Chemical Analysis Report

NW-DIST-2018-08-16-01

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

Event Description: **ENR B**
Request ID: **RQ-2018-08-13-26**
Customer: **NW-DIST**
Project ID: **SMP**

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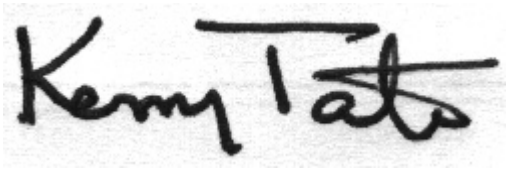
Date Certified: 05-SEP-2018 12:45



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: Destin Harbor across from AJ'S Restaurant **Collection Date/Time: 08/15/2018 10:30**

Field ID: G3NW0127 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2017666	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P350290	
	SM 2320 B-97	Total Alkalinity	75		mg CaCO3/L	P350425	
	SM 2540 D-97	TSS	3	U	mg/L	P350580	
	SM 4500 F-C-97	Fluoride	0.64		mg F/L	P350428	
2017667	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P350627	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P350459	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P350453	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P350511	
	SM 5310 B-00	Organic Carbon	4.3		mg C/L	P350550	
2017668	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P350266	

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: Choctawhatchee Bay Lower Section C Background **Collection Date/Time: 08/15/2018 11:05**

Field ID: G3NW0089 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2017651	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P350289	
	SM 2320 B-97	Total Alkalinity	69		mg CaCO3/L	P350425	
	SM 2540 D-97	TSS	3	UA	mg/L	P350580	
	SM 4500 F-C-97	Fluoride	0.57		mg F/L	P350428	
2017654	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P350627	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P350392	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P350453	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P350437	
	SM 5310 B-00	Organic Carbon	4.7		mg C/L	P350550	
2017657	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P350266	

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: POQUITO BAYOU MIDDLE **Collection Date/Time: 08/15/2018 11:45**

Field ID: G3NW0086 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2017652	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P350289	
	SM 2320 B-97	Total Alkalinity	76		mg CaCO3/L	P350425	
	SM 2540 D-97	TSS	3	U	mg/L	P350580	
	SM 4500 F-C-97	Fluoride	0.66		mg F/L	P350428	
2017655	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P350627	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37	I	mg N/L	P350459	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P350453	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P350511	
	SM 5310 B-00	Organic Carbon	3.6		mg C/L	P350550	
2017658	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P350266	

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: LAKE EARL CENTER **Collection Date/Time: 08/15/2018 11:20**

Field ID: G3NW0090 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2017660	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P350290	
	SM 2320 B-97	Total Alkalinity	78		mg CaCO3/L	P350425	
	SM 2540 D-97	TSS	3	U	mg/L	P350580	
	SM 4500 F-C-97	Fluoride	0.68		mg F/L	P350428	
2017662	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P350627	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34	I	mg N/L	P350459	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P350453	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P350511	
	SM 5310 B-00	Organic Carbon	4.0		mg C/L	P350550	
2017664	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P350266	

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: Garnier Bayou at Paradise Point **Collection Date/Time: 08/15/2018 11:50**

Field ID: G3NW0087 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2017661	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P350290	
	SM 2320 B-97	Total Alkalinity	72	A	mg CaCO3/L	P350425	
	SM 2540 D-97	TSS	3	U	mg/L	P350580	
	SM 4500 F-C-97	Fluoride	0.63		mg F/L	P350428	
2017663	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P350627	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24	I	mg N/L	P350459	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.024		mg N/L	P350453	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P350511	
	SM 5310 B-00	Organic Carbon	3.9		mg C/L	P350550	
2017665	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P350266	

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: Cinco Bayou West of Cinco Bridge **Collection Date/Time: 08/15/2018 12:05**

Field ID: G3NW0088 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2017653	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P350290	
	SM 2320 B-97	Total Alkalinity	74		mg CaCO3/L	P350425	
	SM 2540 D-97	TSS	3	U	mg/L	P350580	
	SM 4500 F-C-97	Fluoride	0.65		mg F/L	P350428	
2017656	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P350627	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26	I	mg N/L	P350459	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P350453	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P350511	
	SM 5310 B-00	Organic Carbon	3.9		mg C/L	P350550	
2017659	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P350266	

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: P350289

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P350290

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350627

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350392

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350459

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350453

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350437

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350511

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350266

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P350425

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 D-97
Batch ID: P350580

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P350428

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P350550

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350627

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: P350392

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: P350459

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350453

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350437

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350511

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350266

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.3		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P350425

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P350428

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.2		P	91 - 105

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P350550

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.2		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350627

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017654	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350392

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017654	Kjeldahl Nitrogen	94.0	96.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350459

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017655	Kjeldahl Nitrogen	102	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350453

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017281	NO2NO3-N	98.1	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350437

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017654	Total-P	93.1	94.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350511

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017655	Total-P	93.7	95.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350266

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017659	O-Phosphate-P	96.7	97.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P350428

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017661	Fluoride	96.5	97.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P350550

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2017654	Organic Carbon	96.1	96.1	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P350289

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017579	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P350290

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017694	Turbidity	3.64	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P350627

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017654	Ammonia-N	0.642	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350392

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017654	Kjeldahl Nitrogen	1.97	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P350459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017655	Kjeldahl Nitrogen	2.37	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P350453

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017281	NO2NO3-N	1.09	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017654	Total-P	1.47	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P350511

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017655	Total-P	1.43	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P350266

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017659	O-Phosphate-P	0.619	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P350425

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017661	Total Alkalinity	1.04	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P350428

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017661	Fluoride	0.473	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P350550

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2017654	Organic Carbon	0.0463	Spike	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: EPA 365.1 Rev. 2.0 dissolved
Run ID: A85936
Included Lab Sample IDs: 2017657, 2017658, 2017659, 2017664, 2017665, 2017668

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.2	P/P	90 - 110
O-Phosphate-P	101	98.2	P/P	90 - 110
O-Phosphate-P	99.2	101	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A85945
Included Lab Sample IDs: 2017651, 2017652, 2017653, 2017660, 2017661, 2017666

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	102	P/P	95 - 105
Turbidity	102	101	P/P	95 - 105

Reference Method: SM 2320 B-97
Run ID: A85999
Included Lab Sample IDs: 2017651, 2017652, 2017653, 2017660, 2017661, 2017666

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	105	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A85999
Included Lab Sample IDs: 2017651, 2017652, 2017653, 2017660, 2017661, 2017666

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A86010
Included Lab Sample IDs: 2017654, 2017655, 2017656, 2017662, 2017663, 2017667

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A86028
Included Lab Sample IDs: 2017654

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A86029
Included Lab Sample IDs: 2017654, 2017655, 2017656, 2017662, 2017663, 2017667

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	97.2	P/P	90 - 110
Kjeldahl Nitrogen	94.9	98.1	P/P	90 - 110
Kjeldahl Nitrogen	97.1	100	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A86036
Included Lab Sample IDs: 2017654, 2017655, 2017656, 2017662, 2017663, 2017667

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	95.6	P/P	90 - 110
Organic Carbon	96.6	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A86058
Included Lab Sample IDs: 2017655, 2017656, 2017662, 2017663, 2017667

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A86067
Included Lab Sample IDs: 2017654, 2017655, 2017656, 2017662, 2017663, 2017667

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	102	P/P	90 - 110
Ammonia-N	102	100	P/P	90 - 110
Ammonia-N	102	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					0.0	
	Turbidity					3.64	
EPA 350.1 Rev. 2.0	Ammonia-N	100	101	102			0.642
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	94.0	96.3			1.97
	Kjeldahl Nitrogen	104	102	98.8			2.37
EPA 353.2 Rev. 2.0	NO2NO3-N	97.5	98.1	99.6			1.09
EPA 365.1 Rev. 2.0	Total-P	95.2	93.1	94.5			1.47
	Total-P	95.9	93.7	95.0			1.43
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.3	96.7	97.3			0.619
SM 2320 B-97	Total Alkalinity	103				1.04	
SM 4500 F-C-97	Fluoride	99.2	96.5	97.2			0.473
SM 5310 B-00	Organic Carbon	99.2	96.1	96.1			0.0463

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2017651, 2017652, 2017653, 2017660, 2017661, 2017666
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2017654, 2017655, 2017656, 2017662, 2017663, 2017667
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2017654, 2017655, 2017656, 2017662, 2017663, 2017667
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2017654, 2017655, 2017656, 2017662, 2017663, 2017667
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2017654, 2017655, 2017656, 2017662, 2017663, 2017667
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2017657, 2017658, 2017659, 2017664, 2017665, 2017668
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2017651, 2017652, 2017653, 2017660, 2017661, 2017666
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2017651, 2017652, 2017653, 2017660, 2017661, 2017666
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2017651, 2017652, 2017653, 2017660, 2017661, 2017666
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2017654, 2017655, 2017656, 2017662, 2017663, 2017667

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	08/16/2018			08/16/2018 15:39	William L. Brown IV	2017651, 2017652, 2017653, 2017660, 2017661, 2017666
EPA 350.1 Rev. 2.0	08/16/2018			08/22/2018 12:17	Ping Hua	2017654
	08/16/2018			08/22/2018 12:28	Ping Hua	2017663
	08/16/2018			08/22/2018 12:29	Ping Hua	2017667
	08/16/2018			08/22/2018 12:35	Ping Hua	2017655
	08/16/2018			08/22/2018 12:37	Ping Hua	2017656
	08/16/2018			08/22/2018 12:44	Ping Hua	2017662
EPA 351.2 Rev. 2.0	08/16/2018	08/20/2018 11:00	Adrian Shelby	08/21/2018 11:11	Joseph Suarez	2017654
	08/16/2018	08/20/2018 11:00	Adrian Shelby	08/21/2018 12:06	Joseph Suarez	2017655
	08/16/2018	08/20/2018 11:00	Adrian Shelby	08/21/2018 12:10	Joseph Suarez	2017656
	08/16/2018	08/20/2018 11:00	Adrian Shelby	08/21/2018 12:12	Joseph Suarez	2017662
	08/16/2018	08/20/2018 11:00	Adrian Shelby	08/21/2018 12:14	Joseph Suarez	2017663
	08/16/2018	08/20/2018 11:00	Adrian Shelby	08/21/2018 12:18	Joseph Suarez	2017667
EPA 353.2 Rev. 2.0	08/16/2018			08/20/2018 13:01	Lauren Bottorf	2017654
	08/16/2018			08/20/2018 13:03	Lauren Bottorf	2017655
	08/16/2018			08/20/2018 13:04	Lauren Bottorf	2017656
	08/16/2018			08/20/2018 13:05	Lauren Bottorf	2017662
	08/16/2018			08/20/2018 13:06	Lauren Bottorf	2017663
	08/16/2018			08/20/2018 13:07	Lauren Bottorf	2017667
EPA 365.1 Rev. 2.0	08/16/2018	08/20/2018 12:57	Sima Feizi	08/21/2018 12:41	Beverly Y. Sanders	2017654
	08/16/2018	08/21/2018 13:00	Sima Feizi	08/22/2018 11:32	Beverly Y. Sanders	2017655
	08/16/2018	08/21/2018 13:00	Sima Feizi	08/22/2018 11:33	Beverly Y. Sanders	2017656
	08/16/2018	08/21/2018 13:00	Sima Feizi	08/22/2018 11:34	Beverly Y. Sanders	2017662
	08/16/2018	08/21/2018 13:00	Sima Feizi	08/22/2018 11:35	Beverly Y. Sanders	2017663
	08/16/2018	08/21/2018 13:00	Sima Feizi	08/22/2018 11:36	Beverly Y. Sanders	2017667
EPA 365.1 Rev. 2.0 dissolved	08/16/2018			08/16/2018 15:40	Julia Storbeck	2017659
	08/16/2018			08/16/2018 15:58	Julia Storbeck	2017657
	08/16/2018			08/16/2018 15:59	Julia Storbeck	2017658
	08/16/2018			08/16/2018 16:04	Julia Storbeck	2017664
	08/16/2018			08/16/2018 16:05	Julia Storbeck	2017665, 2017668
SM 2320 B-97	08/16/2018			08/18/2018 07:28	Dale L. Simmons	2017661
	08/16/2018			08/18/2018 07:48	Dale L. Simmons	2017651
	08/16/2018			08/18/2018 07:58	Dale L. Simmons	2017652
	08/16/2018			08/18/2018 08:07	Dale L. Simmons	2017653
	08/16/2018			08/18/2018 08:17	Dale L. Simmons	2017660
	08/16/2018			08/18/2018 08:26	Dale L. Simmons	2017666
SM 2540 D-97	08/16/2018			08/17/2018 17:25	William L. Brown IV	2017651, 2017652, 2017653, 2017660, 2017661, 2017666
SM 4500 F-C-97	08/16/2018			08/18/2018 05:54	Dale L. Simmons	2017661

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500 F-C-97	08/16/2018			08/18/2018 06:09	Dale L. Simmons	2017651
	08/16/2018			08/18/2018 06:13	Dale L. Simmons	2017652
	08/16/2018			08/18/2018 06:17	Dale L. Simmons	2017653
	08/16/2018			08/18/2018 06:20	Dale L. Simmons	2017660
	08/16/2018			08/18/2018 06:24	Dale L. Simmons	2017666
SM 5310 B-00	08/16/2018			08/21/2018 10:34	Megan Treadwell	2017654
	08/16/2018			08/21/2018 11:16	Megan Treadwell	2017655
	08/16/2018			08/21/2018 11:31	Megan Treadwell	2017656
	08/16/2018			08/21/2018 12:00	Megan Treadwell	2017662
	08/16/2018			08/21/2018 12:42	Megan Treadwell	2017663
	08/16/2018			08/21/2018 12:55	Megan Treadwell	2017667