

Chemical Analysis Report

SO-DIST-2017-05-03-01

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

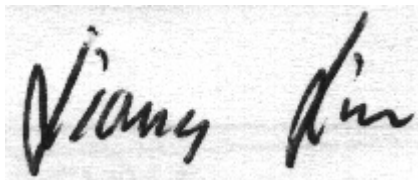
Event Description: **SMP: Bay of Florida**
Request ID: **RQ-2017-04-24-04**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901
Attn: Ben Paswater

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 30-MAY-2017 10:28

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

NON-CONFORMANCE REPORT INCLUDED

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: 8070 - North

Collection Date/Time: 05/02/2017 13:00

Field ID: G5SD050217-1

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1895648	EPA 180.1 Rev. 2.0	Turbidity	10	A	NTU	P324596	
	SM 2320 B-97	Total Alkalinity	140		mg CaCO3/L	P325238	
	SM 2540 D-97	TSS	8	I	mg/L	P325262	
	SM 4500 F-C-97	Fluoride	1.4		mg F/L	P325240	RPD
1895654	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P324529	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.55		mg N/L	P324758	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P324798	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P324544	
	SM 5310 B-00	Organic Carbon	4.7		mg C/L	P324628	
1895660	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P324560	

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: WBID 8069

Collection Date/Time: 05/02/2017 12:40

Field ID: G5SD050217-2

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1895649	EPA 180.1 Rev. 2.0	Turbidity	6.8	J	NTU	P324596	
	SM 2320 B-97	Total Alkalinity	26	J	mg CaCO3/L	P325238	
	SM 2540 D-97	TSS	5	IJ	mg/L	P325262	
	SM 4500 F-C-97	Fluoride	0.28	J	mg F/L	P325739	RPD
1895655	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P324529	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P324758	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P324798	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P324544	
	SM 5310 B-00	Organic Carbon	4.0		mg C/L	P324628	
1895661	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P324560	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: Bottle was open upon receipt at laboratory. Sample integrity may be compromised.

SM 2320 B-97: Bottle was open upon receipt at laboratory. Sample integrity may be compromised.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Bottle was open upon receipt at laboratory. Sample integrity may be compromised.

SM 4500 F-C-97: Bottle was open upon receipt at laboratory. Sample integrity may be compromised.

Sample Location: 8069 - ENRE13

Collection Date/Time: 05/02/2017 13:20

Field ID: G5SD050217-3

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1895650	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P324596	
	SM 2320 B-97	Total Alkalinity	164		mg CaCO3/L	P325238	
	SM 2540 D-97	TSS	3	I	mg/L	P325262	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P325240	RPD
1895656	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P324529	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39	I	mg N/L	P324758	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.010		mg N/L	P324799	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P324544	

Field ID: G5SD050217-3

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1895656	SM 5310 B-00	Organic Carbon	4.2		mg C/L	P324628	
1895662	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P324560	

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: WBID 8068

Collection Date/Time: 05/02/2017 13:40

Field ID: G5SD050217-8

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1895651	EPA 180.1 Rev. 2.0	Turbidity	8.4		NTU	P324596	
	SM 2320 B-97	Total Alkalinity	163		mg CaCO3/L	P325238	
	SM 2540 D-97	TSS	9	I	mg/L	P325262	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P325240	RPD
1895657	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P324529	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50		mg N/L	P324758	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P324799	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P324544	
	SM 5310 B-00	Organic Carbon	4.5		mg C/L	P324628	
1895663	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P324560	

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: WBID 8067

Collection Date/Time: 05/02/2017 14:10

Field ID: G5SD050217-9

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1895652	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P324596	
	SM 2320 B-97	Total Alkalinity	142		mg CaCO3/L	P325238	
	SM 2540 D-97	TSS	3	I	mg/L	P325262	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P325240	RPD
1895658	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P324529	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40	I	mg N/L	P324758	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P324799	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P324544	
	SM 5310 B-00	Organic Carbon	3.4		mg C/L	P324628	
1895664	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P324560	

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: WBID 8066

Collection Date/Time: 05/02/2017 11:30

Field ID: G5SD050217-10

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1895653	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P324596	
	SM 2320 B-97	Total Alkalinity	131		mg CaCO3/L	P325238	
	SM 2540 D-97	TSS	11		mg/L	P325262	

Field ID: G5SD050217-10

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1895653	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P325240	RPD
1895659	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P324529	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P324758	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P324799	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P324544	
	SM 5310 B-00	Organic Carbon	2.8		mg C/L	P324628	
1895665	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P324560	

Ref. Method and Comment:

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

Non-Conformance Report

NCR ID: 6391

Event(s)

SO-DIST-2017-05-03-01

Job(s)

TLH-2017-05-03-34

Sample(s)

1895649

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Receiving

Observation: Sample container open inside cooler.

Resolution: Informed nutrient analysts about open sample container. Sample integrity may be compromised. Results will be reported J qualified.

Authorized by/Date: Bettina S. Steinbock 5/26/2017

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
 Please address questions to:

Chemistry Colin Wright (850) 245-8085
 Biology Cheryl Swanson (850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P324596

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P324529

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P324758

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324798

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324799

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324544

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324560

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

Reference Method: SM 2320 B-97
Batch ID: P325238

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 D-97
Batch ID: P325262

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P325240

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P325739

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P324628

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: P324529

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	109		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324758

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324798

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: P324799

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324544

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324560

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

Reference Method: SM 2320 B-97
Batch ID: P325238

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P325240

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.7		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P325739

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P324628

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P324529

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895654	Ammonia-N	109	109	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P324758

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895564	Kjeldahl Nitrogen	105	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P324798

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895655	NO2NO3-N	100	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P324799

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895716	NO2NO3-N	95.4	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P324544

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895563	Total-P	95.0	93.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P324560

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895662	O-Phosphate-P	99.1	98.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P325240

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895713	Fluoride	92.5	98.8	P/P	91 - 105

Reference Method: SM 4500 F-C-97
 Batch ID: P325739

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

Reference Method: SM 4500 F-C-97
Batch ID: P325739

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1896078	Fluoride	99.7	104	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P324628

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895654	Organic Carbon	98.7	97.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P324596

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895648	Turbidity	0.976	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324529

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895654	Ammonia-N	0.0733	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324758

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895564	Kjeldahl Nitrogen	0.0876	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324798

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895655	NO2NO3-N	1.98	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324799

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895716	NO2NO3-N	1.04	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324544

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P324544

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895563	Total-P	1.87	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P324560

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895662	O-Phosphate-P	0.388	Spike	P	0 - 20

Reference Method: SM 2320 B-97

Batch ID: P325238

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895713	Total Alkalinity	0.724	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97

Batch ID: P325240

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895713	Fluoride	3.84	Spike	F	0 - 3.0

Reference Method: SM 4500 F-C-97

Batch ID: P325739

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1896078	Fluoride	3.49	Spike	F	0 - 3.0

Reference Method: SM 5310 B-00

Batch ID: P324628

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895654	Organic Carbon	1.28	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 350.1 Rev. 2.0

Run ID: A76160

Included Lab Sample IDs: 1895654, 1895655, 1895656, 1895657, 1895658, 1895659

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	104	P/P	90 - 110
Ammonia-N	104	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A76165

Included Lab Sample IDs: 1895660, 1895661, 1895662, 1895663, 1895664, 1895665

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.4	97.3	P/P	90 - 110
O-Phosphate-P	99.4	98.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A76176

Included Lab Sample IDs: 1895648, 1895649, 1895650, 1895651, 1895652, 1895653

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

Reference Method: SM 5310 B-00

Run ID: A76189

Included Lab Sample IDs: 1895654, 1895655, 1895656, 1895657, 1895658, 1895659

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.0	99.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A76238

Included Lab Sample IDs: 1895654, 1895655, 1895656, 1895657, 1895658, 1895659

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A76240

Included Lab Sample IDs: 1895654, 1895655, 1895656, 1895657, 1895658, 1895659

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.8	98.5	P/P	90 - 110
Total-P	98.5	99.2	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A76396

Included Lab Sample IDs: 1895648, 1895649, 1895650, 1895651, 1895652, 1895653

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A76396

Included Lab Sample IDs: 1895648, 1895650, 1895651, 1895652, 1895653

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	94.9	96.4	P/P	90 - 110
Fluoride	96.4	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A76633

Included Lab Sample IDs: 1895649

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.0	104	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				0.976	
EPA 350.1 Rev. 2.0	Ammonia-N	109	109 109			0.0733
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	105 105			0.0876
EPA 353.2 Rev. 2.0	NO2NO3-N	102	100 102			1.98
	NO2NO3-N	108	95.4 96.4			1.04
EPA 365.1 Rev. 2.0	Total-P	104	95.0 93.1			1.87
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.7	99.1 98.7			0.388
SM 2320 B-97	Total Alkalinity	103			0.724	
SM 4500 F-C-97	Fluoride	95.7	92.5 98.8			3.84
	Fluoride	101	99.7 104			3.49
SM 5310 B-00	Organic Carbon	98.8	98.7 97.3			1.28

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1895648, 1895649, 1895650, 1895651, 1895652, 1895653
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1895654, 1895655, 1895656, 1895657, 1895658, 1895659
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1895654, 1895655, 1895656, 1895657, 1895658, 1895659
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1895654, 1895655, 1895656, 1895657, 1895658, 1895659
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1895654, 1895655, 1895656, 1895657, 1895658, 1895659
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1895660, 1895661, 1895662, 1895663, 1895664, 1895665
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1895648, 1895649, 1895650, 1895651, 1895652, 1895653
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1895648, 1895649, 1895650, 1895651, 1895652, 1895653
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1895648, 1895649, 1895650, 1895651, 1895652, 1895653
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1895654, 1895655, 1895656, 1895657, 1895658, 1895659

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	05/03/2017			05/03/2017 16:36	Blanca Fach	1895648, 1895649, 1895650, 1895651, 1895652, 1895653
EPA 350.1 Rev. 2.0	05/03/2017			05/03/2017	Julie Michelle Frank	1895654, 1895655, 1895656, 1895657, 1895658, 1895659
EPA 351.2 Rev. 2.0	05/03/2017	05/08/2017	Adrian Shelby	05/10/2017	Joseph Suarez	1895654, 1895655, 1895656, 1895657, 1895658, 1895659
EPA 353.2 Rev. 2.0	05/03/2017			05/08/2017	Beverly Y. Sanders	1895654, 1895655, 1895656, 1895657, 1895658, 1895659
EPA 365.1 Rev. 2.0	05/03/2017	05/04/2017	Adrian Shelby	05/08/2017	Lipi Saha	1895654, 1895655, 1895656, 1895657, 1895658, 1895659
EPA 365.1 Rev. 2.0 dissolved	05/03/2017			05/03/2017 14:37	Anthony C. Onicha	1895662
	05/03/2017			05/03/2017 15:02	Anthony C. Onicha	1895660
	05/03/2017			05/03/2017 15:03	Anthony C. Onicha	1895661
	05/03/2017			05/03/2017 15:04	Anthony C. Onicha	1895663
	05/03/2017			05/03/2017 15:05	Anthony C. Onicha	1895664
	05/03/2017			05/03/2017 15:06	Anthony C. Onicha	1895665
SM 2320 B-97	05/03/2017			05/13/2017	Dale L. Simmons	1895648, 1895649, 1895650, 1895651, 1895652, 1895653
SM 2540 D-97	05/03/2017			05/05/2017	Yijie Li	1895648, 1895649, 1895650, 1895651, 1895652, 1895653
SM 4500 F-C-97	05/03/2017			05/13/2017	Dale L. Simmons	1895648, 1895650, 1895651, 1895652, 1895653
SM 5310 B-00	05/03/2017			05/24/2017	Dale L. Simmons	1895649
	05/03/2017			05/04/2017	Julie Michelle Frank	1895654, 1895655, 1895656, 1895657, 1895658, 1895659