

Chemical Analysis Report

NW-DIST-2017-03-09-01

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-2017-02-27-16**
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: Colin Wright, Program Administrator

Date Certified: 04-APR-2017 11:16

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed 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: 03/08/2017 10:21

Field ID: 1

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879099	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P321300	
	SM 2120 B	Color (true)	15	A	PCU	P321288	
	SM 2540 D-97	TSS	4	I	mg/L	P321864	
1879114	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P321473	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29	I	mg N/L	P321580	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.049		mg N/L	P321732	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P321463	

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: 112 BRIDGE AND MUSCOGEE

Collection Date/Time: 03/08/2017 10:42

Field ID: 2

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879100	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P321300	
	SM 2120 B	Color (true)	14		PCU	P321288	
	SM 2540 D-97	TSS	4	I	mg/L	P321864	
1879115	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P321473	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28	I	mg N/L	P321583	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.055		mg N/L	P321732	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P321463	

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 STORM DRAIN PGS2

Collection Date/Time: 03/08/2017 10:53

Field ID: 3

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879101	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P321300	
	SM 2120 B	Color (true)	14		PCU	P321288	
	SM 2540 D-97	TSS	3	I	mg/L	P321864	
1879116	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P321473	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26	I	mg N/L	P321583	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.048		mg N/L	P321733	
	EPA 365.1 Rev. 2.0	Total-P	0.008	I	mg P/L	P321463	

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 STROMDRAIN

Collection Date/Time: 03/08/2017 11:00

Field ID: 4

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879102	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P321300	
	SM 2120 B	Color (true)	14		PCU	P321288	
	SM 2540 D-97	TSS	4	I	mg/L	P321864	
1879117	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P321473	

Field ID: 4

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879117	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24	I	mg N/L	P321583	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.054		mg N/L	P321733	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P321463	

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: 03/08/2017 11:20****Field ID: 5**

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879103	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P321300	
	SM 2120 B	Color (true)	14		PCU	P321288	
	SM 2540 D-97	TSS	3	U	mg/L	P321864	
1879118	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P321473	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20	I	mg N/L	P321583	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.061		mg N/L	P321733	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P321463	

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 HAWSHAW 400FT FROM SHORE**Collection Date/Time: 03/08/2017 11:29****Field ID: 6**

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879104	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P321300	
	SM 2120 B	Color (true)	15		PCU	P321288	
	SM 2540 D-97	TSS	3	I	mg/L	P321864	
1879119	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P321476	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24	I	mg N/L	P321583	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.061		mg N/L	P321733	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P321463	

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: 03/08/2017 11:39****Field ID: 7**

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879105	EPA 180.1 Rev. 2.0	Turbidity	2.8	A	NTU	P321301	
	SM 2120 B	Color (true)	15		PCU	P321288	
	SM 2540 D-97	TSS	4	I	mg/L	P321864	
1879120	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P321476	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21	I	mg N/L	P321583	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.056		mg N/L	P321733	
	EPA 365.1 Rev. 2.0	Total-P	0.008	I	mg P/L	P321463	

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 FIELD BLANK

Collection Date/Time: 03/08/2017 11:42

Field ID: 7 (FB)

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879106	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P321301	
	SM 2120 B	Color (true)	2.5	U	PCU	P321288	
	SM 2540 D-97	TSS	2	U	mg/L	P321861	
1879121	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P321475	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P321579	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P321662	
	EPA 365.1 Rev. 2.0	Total-P	0.002	I	mg P/L	P321464	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0: Total-P: The result was confirmed on 03/21/2017.

Sample Location: WEST OF STROMDRAIN, INSIDE ROCKS

Collection Date/Time: 03/08/2017 11:11

Field ID: 8

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879107	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P321301	
	SM 2120 B	Color (true)	15		PCU	P321288	
	SM 2540 D-97	TSS	6	I	mg/L	P321865	
1879122	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P321476	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30	I	mg N/L	P321583	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.062		mg N/L	P321733	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P321463	

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 100FT SOUTH OF OUTFALL

Collection Date/Time: 03/08/2017 12:23

Field ID: 9

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879108	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P321301	
	SM 2120 B	Color (true)	14		PCU	P321289	
	SM 2540 D-97	TSS	3	I	mg/L	P321865	
1879123	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P321476	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23	I	mg N/L	P321583	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.060		mg N/L	P321733	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P321463	

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: 03/08/2017 12:13

Field ID: 10

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879109	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P321301	
	SM 2120 B	Color (true)	16		PCU	P321289	
	SM 2540 D-97	TSS	3	U	mg/L	P321865	

Field ID: 10

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879124	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P321476	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P321583	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.058		mg N/L	P321733	
	EPA 365.1 Rev. 2.0	Total-P	0.01	I	mg P/L	P321463	

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: 03/08/2017 12:08

Field ID: 11

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879110	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P321301	
	SM 2120 B	Color (true)	16	A	PCU	P321289	
	SM 2540 D-97	TSS	3	U	mg/L	P321865	
1879125	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P321476	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24	I	mg N/L	P321583	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.060		mg N/L	P321733	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P321487	

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 400FT FROM SHORE

Collection Date/Time: 03/08/2017 11:59

Field ID: 12

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879111	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P321301	
	SM 2120 B	Color (true)	16		PCU	P321289	
	SM 2540 D-97	TSS	4	I	mg/L	P321865	
1879126	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P321476	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25	I	mg N/L	P321580	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.057		mg N/L	P321733	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P321487	

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: 03/08/2017 12:49

Field ID: 13

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1879112	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P321301	
	SM 2120 B	Color (true)	17		PCU	P321289	
	SM 2540 D-97	TSS	5	I	mg/L	P321861	
1879127	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P321476	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.36	I	mg N/L	P321649	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P321734	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P321487	

Field ID: 13

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

Sample Location: EAST OF STROMDRAIN INSIDE ROCKS PGS SITE II **Collection Date/Time: 03/08/2017 12:54**

Field ID: 14

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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1879113	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P321301	
	SM 2120 B	Color (true)	13		PCU	P321289	
	SM 2540 D-97	TSS	3	U	mg/L	P321865	
1879128	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P321476	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27	I	mg N/L	P321649	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.048		mg N/L	P321734	
	EPA 365.1 Rev. 2.0	Total-P	0.006	I	mg P/L	P321487	

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

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P321300

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P321301

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P321473

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P321475

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P321476

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321579

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321580

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321583

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321649

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321662

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321732

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321733

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321734

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321463

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321464

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321487

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

Reference Method: SM 2120 B
Batch ID: P321288

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P321289

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2540 D-97
Batch ID: P321861

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P321864

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P321865

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: P321473

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: P321475

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321475

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321476

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321579

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321580

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: P321583

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: P321649

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: P321662

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321732

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321733

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321734

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321463

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321464

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: P321487

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321473

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878958	Ammonia-N	101	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321475

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878877	Ammonia-N	96.1	97.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P321476

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879119	Ammonia-N	102	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321579

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1878972	Kjeldahl Nitrogen	108	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321580

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: P321580

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879126	Kjeldahl Nitrogen	96.1	97.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321583

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879117	Kjeldahl Nitrogen	103	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321649

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879335	Kjeldahl Nitrogen	91.3	97.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321662

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879243	NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321732

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879114	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321733

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879123	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321734

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879127	NO2NO3-N	96.1	97.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321463

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879114	Total-P	99.4	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321464

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879044	Total-P	102	104	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P321487

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1879125	Total-P	106	103	P/P	90 - 110

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P321300

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878965	Turbidity	2.47	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P321301

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879105	Turbidity	6.85	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P321473

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878958	Ammonia-N	2.20	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P321475

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878877	Ammonia-N	1.77	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P321476

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879119	Ammonia-N	1.76	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P321579

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1878972	Kjeldahl Nitrogen	4.39	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321580

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879126	Kjeldahl Nitrogen	1.61	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321583

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879117	Kjeldahl Nitrogen	2.90	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P321649

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879335	Kjeldahl Nitrogen	4.85	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321662

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879243	NO2NO3-N	0.472	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321732

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879114	NO2NO3-N	0.398	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321733

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879123	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P321734

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879127	NO2NO3-N	0.995	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321463

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879114	Total-P	2.10	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321464

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879044	Total-P	1.49	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P321487

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879125	Total-P	3.39	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P321288

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879099	Color (true)	4.49	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P321289

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879110	Color (true)	4.59	Sample	P	0 - 20

* 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: A74998

Included Lab Sample IDs: 1879099, 1879100, 1879101, 1879102, 1879103, 1879104, 1879105, 1879106, 1879107, 1879108, 1879109, 1879110, 1879111, 1879112, 1879113

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	95.9	98.2	P/P	85 - 115
Color (true)	98.2	97.5	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A75000

Included Lab Sample IDs: 1879099, 1879100, 1879101, 1879102, 1879103, 1879104, 1879105, 1879106, 1879107, 1879108, 1879109, 1879110, 1879111, 1879112, 1879113

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105
Turbidity	100	99.5	P/P	95 - 105

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A75063

Included Lab Sample IDs: 1879114, 1879115, 1879116, 1879117, 1879118, 1879119, 1879120, 1879121, 1879122, 1879123, 1879124, 1879125, 1879126, 1879127, 1879128

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.7	P/P	90 - 110
Ammonia-N	98.8	99.5	P/P	90 - 110
Ammonia-N	99.0	99.2	P/P	90 - 110
Ammonia-N	99.7	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75140

Included Lab Sample IDs: 1879121

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75165

Included Lab Sample IDs: 1879114, 1879115, 1879116, 1879117, 1879118, 1879119, 1879120, 1879121, 1879122, 1879123, 1879124

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	99.0	P/P	90 - 110
Total-P	99.0	98.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75166

Included Lab Sample IDs: 1879114, 1879115, 1879116, 1879117, 1879118, 1879119, 1879120, 1879122, 1879123, 1879124, 1879125, 1879126, 1879127, 1879128

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	97.5	97.5	P/P	90 - 110
NO2NO3-N	98.5	97.5	P/P	90 - 110
NO2NO3-N	98.5	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75168

Included Lab Sample IDs: 1879114, 1879121, 1879126

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	108	P/P	90 - 110
Kjeldahl Nitrogen	105	99.8	P/P	90 - 110
Kjeldahl Nitrogen	99.8	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75169

Included Lab Sample IDs: 1879125, 1879126, 1879127, 1879128

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	97.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75185

Included Lab Sample IDs: 1879115, 1879116, 1879117, 1879118, 1879119, 1879120, 1879122, 1879123, 1879124, 1879125

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	99.1	P/P	90 - 110
Kjeldahl Nitrogen	106	98.4	P/P	90 - 110
Kjeldahl Nitrogen	98.4	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75187

Included Lab Sample IDs: 1879127, 1879128

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	109	106	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				2.47	
	Turbidity				6.85	
EPA 350.1 Rev. 2.0	Ammonia-N	98.2	101 104			2.20
	Ammonia-N	97.7	96.1 97.8			1.77
	Ammonia-N	99.7	102 104			1.76
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.8	108 101			4.39
	Kjeldahl Nitrogen	103	96.1 97.8			1.61
	Kjeldahl Nitrogen	105	103 99.4			2.90
	Kjeldahl Nitrogen	105	91.3 97.1			4.85
EPA 353.2 Rev. 2.0	NO2NO3-N	103	98.5			0.472
	NO2NO3-N	99.0	101 101			0.398
	NO2NO3-N	101	103 103			0.0
	NO2NO3-N	100	96.1 97.1			0.995
EPA 365.1 Rev. 2.0	Total-P	99.9	99.4 102			2.10
	Total-P	102	102 104			1.49
	Total-P	108	106 103			3.39
SM 2120 B	Color (true)				4.49	
	Color (true)				4.59	

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1879099, 1879100, 1879101, 1879102, 1879103, 1879104, 1879105, 1879106, 1879107, 1879108, 1879109, 1879110, 1879111, 1879112, 1879113
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1879114, 1879115, 1879116, 1879117, 1879118, 1879119, 1879120, 1879121, 1879122, 1879123, 1879124, 1879125, 1879126, 1879127, 1879128

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1879114, 1879115, 1879116, 1879117, 1879118, 1879119, 1879120, 1879121, 1879122, 1879123, 1879124, 1879125, 1879126, 1879127, 1879128
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1879114, 1879115, 1879116, 1879117, 1879118, 1879119, 1879120, 1879121, 1879122, 1879123, 1879124, 1879125, 1879126, 1879127, 1879128
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1879114, 1879115, 1879116, 1879117, 1879118, 1879119, 1879120, 1879121, 1879122, 1879123, 1879124, 1879125, 1879126, 1879127, 1879128
SM 2120 B / E31780	True Color measured at 450 nm	1879099, 1879100, 1879101, 1879102, 1879103, 1879104, 1879105, 1879106, 1879107, 1879108, 1879109, 1879110, 1879111, 1879112, 1879113
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1879099, 1879100, 1879101, 1879102, 1879103, 1879104, 1879105, 1879106, 1879107, 1879108, 1879109, 1879110, 1879111, 1879112, 1879113

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	03/09/2017			03/09/2017 15:16	Sima Feizi	1879099, 1879100, 1879101, 1879102, 1879103, 1879104, 1879105, 1879106, 1879107, 1879108, 1879109, 1879110, 1879111, 1879112, 1879113
EPA 350.1 Rev. 2.0	03/09/2017			03/13/2017	Julie Michelle Frank	1879114, 1879115, 1879116, 1879117, 1879118, 1879119, 1879120, 1879121, 1879122, 1879123, 1879124, 1879125, 1879126, 1879127, 1879128
EPA 351.2 Rev. 2.0	03/09/2017	03/15/2017	Adrian Shelby	03/17/2017	Joseph Suarez	1879114, 1879115, 1879116, 1879117, 1879118, 1879119, 1879120, 1879121, 1879122, 1879123, 1879124, 1879125, 1879126
EPA 353.2 Rev. 2.0	03/09/2017	03/16/2017	Adrian Shelby	03/17/2017	Joseph Suarez	1879127, 1879128
	03/09/2017			03/16/2017	Beverly Y. Sanders	1879121
	03/09/2017			03/17/2017	Beverly Y. Sanders	1879114, 1879115, 1879116, 1879117, 1879118, 1879119, 1879120, 1879122, 1879123, 1879124, 1879125, 1879126, 1879127, 1879128
EPA 365.1 Rev. 2.0	03/09/2017	03/13/2017	Vijayalakshmi Reddy	03/17/2017	Lipi Saha	1879114, 1879115, 1879116, 1879117, 1879118, 1879119, 1879120, 1879121, 1879122, 1879123, 1879124
SM 2120 B	03/09/2017	03/14/2017	Adrian Shelby	03/17/2017	Lipi Saha	1879125, 1879126, 1879127, 1879128
	03/09/2017			03/09/2017 15:25	Julia Storbeck	1879099
	03/09/2017			03/09/2017 15:26	Julia Storbeck	1879100
	03/09/2017			03/09/2017 15:27	Julia Storbeck	1879101
	03/09/2017			03/09/2017 15:28	Julia Storbeck	1879102
	03/09/2017			03/09/2017 15:29	Julia Storbeck	1879103, 1879104
	03/09/2017			03/09/2017 15:30	Julia Storbeck	1879105
	03/09/2017			03/09/2017 15:31	Julia Storbeck	1879106
	03/09/2017			03/09/2017 15:32	Julia Storbeck	1879107
	03/09/2017			03/09/2017 15:35	Julia Storbeck	1879108, 1879109
	03/09/2017			03/09/2017 15:37	Julia Storbeck	1879110
	03/09/2017			03/09/2017 15:38	Julia Storbeck	1879111
	03/09/2017			03/09/2017 15:39	Julia Storbeck	1879112, 1879113
SM 2540 D-97	03/09/2017			03/13/2017	Sima Feizi	1879099, 1879100, 1879101, 1879102, 1879103, 1879104, 1879105, 1879106, 1879107, 1879108, 1879109, 1879110, 1879111, 1879112, 1879113