

Chemical Analysis Report

NW-DIST-2020-12-18-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

Event Description: **Project Greenshores**

Request ID: **RQ-2020-12-14-44**

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: Liang Lin, Environmental Administrator

Date Certified: 14-JAN-2021 10:16

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored 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 by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Range Marker East of Texar

Collection Date/Time: 12/17/2020 11:10

Field ID: 1

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2214755	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P391457	
	SM 2120 B-2011	Color (true)	4.8	IA	PCU	P391464	
	SM 2540 D-2011	TSS	3	U	mg/L	P391769	
2214769	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P391717	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P391712	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.030		mg N/L	P391673	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P391617	

Ref. Method and Comment:

SM 2120 B-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Pns Bay Midpoint between Bridge and Muscogee

Collection Date/Time: 12/17/2020 11:30

Field ID: 2

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2214756	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P391457	
	SM 2120 B-2011	Color (true)	2.5	U	PCU	P391464	
	SM 2540 D-2011	TSS	3	U	mg/L	P391769	
2214770	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P391717	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P391712	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.035		mg N/L	P391673	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P391617	

Ref. Method and Comment:

SM 2120 B-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Pns Bay East of Primary Storm Drain

Collection Date/Time: 12/17/2020 11:41

Field ID: 3

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2214757	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P391457	
	SM 2120 B-2011	Color (true)	4.1	I	PCU	P391464	
	SM 2540 D-2011	TSS	3	U	mg/L	P391769	
2214771	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P391717	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21	I	mg N/L	P391933	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.031		mg N/L	P391674	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P391531	

Ref. Method and Comment:

SM 2120 B-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Pns Bay South of Primary Storm Drain

Collection Date/Time: 12/17/2020 11:50

Field ID: 4

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2214758	EPA 180.1 Rev. 2.0	Turbidity	1.0	A	NTU	P391457	
	SM 2120 B-2011	Color (true)	3.8	I	PCU	P391464	
	SM 2540 D-2011	TSS	3	U	mg/L	P391769	
2214772	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P391717	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20	I	mg N/L	P391933	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.027		mg N/L	P391674	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P391531	

Ref. Method and Comment:

SM 2120 B-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Pensacola Bay End of Chase St

Collection Date/Time: 12/17/2020 12:10

Field ID: 5

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2214759	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P391457	
	SM 2120 B-2011	Color (true)	3.8	I	PCU	P391464	
	SM 2540 D-2011	TSS	3	U	mg/L	P391769	
2214773	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P391717	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22	I	mg N/L	P391933	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.033		mg N/L	P391674	
	EPA 365.1 Rev. 2.0	Total-P	0.008	I	mg P/L	P391531	

Ref. Method and Comment:

SM 2120 B-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

**Sample Location: Pns Bay Midpoint between
 Mascogee/Hawkshaw**

Collection Date/Time: 12/17/2020 12:22

Field ID: 6

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2214760	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P391457	
	SM 2120 B-2011	Color (true)	4.1	I	PCU	P391464	
	SM 2540 D-2011	TSS	3	U	mg/L	P391769	
2214774	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P391717	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P391933	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.026		mg N/L	P391674	
	EPA 365.1 Rev. 2.0	Total-P	0.008	I	mg P/L	P391531	

Ref. Method and Comment:

SM 2120 B-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Pensacola Bay Midpoint between bridge and port

Collection Date/Time: 12/17/2020 12:32

Field ID: 7

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2214761	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P391457	
	SM 2120 B-2011	Color (true)	2.7	I	PCU	P391464	
	SM 2540 D-2011	TSS	3	I	mg/L	P391769	
2214775	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P391724	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20	I J	mg N/L	P391933	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P391674	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P391531	

Ref. Method and Comment:

SM 2120 B-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: Pensacola Bay West of Primary Storm drain

Collection Date/Time: 12/17/2020 12:00

Field ID: 8

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2214762	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P391457	
	SM 2120 B-2011	Color (true)	4.3	I	PCU	P391464	
	SM 2540 D-2011	TSS	3	U	mg/L	P391770	
2214776	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P391724	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P391933	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.060		mg N/L	P391674	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P391531	

Ref. Method and Comment:

SM 2120 B-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Pensacola Bay, West of Hawkshaw Lagoon

Collection Date/Time: 12/17/2020 13:09

Field ID: 9

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2214763	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P391457	
	SM 2120 B-2011	Color (true)	3.2	I	PCU	P391464	
	SM 2540 D-2011	TSS	3	U	mg/L	P391770	
2214777	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P391724	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20	I	mg N/L	P391933	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022		mg N/L	P391674	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P391617	

Ref. Method and Comment:

SM 2120 B-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Pensacola Bay, South of Bayfront Stormdrain Collection Date/Time: 12/17/2020 13:00

Field ID: 10

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2214764	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P391457	
	SM 2120 B-2011	Color (true)	2.6	I	PCU	P391464	
	SM 2540 D-2011	TSS	3	U	mg/L	P391770	
2214778	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P391724	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29	I	mg N/L	P391933	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.036		mg N/L	P391674	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P391617	

Ref. Method and Comment:

SM 2120 B-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Pensacola Bay at Seville Marina Inlet

Collection Date/Time: 12/17/2020 12:50

Field ID: 11

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2214765	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P391458	
	SM 2120 B-2011	Color (true)	5.5	I	PCU	P391465	
	SM 2540 D-2011	TSS	3	U	mg/L	P391770	
2214779	EPA 350.1 Rev. 2.0	Ammonia-N	0.048		mg N/L	P391724	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24	I	mg N/L	P391933	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.30		mg N/L	P391674	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P391617	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Pensacola Bay, East of port Spoil pond

Collection Date/Time: 12/17/2020 12:40

Field ID: 12

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2214766	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P391458	
	SM 2120 B-2011	Color (true)	3.4	I	PCU	P391465	
	SM 2540 D-2011	TSS	3	U	mg/L	P391770	
2214780	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P391724	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22	I	mg N/L	P391933	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P391675	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P391617	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Hawkshaw Lagoon at Memorial Bridge

Collection Date/Time: 12/17/2020 13:21

Field ID: 13

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2214767	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P391458	
	SM 2120 B-2011	Color (true)	8.6	A	PCU	P391465	
	SM 2540 D-2011	TSS	3	U	mg/L	P391770	
2214781	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P391724	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33	I	mg N/L	P392204	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P391675	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P391617	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

**Sample Location: Pensacola Bay, Soft South of Hawkshaw
 Lagoon East Stormdrain**

Collection Date/Time: 12/17/2020 13:35

Field ID: 14

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2214768	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P391458	
	SM 2120 B-2011	Color (true)	3.0	I	PCU	P391465	
	SM 2540 D-2011	TSS	3	IA	mg/L	P391770	
2214782	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P391724	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32	I	mg N/L	P392204	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.032		mg N/L	P391675	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P391617	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P391457

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P391458

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391717

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391724

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391712

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391933

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P392204

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391673

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391674

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391675

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391531

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391617

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

Reference Method: SM 2120 B-2011
Batch ID: P391464

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P391465

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2540 D-2011
Batch ID: P391769

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P391770

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: P391717

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391724

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391712

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391933

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: P392204

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391673

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391674

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391675

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: P391531

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391617

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

Reference Method: SM 2120 B-2011
Batch ID: P391464

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P391465

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391717

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2214769	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391724

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2214775	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391712

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2214297	Kjeldahl Nitrogen	99.2	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391933

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2214775	Kjeldahl Nitrogen	92.7	89.5	P/F	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P392204

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2217134	Kjeldahl Nitrogen	93.9	89.3	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391673

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2214769	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391674

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2214771	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391675

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2214780	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391531

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2213954	Total-P	101	103	P/P	90 - 110

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391617

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2214770	Total-P	95.3	97.3	P/P	90 - 110

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P391457

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2214758	Turbidity	0.966	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P391458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2214796	Turbidity	9.47	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391717

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2214769	Ammonia-N	0.167	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P391724

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2214775	Ammonia-N	0.346	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391712

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2214297	Kjeldahl Nitrogen	2.68	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P391933

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2214775	Kjeldahl Nitrogen	3.25	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P392204

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2217134	Kjeldahl Nitrogen	4.02	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391673

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2214769	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391674

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2214771	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P391675

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2214780	NO2NO3-N	0.434	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391531

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2213954	Total-P	2.40	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P391617

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2214770	Total-P	2.02	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P391465

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2214767	Color (true)	9.96	Sample	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A102677

Included Lab Sample IDs: 2214755, 2214756, 2214757, 2214758, 2214759, 2214760, 2214761, 2214762, 2214763, 2214764, 2214765, 2214766, 2214767, 2214768

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	99.5	P/P	95 - 105
Turbidity	99.5	100	P/P	95 - 105

Reference Method: SM 2120 B-2011

Run ID: A102679

Included Lab Sample IDs: 2214755, 2214756, 2214757, 2214758, 2214759, 2214760, 2214761, 2214762, 2214763, 2214764, 2214765, 2214766, 2214767, 2214768

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A102748

Included Lab Sample IDs: 2214769, 2214770, 2214771, 2214772, 2214773, 2214774, 2214775, 2214776, 2214777, 2214778, 2214779, 2214780, 2214781, 2214782

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110
NO2NO3-N	102	102	P/P	90 - 110
NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A102753

Included Lab Sample IDs: 2214771, 2214772, 2214773, 2214774, 2214775, 2214776

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A102764

Included Lab Sample IDs: 2214769, 2214770, 2214777, 2214778, 2214779, 2214780, 2214781, 2214782

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	94.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A102771

Included Lab Sample IDs: 2214769, 2214770, 2214771, 2214772, 2214773, 2214774

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.9	98.8	P/P	90 - 110
Ammonia-N	99.6	98.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A102775

Included Lab Sample IDs: 2214775, 2214776, 2214777, 2214778, 2214779, 2214780, 2214781, 2214782

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	101	P/P	90 - 110
Ammonia-N	102	98.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A102804

Included Lab Sample IDs: 2214769, 2214770

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.3	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A102889

Included Lab Sample IDs: 2214771, 2214772, 2214773, 2214774, 2214775, 2214776, 2214777, 2214778, 2214779, 2214780

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.7	97.0	P/P	90 - 110
Kjeldahl Nitrogen	96.8	93.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A103014

Included Lab Sample IDs: 2214781, 2214782

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.1	96.8	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				0.966	
	Turbidity				9.47	
EPA 350.1 Rev. 2.0	Ammonia-N	98.6	101	101		0.167
	Ammonia-N	100	101	102		0.346
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.1	99.2	104		2.68
	Kjeldahl Nitrogen	106	92.7	89.5		3.25
	Kjeldahl Nitrogen	99.7	93.9	89.3		4.02
EPA 353.2 Rev. 2.0	NO2NO3-N	100	101	101		0.0
	NO2NO3-N	101	101	101		0.0
	NO2NO3-N	101	101	101		0.434
EPA 365.1 Rev. 2.0	Total-P	102	101	103		2.40
	Total-P	104	95.3	97.3		2.02
SM 2120 B-2011	Color (true)	101				
	Color (true)	101			9.96	

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2214755, 2214756, 2214757, 2214758, 2214759, 2214760, 2214761, 2214762, 2214763, 2214764, 2214765, 2214766, 2214767, 2214768
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2214769, 2214770, 2214771, 2214772, 2214773, 2214774, 2214775, 2214776, 2214777, 2214778, 2214779, 2214780, 2214781, 2214782
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2214769, 2214770, 2214771, 2214772, 2214773, 2214774, 2214775, 2214776, 2214777, 2214778, 2214779, 2214780, 2214781, 2214782
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2214769, 2214770, 2214771, 2214772, 2214773, 2214774, 2214775, 2214776, 2214777, 2214778, 2214779, 2214780, 2214781, 2214782
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2214769, 2214770, 2214771, 2214772, 2214773, 2214774, 2214775, 2214776, 2214777, 2214778, 2214779, 2214780, 2214781, 2214782
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2214755, 2214756, 2214757, 2214758, 2214759, 2214760, 2214761, 2214762, 2214763, 2214764, 2214765, 2214766, 2214767, 2214768
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2214755, 2214756, 2214757, 2214758, 2214759, 2214760, 2214761, 2214762, 2214763, 2214764, 2214765, 2214766, 2214767, 2214768

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	12/18/2020			12/18/2020 15:42	Yen Ta	2214755, 2214756, 2214757, 2214758, 2214759, 2214760, 2214761, 2214762, 2214763, 2214764, 2214765, 2214766, 2214767, 2214768
EPA 350.1 Rev. 2.0	12/18/2020			12/23/2020 17:47	Ping Hua	2214769
	12/18/2020			12/23/2020 17:51	Ping Hua	2214770
	12/18/2020			12/23/2020 17:53	Ping Hua	2214771
	12/18/2020			12/23/2020 17:55	Ping Hua	2214773
	12/18/2020			12/23/2020 17:57	Ping Hua	2214774
	12/18/2020			12/23/2020 18:17	Ping Hua	2214772
	12/18/2020			12/26/2020 16:15	Ping Hua	2214775
	12/18/2020			12/26/2020 16:19	Ping Hua	2214776
	12/18/2020			12/26/2020 16:20	Ping Hua	2214777
	12/18/2020			12/26/2020 16:21	Ping Hua	2214778
	12/18/2020			12/26/2020 16:23	Ping Hua	2214779
	12/18/2020			12/26/2020 16:24	Ping Hua	2214780
	12/18/2020			12/26/2020 16:25	Ping Hua	2214781
	12/18/2020			12/26/2020 16:55	Ping Hua	2214782
EPA 351.2 Rev. 2.0	12/18/2020	01/04/2021 15:35	David Boose	01/05/2021 15:44	Virginia P. Brown	2214771
	12/18/2020	01/04/2021 15:35	David Boose	01/05/2021 15:46	Virginia P. Brown	2214772
	12/18/2020	01/04/2021 15:35	David Boose	01/05/2021 15:48	Virginia P. Brown	2214773
	12/18/2020	01/04/2021 15:35	David Boose	01/05/2021 15:49	Virginia P. Brown	2214774
	12/18/2020	01/04/2021 15:35	David Boose	01/05/2021 15:51	Virginia P. Brown	2214775
	12/18/2020	01/04/2021 15:35	David Boose	01/05/2021 15:59	Virginia P. Brown	2214776
	12/18/2020	01/04/2021 15:35	David Boose	01/05/2021 16:01	Virginia P. Brown	2214777
	12/18/2020	01/04/2021 15:35	David Boose	01/05/2021 16:02	Virginia P. Brown	2214778
	12/18/2020	01/04/2021 15:35	David Boose	01/05/2021 16:04	Virginia P. Brown	2214779
	12/18/2020	01/04/2021 15:35	David Boose	01/05/2021 16:06	Virginia P. Brown	2214780
	12/18/2020	01/11/2021 13:56	Yen Ta	01/12/2021 17:08	Julia Storbeck	2214781
	12/18/2020	01/11/2021 13:56	Yen Ta	01/12/2021 17:10	Julia Storbeck	2214782
	12/18/2020	12/23/2020 15:00	David Boose	12/28/2020 18:30	Julia Storbeck	2214769
	12/18/2020	12/23/2020 15:00	David Boose	12/28/2020 18:31	Julia Storbeck	2214770
EPA 353.2 Rev. 2.0	12/18/2020			12/23/2020 10:50	Beverly Y. Sanders	2214769
	12/18/2020			12/23/2020 11:04	Beverly Y. Sanders	2214770
	12/18/2020			12/23/2020 11:11	Beverly Y. Sanders	2214771
	12/18/2020			12/23/2020 11:17	Beverly Y. Sanders	2214772
	12/18/2020			12/23/2020 11:18	Beverly Y. Sanders	2214773
	12/18/2020			12/23/2020 11:19	Beverly Y. Sanders	2214774
	12/18/2020			12/23/2020 11:20	Beverly Y. Sanders	2214775
	12/18/2020			12/23/2020 11:22	Beverly Y. Sanders	2214776

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 353.2 Rev. 2.0	12/18/2020			12/23/2020 11:23	Beverly Y. Sanders	2214777
	12/18/2020			12/23/2020 11:24	Beverly Y. Sanders	2214778
	12/18/2020			12/23/2020 11:25	Beverly Y. Sanders	2214779
	12/18/2020			12/23/2020 11:32	Beverly Y. Sanders	2214780
	12/18/2020			12/23/2020 11:38	Beverly Y. Sanders	2214781
	12/18/2020			12/23/2020 11:39	Beverly Y. Sanders	2214782
	12/18/2020			12/23/2020 11:38	Shengyu Wang	2214771
EPA 365.1 Rev. 2.0	12/18/2020	12/21/2020 12:50	Yen Ta	12/23/2020 11:39	Shengyu Wang	2214772
	12/18/2020	12/21/2020 12:50	Yen Ta	12/23/2020 11:40	Shengyu Wang	2214773
	12/18/2020	12/21/2020 12:50	Yen Ta	12/23/2020 11:41	Shengyu Wang	2214774
	12/18/2020	12/21/2020 12:50	Yen Ta	12/23/2020 11:42	Shengyu Wang	2214775
	12/18/2020	12/21/2020 12:50	Yen Ta	12/23/2020 11:43	Shengyu Wang	2214776
	12/18/2020	12/22/2020 13:26	Yen Ta	12/23/2020 14:05	Shengyu Wang	2214769
	12/18/2020	12/22/2020 13:26	Yen Ta	12/23/2020 14:06	Shengyu Wang	2214770
	12/18/2020	12/22/2020 13:26	Yen Ta	12/23/2020 14:07	Shengyu Wang	2214777
	12/18/2020	12/22/2020 13:26	Yen Ta	12/23/2020 14:08	Shengyu Wang	2214778
	12/18/2020	12/22/2020 13:26	Yen Ta	12/23/2020 14:09	Shengyu Wang	2214779
	12/18/2020	12/22/2020 13:26	Yen Ta	12/23/2020 14:10	Shengyu Wang	2214780, 2214781
	12/18/2020	12/22/2020 13:26	Yen Ta	12/23/2020 14:11	Shengyu Wang	2214782
	12/18/2020			12/18/2020 16:59	Benjamin T. Nordmann	2214755
SM 2120 B-2011	12/18/2020			12/18/2020 17:00	Benjamin T. Nordmann	2214756, 2214757
	12/18/2020			12/18/2020 17:01	Benjamin T. Nordmann	2214758, 2214759
	12/18/2020			12/18/2020 17:02	Benjamin T. Nordmann	2214760
	12/18/2020			12/18/2020 17:03	Benjamin T. Nordmann	2214761, 2214762
	12/18/2020			12/18/2020 17:04	Benjamin T. Nordmann	2214763
	12/18/2020			12/18/2020 17:05	Benjamin T. Nordmann	2214764
	12/18/2020			12/18/2020 17:08	Benjamin T. Nordmann	2214765
	12/18/2020			12/18/2020 17:09	Benjamin T. Nordmann	2214766
	12/18/2020			12/18/2020 17:10	Benjamin T. Nordmann	2214767, 2214768
	12/18/2020			12/22/2020 13:52	Yijie Li	2214755, 2214756, 2214757, 2214758, 2214759, 2214760, 2214761, 2214762, 2214763, 2214764, 2214765, 2214766, 2214767, 2214768
SM 2540 D-2011	12/18/2020					