

Chemical Analysis Report

SO-DIST-2019-03-06-01

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

Event Description: **Wilderness Waterway**
Request ID: **RQ-2019-02-04-70**
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 33901-3381
Attn: Maryann Dugan

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 25-MAR-2019 13:21

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 "T" and a long horizontal stroke at the end.

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: ENRE 10 near Boat Ramp

Collection Date/Time: 03/05/2019 11:30

Field ID: G1SD0074

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2067709	EPA 180.1 Rev. 2.0	Turbidity	24	A	NTU	P360015	
	EPA 300.0	Bromide	65		mg Br/L	P360483	
	SM 2320 B-97	Total Alkalinity	161		mg CaCO3/L	P360330	
	SM 2540 D-97	TSS	34		mg/L	P360220	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P360336	
2067711	EPA 350.1 Rev. 2.0	Ammonia-N	0.056		mg N/L	P360257	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84		mg N/L	P360228	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P360320	
	EPA 365.1 Rev. 2.0	Total-P	0.077		mg P/L	P360304	
	SM 5310 B-00	Organic Carbon	7.3		mg C/L	P360570	
2067713	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.018		mg P/L	P360033	

Sample Location: ENRE 10 off Chokoloskee

Collection Date/Time: 03/05/2019 12:00

Field ID: G1SD0075

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2067710	EPA 180.1 Rev. 2.0	Turbidity	13		NTU	P360015	
	EPA 300.0	Bromide	67		mg Br/L	P360483	
	SM 2320 B-97	Total Alkalinity	160		mg CaCO3/L	P360330	
	SM 2540 D-97	TSS	19	A	mg/L	P360220	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P360336	
2067712	EPA 350.1 Rev. 2.0	Ammonia-N	0.035		mg N/L	P360257	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.73		mg N/L	P360228	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P360320	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P360304	
	SM 5310 B-00	Organic Carbon	6.5		mg C/L	P360570	
2067714	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P360033	

Sample Location: ENRE10 Lopez River

Collection Date/Time: 03/05/2019 12:30

Field ID: G5SD0092

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2067697	EPA 180.1 Rev. 2.0	Turbidity	8.7		NTU	P360015	
	EPA 300.0	Bromide	62		mg Br/L	P360483	
	SM 2320 B-97	Total Alkalinity	163		mg CaCO3/L	P360330	
	SM 2540 D-97	TSS	10		mg/L	P360219	
	SM 4500 F-C-97	Fluoride	1.0		mg F/L	P360336	
2067701	EPA 350.1 Rev. 2.0	Ammonia-N	0.053		mg N/L	P360257	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P360228	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.031		mg N/L	P360320	
	EPA 365.1 Rev. 2.0	Total-P	0.046		mg P/L	P360305	
	SM 5310 B-00	Organic Carbon	8.4		mg C/L	P360498	
2067705	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.018		mg P/L	P360033	

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: ENRE9 Lopez River

Collection Date/Time: 03/05/2019 12:45

Field ID: G5SD0093

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2067698	EPA 180.1 Rev. 2.0	Turbidity	7.0		NTU	P360015	
	EPA 300.0	Bromide	55		mg Br/L	P360483	
	SM 2320 B-97	Total Alkalinity	162		mg CaCO3/L	P360330	
	SM 2540 D-97	TSS	9	I	mg/L	P360219	
	SM 4500 F-C-97	Fluoride	0.92		mg F/L	P360336	
2067702	EPA 350.1 Rev. 2.0	Ammonia-N	0.063		mg N/L	P360257	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P360228	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.030		mg N/L	P360320	
	EPA 365.1 Rev. 2.0	Total-P	0.042		mg P/L	P360304	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P360498	
2067706	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P360033	

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: ENRE11 Sunday Bay

Collection Date/Time: 03/05/2019 13:00

Field ID: G5SD0094

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2067699	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P360015	
	EPA 300.0	Bromide	53		mg Br/L	P360483	
	SM 2320 B-97	Total Alkalinity	164		mg CaCO3/L	P360330	
	SM 2540 D-97	TSS	5	I	mg/L	P360219	
	SM 4500 F-C-97	Fluoride	0.88		mg F/L	P360336	
2067703	EPA 350.1 Rev. 2.0	Ammonia-N	0.038		mg N/L	P360257	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.70		mg N/L	P360228	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P360320	
	EPA 365.1 Rev. 2.0	Total-P	0.033		mg P/L	P360304	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P360570	
2067707	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P360033	

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: ENRE 11 at Huston Bay

Collection Date/Time: 03/05/2019 13:30

Field ID: G5SD0026

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2067700	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P360015	
	EPA 300.0	Bromide	54		mg Br/L	P360483	
	SM 2320 B-97	Total Alkalinity	152		mg CaCO3/L	P360330	
	SM 2540 D-97	TSS	6	I	mg/L	P360219	
	SM 4500 F-C-97	Fluoride	0.89		mg F/L	P360336	
2067704	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P360257	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P360228	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P360320	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P360304	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P360570	
2067708	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P360033	

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: P360015

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P360483

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P360257

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P360228

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P360320

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P360304

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P360305

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P360033

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

Reference Method: SM 2320 B-97
Batch ID: P360330

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P360219

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P360220

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P360336

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P360498

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

Reference Method: SM 5310 B-00
Batch ID: P360570

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0
Batch ID: P360483

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P360257

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P360228

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P360320

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P360304

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P360305

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P360033

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

Reference Method: SM 2320 B-97
Batch ID: P360330

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

Reference Method: SM 4500 F-C-97
Batch ID: P360336

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.6		P	91 - 105

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P360498

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.9		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P360570

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P360483

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2068367	Bromide	98.1	98.0	P/P	90 - 110
2068489	Bromide	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P360257

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2067753	Ammonia-N	103	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P360228

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2067721	Kjeldahl Nitrogen	103	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P360320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2067370	NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P360304

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2067711	Total-P	99.5	95.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P360305

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2067701	Total-P	93.2	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P360033

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2067707	O-Phosphate-P	98.9	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P360336

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2068489	Fluoride	92.4	93.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P360498

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2066505	Organic Carbon	96.4	98.6	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P360570

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2067703	Organic Carbon	93.8	94.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P360015

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2067709	Turbidity	6.75	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P360483

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2068367	Bromide	0.0893	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P360257

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2067753	Ammonia-N	1.14	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P360228

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2067721	Kjeldahl Nitrogen	2.44	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P360320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2067370	NO2NO3-N	0.501	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P360304

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2067711	Total-P	3.72	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P360305

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2067701	Total-P	3.79	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P360033

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2067707	O-Phosphate-P	0.847	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
 Batch ID: P360330

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2068489	Total Alkalinity	0.0764	Sample	P	0 - 1.6

Reference Method: SM 2540 D-97
 Batch ID: P360220

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2067710	TSS	8.51	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P360336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2068489	Fluoride	0.473	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
 Batch ID: P360498

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2066505	Organic Carbon	2.26	Spike	P	0 - 20

Reference Method: SM 5310 B-00
 Batch ID: P360570

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2067703	Organic Carbon	0.653	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: A89847

Included Lab Sample IDs: 2067697, 2067698, 2067699, 2067700, 2067709, 2067710

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: A89850

Included Lab Sample IDs: 2067705, 2067706, 2067707, 2067708, 2067713, 2067714

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	95.9	94.8	P/P	90 - 110
O-Phosphate-P	95.9	95.9	P/P	90 - 110
O-Phosphate-P	96.5	95.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A89944

Included Lab Sample IDs: 2067701, 2067702, 2067703, 2067704, 2067711, 2067712

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.0	98.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A89949

Included Lab Sample IDs: 2067701, 2067702, 2067703, 2067704, 2067711, 2067712

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A89975

Included Lab Sample IDs: 2067701, 2067702, 2067703, 2067704, 2067711, 2067712

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.6	99.6	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A89980

Included Lab Sample IDs: 2067697, 2067698, 2067699, 2067700, 2067709, 2067710

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.6	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A89980

Included Lab Sample IDs: 2067697, 2067698, 2067699, 2067700, 2067709, 2067710

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	99.1	P/P	90 - 110
Fluoride	98.6	97.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90020

Included Lab Sample IDs: 2067701, 2067702, 2067703, 2067704, 2067711, 2067712

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

Reference Method: EPA 300.0

Run ID: A90025

Included Lab Sample IDs: 2067697, 2067698, 2067699, 2067700, 2067709, 2067710

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	102	103	P/P	90 - 110
Bromide	103	101	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A90030

Included Lab Sample IDs: 2067701, 2067702

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.8	95.2	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A90053

Included Lab Sample IDs: 2067703, 2067704, 2067711, 2067712

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.1	94.8	P/P	90 - 110
Organic Carbon	95.3	95.1	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						6.75	
EPA 300.0	Bromide	104	98.1	98.0	101			0.0893
EPA 350.1 Rev. 2.0	Ammonia-N	98.1	103	105				1.14
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.6	103	99.8				2.44
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	98.0	100	99.5				0.501
EPA 365.1 Rev. 2.0	Total-P	103	99.5	95.6				3.72
	Total-P	100	93.2	97.0				3.79
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	98.9	99.8				0.847
SM 2320 B-97	Total Alkalinity	103					0.0764	
SM 2540 D-97	TSS						8.51	
SM 4500 F-C-97	Fluoride	94.6	92.4	93.2				0.473
SM 5310 B-00	Organic Carbon	96.9	96.4	98.6				2.26
	Organic Carbon	95.8	93.8	94.6				0.653

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2067697, 2067698, 2067699, 2067700, 2067709, 2067710
EPA 300.0 / E31780	Bromide in aqueous matrices	2067697, 2067698, 2067699, 2067700, 2067709, 2067710
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2067701, 2067702, 2067703, 2067704, 2067711, 2067712
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2067701, 2067702, 2067703, 2067704, 2067711, 2067712
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2067701, 2067702, 2067703, 2067704, 2067711, 2067712
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2067701, 2067702, 2067703, 2067704, 2067711, 2067712
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2067705, 2067706, 2067707, 2067708, 2067713, 2067714
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2067697, 2067698, 2067699, 2067700, 2067709, 2067710
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2067697, 2067698, 2067699, 2067700, 2067709, 2067710
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2067697, 2067698, 2067699, 2067700, 2067709, 2067710
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2067701, 2067702, 2067703, 2067704, 2067711, 2067712

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	03/06/2019			03/06/2019 16:16	Adrian Shelby	2067697, 2067698, 2067699, 2067700, 2067709, 2067710
EPA 300.0	03/06/2019			03/14/2019 19:16	Lipi Saha	2067698
	03/06/2019			03/14/2019 19:33	Lipi Saha	2067699
	03/06/2019			03/14/2019 19:50	Lipi Saha	2067700
	03/06/2019			03/14/2019 20:07	Lipi Saha	2067709
	03/06/2019			03/14/2019 20:24	Lipi Saha	2067710
EPA 350.1 Rev. 2.0	03/06/2019			03/14/2019 22:41	Lipi Saha	2067697
	03/06/2019			03/11/2019 13:06	Ping Hua	2067701
	03/06/2019			03/11/2019 13:08	Ping Hua	2067702
	03/06/2019			03/11/2019 13:09	Ping Hua	2067703
	03/06/2019			03/11/2019 13:11	Ping Hua	2067704
EPA 351.2 Rev. 2.0	03/06/2019			03/11/2019 13:12	Ping Hua	2067711
	03/06/2019			03/11/2019 13:14	Ping Hua	2067712
	03/06/2019	03/11/2019 13:00	Adrian Shelby	03/13/2019 09:29	Joseph Suarez	2067701
	03/06/2019	03/11/2019 13:00	Adrian Shelby	03/13/2019 09:30	Joseph Suarez	2067702
	03/06/2019	03/11/2019 13:00	Adrian Shelby	03/13/2019 09:32	Joseph Suarez	2067703
EPA 353.2 Rev. 2.0	03/06/2019			03/13/2019 09:33	Joseph Suarez	2067704
	03/06/2019	03/11/2019 13:00	Adrian Shelby	03/13/2019 09:35	Joseph Suarez	2067711
	03/06/2019	03/11/2019 13:00	Adrian Shelby	03/13/2019 09:37	Joseph Suarez	2067712
	03/06/2019			03/11/2019 10:01	Beverly Y. Sanders	2067701
	03/06/2019			03/11/2019 10:03	Beverly Y. Sanders	2067702
EPA 365.1 Rev. 2.0	03/06/2019			03/11/2019 10:04	Beverly Y. Sanders	2067703
	03/06/2019			03/11/2019 10:05	Beverly Y. Sanders	2067704
	03/06/2019			03/11/2019 10:06	Beverly Y. Sanders	2067711
	03/06/2019			03/11/2019 10:07	Beverly Y. Sanders	2067712
	03/06/2019	03/12/2019 13:45	Sima Feizi	03/14/2019 16:03	Rosalyn Ballman	2067702
EPA 365.1 Rev. 2.0 dissolved	03/06/2019	03/12/2019 13:45	Sima Feizi	03/14/2019 16:04	Rosalyn Ballman	2067703
	03/06/2019	03/12/2019 13:45	Sima Feizi	03/14/2019 16:05	Rosalyn Ballman	2067704
	03/06/2019	03/12/2019 13:45	Sima Feizi	03/14/2019 16:06	Rosalyn Ballman	2067711
	03/06/2019	03/12/2019 13:45	Sima Feizi	03/14/2019 16:07	Rosalyn Ballman	2067712
	03/06/2019	03/12/2019 13:45	Sima Feizi	03/14/2019 16:20	Rosalyn Ballman	2067701
SM 2320 B-97	03/06/2019			03/06/2019 20:10	Jhamieka S. Greenwood	2067705
	03/06/2019			03/06/2019 20:11	Jhamieka S. Greenwood	2067706
	03/06/2019			03/06/2019 20:16	Jhamieka S. Greenwood	2067714
	03/06/2019			03/06/2019 20:17	Jhamieka S. Greenwood	2067713
	03/06/2019			03/06/2019 20:18	Jhamieka S. Greenwood	2067708
	03/06/2019			03/06/2019 20:31	Jhamieka S. Greenwood	2067707
	03/06/2019			03/12/2019 07:25	Dale L. Simmons	2067697
	03/06/2019			03/12/2019 07:37	Dale L. Simmons	2067698

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-97	03/06/2019			03/12/2019 07:49	Dale L. Simmons	2067699
	03/06/2019			03/12/2019 08:01	Dale L. Simmons	2067700
	03/06/2019			03/12/2019 08:13	Dale L. Simmons	2067709
	03/06/2019			03/12/2019 08:25	Dale L. Simmons	2067710
SM 2540 D-97	03/06/2019			03/08/2019 17:48	Mariam Hanna	2067697, 2067698, 2067699, 2067700, 2067709, 2067710
SM 4500 F-C-97	03/06/2019			03/12/2019 02:28	Dale L. Simmons	2067697
	03/06/2019			03/12/2019 02:32	Dale L. Simmons	2067698
	03/06/2019			03/12/2019 02:36	Dale L. Simmons	2067699
	03/06/2019			03/12/2019 03:35	Dale L. Simmons	2067700
	03/06/2019			03/12/2019 03:39	Dale L. Simmons	2067709
SM 5310 B-00	03/06/2019			03/12/2019 03:44	Dale L. Simmons	2067710
	03/06/2019			03/15/2019 10:03	Chelsea Hernandez	2067701
	03/06/2019			03/15/2019 10:18	Chelsea Hernandez	2067702
	03/06/2019			03/16/2019 07:11	Lauren Lees	2067703
	03/06/2019			03/16/2019 08:21	Lauren Lees	2067704
	03/06/2019			03/16/2019 08:34	Lauren Lees	2067711
	03/06/2019			03/16/2019 09:01	Lauren Lees	2067712