference.

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: 11/16/2016 12:09

Field ID: 13

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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1851075	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P315419	
	SM 2120 B	Color (true)	2.5	U	PCU	P315393	
	SM 2540 D-97	TSS	6	I	mg/L	P315759	
1851090	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P315788	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.49		mg N/L	P316214	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P315916	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P315909	

Ref. Method and Comment:

SM 2120 B: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Sample Location: E of Stormdrain inside PGS site II

Collection Date/Time: 11/16/2016 12:24

Field ID: 14

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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1851076	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P315419	
	SM 2120 B	Color (true)	2.5	U	PCU	P315393	
	SM 2540 D-97	TSS	6	I	mg/L	P315759	
1851091	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P315788	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.35	I	mg N/L	P316214	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P315916	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P315909	

Ref. Method and Comment:

SM 2120 B: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P315418

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P315419

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315787

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315788

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316143

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316144

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316145

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316214

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315914

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315915

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315916

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: P315907

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315909

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

Reference Method: SM 2120 B
Batch ID: P315392

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P315393

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2540 D-97
Batch ID: P315758

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P315759

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: P315787

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315788

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: P316143

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316143

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316144

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316145

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: P316214

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315914

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: P315915

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: P315916

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315907

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315909

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315787

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1851077	Ammonia-N	100	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315788

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1851083	Ammonia-N	104	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316143

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1851087	Kjeldahl Nitrogen	106	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316144

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1850896	Kjeldahl Nitrogen	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316145

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1851084	Kjeldahl Nitrogen	98.6	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316214

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1851481	Kjeldahl Nitrogen	93.0	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315914

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1851077	NO2NO3-N	106	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315915

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1851080	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315916

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1851090	NO2NO3-N	106	104	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1851081	Total-P	97.3	92.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315909

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1851086	Total-P	91.4	97.0	P/P	90 - 110

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P315418

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851062	Turbidity	1.18	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P315419

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851072	Turbidity	3.34	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315787

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851077	Ammonia-N	0.162	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P315788

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851083	Ammonia-N	1.30	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316143

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851087	Kjeldahl Nitrogen	4.98	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1850896	Kjeldahl Nitrogen	0.756	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316145

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851084	Kjeldahl Nitrogen	0.798	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316214

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851481	Kjeldahl Nitrogen	12.6	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315914

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851077	NO2NO3-N	1.43	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315915

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851080	NO2NO3-N	0.436	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P315916

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851090	NO2NO3-N	0.952	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851081	Total-P	4.59	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P315909

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1851086	Total-P	5.82	Spike	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: A72872

Included Lab Sample IDs: 1851062, 1851063, 1851064, 1851065, 1851066, 1851067, 1851068, 1851069, 1851070, 1851071, 1851072, 1851073, 1851074, 1851075, 1851076

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	98.2	P/P	85 - 115
Color (true)	105	101	P/P	85 - 115
Color (true)	98.2	99.0	P/P	85 - 115
Color (true)	99.0	98.8	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A72884

Included Lab Sample IDs: 1851062, 1851063, 1851064, 1851065, 1851066, 1851067, 1851068, 1851069, 1851070, 1851071, 1851072, 1851073, 1851074, 1851075, 1851076

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	99.5	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A73030

Included Lab Sample IDs: 1851077, 1851078, 1851079, 1851080, 1851081, 1851082, 1851083, 1851084, 1851085, 1851086, 1851087, 1851088, 1851089, 1851090, 1851091

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	101	P/P	90 - 110
Ammonia-N	101	98.8	P/P	90 - 110
Ammonia-N	101	101	P/P	90 - 110
Ammonia-N	98.8	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A73081

Included Lab Sample IDs: 1851077, 1851078, 1851079, 1851080, 1851081, 1851082, 1851083, 1851084, 1851085, 1851086, 1851087, 1851088, 1851089, 1851090, 1851091

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	97.0	96.5	P/P	90 - 110
NO2NO3-N	98.0	97.0	P/P	90 - 110
NO2NO3-N	98.5	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A73115

Included Lab Sample IDs: 1851077, 1851078, 1851079, 1851080, 1851081, 1851082, 1851083, 1851084, 1851085, 1851086, 1851087, 1851088, 1851089, 1851090, 1851091

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
Total-P	102	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A73196

Included Lab Sample IDs: 1851077, 1851078, 1851087, 1851088

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	101	P/P	90 - 110
Kjeldahl Nitrogen	101	101	P/P	90 - 110
Kjeldahl Nitrogen	102	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A73212

Included Lab Sample IDs: 1851079, 1851080, 1851081, 1851082, 1851083, 1851084, 1851085, 1851086, 1851089

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	99.1	P/P	90 - 110
Kjeldahl Nitrogen	101	99.3	P/P	90 - 110
Kjeldahl Nitrogen	99.3	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A73221

Included Lab Sample IDs: 1851090, 1851091

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

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					1.18	
	Turbidity					3.34	
EPA 350.1 Rev. 2.0	Ammonia-N	100	100	100			0.162
	Ammonia-N	107	104	102			1.30
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	106	100			4.98
	Kjeldahl Nitrogen	105	101	102			0.756
	Kjeldahl Nitrogen	106	98.6	99.4			0.798
	Kjeldahl Nitrogen	103	93.0	108			12.6
	Kjeldahl Nitrogen	102	106	104			1.43
EPA 353.2 Rev. 2.0	NO2NO3-N	102	106	104			0.436
	NO2NO3-N	102	103	103			0.952
	NO2NO3-N	101	106	104			0.952
EPA 365.1 Rev. 2.0	Total-P	103	97.3	92.8			4.59
	Total-P	105	91.4	97.0			5.82

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1851062, 1851063, 1851064, 1851065, 1851066, 1851067, 1851068, 1851069, 1851070, 1851071, 1851072, 1851073, 1851074, 1851075, 1851076

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1851077, 1851078, 1851079, 1851080, 1851081, 1851082, 1851083, 1851084, 1851085, 1851086, 1851087, 1851088, 1851089, 1851090, 1851091
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1851077, 1851078, 1851079, 1851080, 1851081, 1851082, 1851083, 1851084, 1851085, 1851086, 1851087, 1851088, 1851089, 1851090, 1851091
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1851077, 1851078, 1851079, 1851080, 1851081, 1851082, 1851083, 1851084, 1851085, 1851086, 1851087, 1851088, 1851089, 1851090, 1851091
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1851077, 1851078, 1851079, 1851080, 1851081, 1851082, 1851083, 1851084, 1851085, 1851086, 1851087, 1851088, 1851089, 1851090, 1851091
SM 2120 B / E31780	True Color measured at 450 nm	1851062, 1851063, 1851064, 1851065, 1851066, 1851067, 1851068, 1851069, 1851070, 1851071, 1851072, 1851073, 1851074, 1851075, 1851076
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1851062, 1851063, 1851064, 1851065, 1851066, 1851067, 1851068, 1851069, 1851070, 1851071, 1851072, 1851073, 1851074, 1851075, 1851076

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	11/17/2016			11/17/2016 16:41	Sima Feizi	1851062, 1851063, 1851064, 1851065, 1851066, 1851067, 1851068, 1851069, 1851070, 1851071, 1851072, 1851073, 1851074, 1851075, 1851076
EPA 350.1 Rev. 2.0	11/17/2016			11/28/2016	Sofia Elnemr	1851077, 1851078, 1851079, 1851080, 1851081, 1851082, 1851083, 1851084, 1851085, 1851086, 1851087, 1851088, 1851089, 1851090, 1851091
EPA 351.2 Rev. 2.0	11/17/2016	12/05/2016	Adrian Shelby	12/06/2016	Joseph Suarez	1851077, 1851078, 1851087, 1851088
	11/17/2016	12/05/2016	Martin Acosta	12/06/2016	Joseph Suarez	1851079, 1851080, 1851081, 1851082, 1851083, 1851084, 1851085, 1851086, 1851089
	11/17/2016	12/06/2016	Adrian Shelby	12/07/2016	Joseph Suarez	1851090, 1851091
EPA 353.2 Rev. 2.0	11/17/2016			11/30/2016	Beverly Y. Sanders	1851077, 1851078, 1851079, 1851080, 1851081, 1851082, 1851083, 1851084, 1851085, 1851086, 1851087, 1851088, 1851089, 1851090, 1851091
EPA 365.1 Rev. 2.0	11/17/2016	11/30/2016	Adrian Shelby	12/01/2016	Lipi Saha	1851077, 1851078, 1851079, 1851080, 1851081, 1851082, 1851083, 1851084, 1851085, 1851086, 1851087, 1851088, 1851089, 1851090, 1851091
SM 2120 B	11/17/2016			11/17/2016 15:24	Blanca Fach	1851062
	11/17/2016			11/17/2016 15:26	Blanca Fach	1851064, 1851065
	11/17/2016			11/17/2016 15:27	Blanca Fach	1851066
	11/17/2016			11/17/2016 15:37	Blanca Fach	1851075
	11/17/2016			11/17/2016 15:38	Blanca Fach	1851076
	11/17/2016			11/17/2016 15:42	Blanca Fach	1851063
	11/17/2016			11/17/2016 15:43	Blanca Fach	1851067
	11/17/2016			11/17/2016 15:44	Blanca Fach	1851068
	11/17/2016			11/17/2016 15:45	Blanca Fach	1851069
	11/17/2016			11/17/2016 15:46	Blanca Fach	1851070, 1851071
	11/17/2016			11/17/2016 15:47	Blanca Fach	1851072
	11/17/2016			11/17/2016 15:48	Blanca Fach	1851073
	11/17/2016			11/17/2016 15:50	Blanca Fach	1851074
SM 2540 D-97	11/17/2016			11/21/2016	Sima Feizi	1851062, 1851063, 1851064, 1851065, 1851066, 1851067, 1851068, 1851069, 1851070, 1851071, 1851072, 1851073, 1851074, 1851075, 1851076