

Chemical Analysis Report

SO-DIST-2018-12-05-01

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

Event Description: **DO Continuous Monitoring 2018**

Request ID: **RQ-2018-11-26-03**

Customer: **SO-DIST**

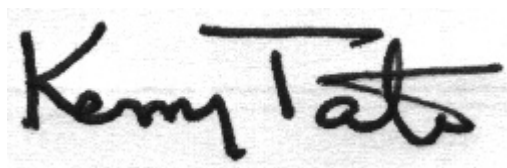
Project ID: **SMP**

Send Reports to:
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 27-DEC-2018 14:16

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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: Buck Creek CM

Collection Date/Time: 12/04/2018 10:35

Field ID: G2SD0035

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2046457	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P355670	
	SM 2320 B-97	Total Alkalinity	139		mg CaCO3/L	P356045	
	SM 2540 D-97	TSS	9	I	mg/L	P356017	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P356046	
2046459	EPA 350.1 Rev. 2.0	Ammonia-N	0.046		mg N/L	P355903	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.72		mg N/L	P355884	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P355741	
	EPA 365.1 Rev. 2.0	Total-P	0.071		mg P/L	P356179	
	SM 5310 B-00	Organic Carbon	6.3		mg C/L	P355958	
2046461	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.038		mg P/L	P355675	

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: BLANK_11282018

Collection Date/Time: 12/04/2018 10:45

Field ID: BLANK_11282018

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2046463	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P355670	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P356044	
	SM 2540 D-97	TSS	2	U	mg/L	P356013	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P356047	
2046464	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P355901	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P355882	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P355837	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P355831	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P355855	
2046465	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P355674	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 353.2 Rev. 2.0: The result was confirmed on 12/07/2018.

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Oyster Creek CM

Collection Date/Time: 12/04/2018 11:30

Field ID: G2SD0036

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2046458	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P355670	
	SM 2320 B-97	Total Alkalinity	126		mg CaCO3/L	P356045	
	SM 2540 D-97	TSS	10	I	mg/L	P356017	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P356046	
2046460	EPA 350.1 Rev. 2.0	Ammonia-N	0.054		mg N/L	P355903	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P355884	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P356273	
	EPA 365.1 Rev. 2.0	Total-P	0.082		mg P/L	P355878	
	SM 5310 B-00	Organic Carbon	5.3		mg C/L	P355958	
2046462	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.053		mg P/L	P355675	

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: P355670

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355901

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355903

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355882

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355884

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355741

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355837

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356273

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355831

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: P355878

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356179

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P355674

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P355675

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

Reference Method: SM 2320 B-97
Batch ID: P356044

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

Reference Method: SM 2320 B-97
Batch ID: P356045

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

Reference Method: SM 2540 D-97
Batch ID: P356013

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P356017

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P356046

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P356047

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P355855

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

Reference Method: SM 5310 B-00
Batch ID: P355958

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: P355901

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355903

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355882

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355884

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355741

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355837

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356273

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: P355831

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355878

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356179

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P355674

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P355675

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

Reference Method: SM 2320 B-97
Batch ID: P356044

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.3		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P356045

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P356046

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.9		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P356047

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.4		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P355855

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P355958

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355901

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046293	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355903

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046439	Ammonia-N	106	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355882

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046485	Kjeldahl Nitrogen	99.6	99.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355884

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046439	Kjeldahl Nitrogen	95.8	92.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355741

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046373	NO2NO3-N	100		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355837

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046480	NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356273

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046460	NO2NO3-N	108	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355878

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046530	Total-P	95.5	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356179

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2047694	Total-P	101	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P355674

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046248	O-Phosphate-P	95.3	95.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P355675

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046447	O-Phosphate-P	93.6	93.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P356046

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046861	Fluoride	100	98.3	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P355855

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046373	Organic Carbon	102		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P355958

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2046446	Organic Carbon	98.5	98.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P355670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046510	Turbidity	0.820	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355901

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046293	Ammonia-N	0.00246	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355903

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046439	Ammonia-N	1.24	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355882

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046485	Kjeldahl Nitrogen	0.127	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355884

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046439	Kjeldahl Nitrogen	2.71	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355741

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046373	NO2NO3-N	0.215	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355837

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046480	NO2NO3-N	0.467	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P356273

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046460	NO2NO3-N	2.58	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355831

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046293	Total-P	0.821	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355878

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046530	Total-P	3.79	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P356179

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2047694	Total-P	0.632	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P355674

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046248	O-Phosphate-P	0.315	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P355675

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046447	O-Phosphate-P	0.107	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P356044

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046603	Total Alkalinity	0.767	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P356045

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046861	Total Alkalinity	0.202	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P356046

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046861	Fluoride	1.40	Spike	P	0 - 3.5

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P356047

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046603	Fluoride	0.472	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P355855

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046373	Organic Carbon	1.98	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P355958

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2046446	Organic Carbon	0.212	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 180.1 Rev. 2.0

Run ID: A88173

Included Lab Sample IDs: 2046457, 2046458, 2046463

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A88174

Included Lab Sample IDs: 2046461, 2046462, 2046465

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	98.3	P/P	90 - 110
O-Phosphate-P	98.3	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88207

Included Lab Sample IDs: 2046459

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88232

Included Lab Sample IDs: 2046464

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

Reference Method: SM 5310 B-00

Run ID: A88239

Included Lab Sample IDs: 2046464

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	102	99.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88258

Included Lab Sample IDs: 2046459, 2046460, 2046464

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

Reference Method: SM 5310 B-00

Run ID: A88280

Included Lab Sample IDs: 2046459, 2046460

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.2	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88282

Included Lab Sample IDs: 2046464

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88282

Included Lab Sample IDs: 2046464

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A88297

Included Lab Sample IDs: 2046459, 2046460, 2046464

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.1	97.9	P/P	90 - 110
Kjeldahl Nitrogen	94.8	98.3	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A88305

Included Lab Sample IDs: 2046457, 2046458, 2046463

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	99.0	P/P	90 - 110
Total Alkalinity	98.6	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A88305

Included Lab Sample IDs: 2046457, 2046458, 2046463

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	102	P/P	90 - 110
Fluoride	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88307

Included Lab Sample IDs: 2046460

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88382

Included Lab Sample IDs: 2046460

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88425

Included Lab Sample IDs: 2046459

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	100	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					0.820	
EPA 350.1 Rev. 2.0	Ammonia-N	99.5	101	101			0.0024
	Ammonia-N	101	106	105			1.24
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.6	99.6	99.3			0.127
	Kjeldahl Nitrogen	96.2	95.8	92.9			2.71
EPA 353.2 Rev. 2.0	NO2NO3-N	102	100				0.215
	NO2NO3-N	99.5	98.5				0.467
	NO2NO3-N	100	108	103			2.58
EPA 365.1 Rev. 2.0	Total-P	104					0.821
	Total-P	105	95.5	99.4			3.79
	Total-P	105	101	100			0.632
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.7	95.3	95.0			0.315
	O-Phosphate-P	101	93.6	93.5			0.107
SM 2320 B-97	Total Alkalinity	99.3				0.767	
	Total Alkalinity	100				0.202	
SM 4500 F-C-97	Fluoride	99.9	100	98.3			1.40
	Fluoride	99.4					0.472
SM 5310 B-00	Organic Carbon	101	102				1.98
	Organic Carbon	98.0	98.5	98.7			0.212

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2046457, 2046458, 2046463
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2046459, 2046460, 2046464
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2046459, 2046460, 2046464
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2046459, 2046460, 2046464
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2046459, 2046460, 2046464
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2046461, 2046462, 2046465
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2046457, 2046458, 2046463
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2046457, 2046458, 2046463
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2046457, 2046458, 2046463
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2046459, 2046460, 2046464

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	12/05/2018			12/05/2018 16:10	Megan Treadwell	2046457, 2046458, 2046463
EPA 350.1 Rev. 2.0	12/05/2018			12/07/2018 11:10	Ping Hua	2046464
	12/05/2018			12/07/2018 12:09	Ping Hua	2046459
	12/05/2018			12/07/2018 12:10	Ping Hua	2046460
EPA 351.2 Rev. 2.0	12/05/2018	12/10/2018 16:30	Adrian Shelby	12/11/2018 14:28	Joseph Suarez	2046464
	12/05/2018	12/10/2018 16:30	Adrian Shelby	12/11/2018 15:00	Joseph Suarez	2046459
	12/05/2018	12/10/2018 16:30	Adrian Shelby	12/11/2018 15:02	Joseph Suarez	2046460
EPA 353.2 Rev. 2.0	12/05/2018			12/06/2018 14:28	Lauren Bottorf	2046459
	12/05/2018			12/07/2018 12:26	Lauren Bottorf	2046464
	12/05/2018			12/14/2018 11:04	Beverly Y. Sanders	2046460
EPA 365.1 Rev. 2.0	12/05/2018	12/07/2018 13:00	Sima Feizi	12/11/2018 14:02	Beverly Y. Sanders	2046464
	12/05/2018	12/10/2018 12:50	Sima Feizi	12/12/2018 12:39	Beverly Y. Sanders	2046460
	12/05/2018	12/14/2018 12:10	Sima Feizi	12/18/2018 17:50	Beverly Y. Sanders	2046459
EPA 365.1 Rev. 2.0 dissolved	12/05/2018			12/05/2018 16:49	Jhamieka S. Greenwood	2046465
	12/05/2018			12/05/2018 16:54	Jhamieka S. Greenwood	2046461
	12/05/2018			12/05/2018 17:04	Jhamieka S. Greenwood	2046462
SM 2320 B-97	12/05/2018			12/11/2018 23:21	Lauren Bottorf	2046463
	12/05/2018			12/12/2018 07:13	Lauren Bottorf	2046457
	12/05/2018			12/12/2018 07:24	Lauren Bottorf	2046458
SM 2540 D-97	12/05/2018			12/06/2018 14:08	Yijie Li	2046457, 2046458, 2046463
SM 4500 F-C-97	12/05/2018			12/11/2018 23:21	Lauren Bottorf	2046463
	12/05/2018			12/12/2018 04:14	Lauren Bottorf	2046457
	12/05/2018			12/12/2018 04:18	Lauren Bottorf	2046458
SM 5310 B-00	12/05/2018			12/07/2018 03:26	Megan Treadwell	2046464
	12/05/2018			12/11/2018 06:50	Megan Treadwell	2046459
	12/05/2018			12/11/2018 07:02	Megan Treadwell	2046460