

Chemical Analysis Report

SO-DIST-2019-07-30-01

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

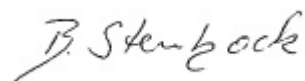
Event Description: **Keys**
Request ID: **RQ-2019-07-08-40**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 13-AUG-2019 19:22



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: 8080 @ENRG3 Nearshore#1

Collection Date/Time: 07/29/2019 13:30

Field ID: G5SD0070

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2106699	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P368157	
	EPA 300.0	Bromide	77		mg Br/L	P368406	
	SM 2320 B-97	Total Alkalinity	116		mg CaCO3/L	P368559	
	SM 2540 D-97	TSS	3	UA	mg/L	P368357	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P368722	
2106708	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P368678	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29	I	mg N/L	P368285	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P368296	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P368210	
	SM 5310 B-00	Organic Carbon	2.2		mg C/L	P368264	
2106717	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368221	

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: 70 Resample

Collection Date/Time: 07/29/2019 14:00

Field ID: G5SD0117

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2106700	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P368157	
	EPA 300.0	Bromide	77		mg Br/L	P368406	
	SM 2320 B-97	Total Alkalinity	117	A	mg CaCO3/L	P368719	
	SM 2540 D-97	TSS	3	U	mg/L	P368357	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P368722	
2106709	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P368678	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23	I	mg N/L	P368285	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P368296	
	EPA 365.1 Rev. 2.0	Total-P	0.006	I	mg P/L	P368210	
	SM 5310 B-00	Organic Carbon	2.1		mg C/L	P368264	
2106718	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368221	

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 8080 ENR 3 Site 2

Collection Date/Time: 07/29/2019 14:08

Field ID: G5SD0097

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2106701	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P368157	
	EPA 300.0	Bromide	77		mg Br/L	P368406	
	SM 2320 B-97	Total Alkalinity	114		mg CaCO3/L	P368719	
	SM 2540 D-97	TSS	3	U	mg/L	P368357	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P368722	
2106710	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P368678	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29	I	mg N/L	P368287	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P368296	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P368210	
	SM 5310 B-00	Organic Carbon	2.6		mg C/L	P368264	
2106719	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368221	

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: 97 RESAMPLE

Collection Date/Time: 07/29/2019 14:15

Field ID: G5SD0114

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2106702	EPA 180.1 Rev. 2.0	Turbidity	0.50		NTU	P368157	
	EPA 300.0	Bromide	73		mg Br/L	P368406	
	SM 2320 B-97	Total Alkalinity	118		mg CaCO3/L	P368719	
	SM 2540 D-97	TSS	3	U	mg/L	P368357	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P368722	
2106711	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P368678	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22	I	mg N/L	P368287	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368296	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P368210	
	SM 5310 B-00	Organic Carbon	1.3	I	mg C/L	P368264	
2106720	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368221	

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: 98 Resample

Collection Date/Time: 07/29/2019 14:25

Field ID: G5SD0116

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2106703	EPA 180.1 Rev. 2.0	Turbidity	0.45		NTU	P368157	
	EPA 300.0	Bromide	72		mg Br/L	P368406	
	SM 2320 B-97	Total Alkalinity	121		mg CaCO3/L	P368719	
	SM 2540 D-97	TSS	3	U	mg/L	P368357	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P368722	
2106712	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P368678	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	U	mg N/L	P368287	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368296	
	EPA 365.1 Rev. 2.0	Total-P	0.006	I	mg P/L	P368210	
	SM 5310 B-00	Organic Carbon	1.2	I	mg C/L	P368264	
2106721	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368221	

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 8080 ENR 6 Site 1

Collection Date/Time: 07/29/2019 14:35

Field ID: G5SD0098

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2106704	EPA 180.1 Rev. 2.0	Turbidity	0.50		NTU	P368158	
	EPA 300.0	Bromide	72		mg Br/L	P368406	
	SM 2320 B-97	Total Alkalinity	119		mg CaCO3/L	P368719	
	SM 2540 D-97	TSS	3	U	mg/L	P368357	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P368722	
2106713	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P368678	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	I	mg N/L	P368287	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368296	
	EPA 365.1 Rev. 2.0	Total-P	0.006	I	mg P/L	P368210	
	SM 5310 B-00	Organic Carbon	1.2	I	mg C/L	P368264	
2106722	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368221	

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: 99 Resample

Collection Date/Time: 07/29/2019 14:45

Field ID: G5SD0115

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2106705	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P368158	
	EPA 300.0	Bromide	72		mg Br/L	P368406	
	SM 2320 B-97	Total Alkalinity	121		mg CaCO3/L	P368719	
	SM 2540 D-97	TSS	3	U	mg/L	P368357	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P368722	
2106714	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P368678	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P368287	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368296	
	EPA 365.1 Rev. 2.0	Total-P	0.006	I	mg P/L	P368210	
	SM 5310 B-00	Organic Carbon	1.3	I	mg C/L	P368264	
2106723	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368221	

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 8080 ENR 6 Site 2

Collection Date/Time: 07/29/2019 14:53

Field ID: G5SD0099

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2106706	EPA 180.1 Rev. 2.0	Turbidity	0.55		NTU	P368158	
	EPA 300.0	Bromide	72		mg Br/L	P368406	
	SM 2320 B-97	Total Alkalinity	121		mg CaCO3/L	P368719	
	SM 2540 D-97	TSS	3	UA	mg/L	P368358	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P368722	
2106715	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P368678	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P368287	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368296	
	EPA 365.1 Rev. 2.0	Total-P	0.006	I	mg P/L	P368210	
	SM 5310 B-00	Organic Carbon	1.2	I	mg C/L	P368264	
2106724	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368221	

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 8080 ENR 6 Site 2

Collection Date/Time: 07/29/2019 15:00

Field ID: G5SD0099_DUP

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2106707	EPA 180.1 Rev. 2.0	Turbidity	0.55		NTU	P368158	
	EPA 300.0	Bromide	71		mg Br/L	P368406	
	SM 2320 B-97	Total Alkalinity	121		mg CaCO3/L	P368719	
	SM 2540 D-97	TSS	3	U	mg/L	P368358	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P368722	
2106716	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P368678	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	I	mg N/L	P368287	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368296	
	EPA 365.1 Rev. 2.0	Total-P	0.007	I	mg P/L	P368210	
	SM 5310 B-00	Organic Carbon	1.2	I	mg C/L	P368264	
2106725	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368221	

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: P368157

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368158

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P368406

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368678

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368285

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368287

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368296

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368210

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368221

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: P368559

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

Reference Method: SM 2320 B-97
Batch ID: P368719

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

Reference Method: SM 2540 D-97
Batch ID: P368357

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P368358

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P368722

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P368264

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: P368406

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368678

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368285

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368287

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368296

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368210

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368221

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

Reference Method: SM 2320 B-97
Batch ID: P368559

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Reference Method: SM 2320 B-97
Batch ID: P368719

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	98 - 106

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P368722

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P368264

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P368406

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106270	Bromide	96.8	96.6	P/P	90 - 110
2106631	Bromide	98.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368678

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106708	Ammonia-N	105	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368285

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106439	Kjeldahl Nitrogen	94.7	93.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368287

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106716	Kjeldahl Nitrogen	97.6	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368296

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106662	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368210

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106710	Total-P	92.8	91.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368221

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106723	O-Phosphate-P	96.7	98.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P368722

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2105216	Fluoride	97.6	97.6	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P368264

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106710	Organic Carbon	99.0	98.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368157

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106639	Turbidity	0.866	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368158

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106750	Turbidity	3.04	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P368406

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106270	Bromide	0.0964	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368678

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106708	Ammonia-N	1.18	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368285

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106439	Kjeldahl Nitrogen	0.769	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368287

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106716	Kjeldahl Nitrogen	4.74	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368296

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106662	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106710	Total-P	1.79	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368221

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106723	O-Phosphate-P	1.34	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P368559

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106837	Total Alkalinity	0.515	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P368719

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106700	Total Alkalinity	0.294	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-97
Batch ID: P368722

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2105216	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P368264

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106710	Organic Carbon	0.905	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: A93137

Included Lab Sample IDs: 2106699, 2106700, 2106701, 2106702, 2106703, 2106704, 2106705, 2106706, 2106707

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	102	P/P	95 - 105
Turbidity	102	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A93165

Included Lab Sample IDs: 2106717, 2106718, 2106719, 2106720, 2106721, 2106722, 2106723, 2106724, 2106725

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	101	P/P	90 - 110
O-Phosphate-P	98.9	97.9	P/P	90 - 110
O-Phosphate-P	99.2	98.9	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A93180

Included Lab Sample IDs: 2106708, 2106709, 2106710, 2106711, 2106712, 2106713, 2106714, 2106715, 2106716

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.1	97.8	P/P	90 - 110
Organic Carbon	97.8	97.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93190

Included Lab Sample IDs: 2106708, 2106709, 2106710, 2106711, 2106712, 2106713, 2106714, 2106715, 2106716

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93194

Included Lab Sample IDs: 2106708, 2106709, 2106710, 2106711, 2106712, 2106713, 2106714, 2106715, 2106716

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

Reference Method: EPA 300.0

Run ID: A93239

Included Lab Sample IDs: 2106699, 2106700, 2106701, 2106702, 2106703, 2106704, 2106705, 2106706, 2106707

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93244

Included Lab Sample IDs: 2106708, 2106709, 2106710, 2106711, 2106712, 2106713, 2106714, 2106715, 2106716

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	101	P/P	90 - 110
Kjeldahl Nitrogen	98.6	104	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A93315
Included Lab Sample IDs: 2106699

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A93358
Included Lab Sample IDs: 2106708, 2106709, 2106710, 2106711, 2106712, 2106713, 2106714, 2106715, 2106716

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	101	P/P	90 - 110
Ammonia-N	99.7	100	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A93367
Included Lab Sample IDs: 2106700, 2106701, 2106702, 2106703, 2106704, 2106705, 2106706, 2106707

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	105	P/P	90 - 110
Total Alkalinity	105	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A93367
Included Lab Sample IDs: 2106699, 2106700, 2106701, 2106702, 2106703, 2106704, 2106705, 2106706, 2106707

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	98.6	P/P	90 - 110
Fluoride	98.6	98.1	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			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					0.866	
	Turbidity					3.04	
EPA 300.0	Bromide	100	96.8	96.6	98.1		0.0964
EPA 350.1 Rev. 2.0	Ammonia-N	98.5	105	106			1.18
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.2	94.7	93.8			0.769
	Kjeldahl Nitrogen	99.6	97.6	103			4.74
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	102	102			0.0
EPA 365.1 Rev. 2.0	Total-P	96.4	92.8	91.2			1.79
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.5	96.7	98.0			1.34
SM 2320 B-97	Total Alkalinity	104				0.515	
	Total Alkalinity	105				0.294	
SM 4500 F-C-97	Fluoride	95.6	97.6	97.6			0.0
SM 5310 B-00	Organic Carbon	96.2	99.0	98.0			0.905

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2106699, 2106700, 2106701, 2106702, 2106703, 2106704, 2106705, 2106706, 2106707
EPA 300.0 / E31780	Bromide in aqueous matrices	2106699, 2106700, 2106701, 2106702, 2106703, 2106704, 2106705, 2106706, 2106707
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2106708, 2106709, 2106710, 2106711, 2106712, 2106713, 2106714, 2106715, 2106716
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2106708, 2106709, 2106710, 2106711, 2106712, 2106713, 2106714, 2106715, 2106716
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2106708, 2106709, 2106710, 2106711, 2106712, 2106713, 2106714, 2106715, 2106716
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2106708, 2106709, 2106710, 2106711, 2106712, 2106713, 2106714, 2106715, 2106716
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2106717, 2106718, 2106719, 2106720, 2106721, 2106722, 2106723, 2106724, 2106725
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2106699, 2106700, 2106701, 2106702, 2106703, 2106704, 2106705, 2106706, 2106707
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2106699, 2106700, 2106701, 2106702, 2106703, 2106704, 2106705, 2106706, 2106707
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2106699, 2106700, 2106701, 2106702, 2106703, 2106704, 2106705, 2106706, 2106707
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2106708, 2106709, 2106710, 2106711, 2106712, 2106713, 2106714, 2106715, 2106716

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	07/30/2019			07/30/2019 17:05	Adrian Shelby	2106699, 2106700, 2106701, 2106702, 2106703, 2106704, 2106705, 2106706, 2106707
EPA 300.0	07/30/2019			08/01/2019 23:18	Jhamieka S. Greenwood	2106699
	07/30/2019			08/01/2019 23:35	Jhamieka S. Greenwood	2106700
	07/30/2019			08/01/2019 23:52	Jhamieka S. Greenwood	2106701
	07/30/2019			08/02/2019 00:10	Jhamieka S. Greenwood	2106702
	07/30/2019			08/02/2019 00:27	Jhamieka S. Greenwood	2106703
	07/30/2019			08/02/2019 00:44	Jhamieka S. Greenwood	2106704
	07/30/2019			08/02/2019 01:01	Jhamieka S. Greenwood	2106705
	07/30/2019			08/02/2019 01:52	Jhamieka S. Greenwood	2106706
	07/30/2019			08/02/2019 02:09	Jhamieka S. Greenwood	2106707
EPA 350.1 Rev. 2.0	07/30/2019			08/07/2019 12:57	Ping Hua	2106708
	07/30/2019			08/07/2019 13:09	Ping Hua	2106709
	07/30/2019			08/07/2019 13:10	Ping Hua	2106710
	07/30/2019			08/07/2019 13:12	Ping Hua	2106711
	07/30/2019			08/07/2019 13:13	Ping Hua	2106712
	07/30/2019			08/07/2019 13:15	Ping Hua	2106713
	07/30/2019			08/07/2019 13:16	Ping Hua	2106714
	07/30/2019			08/07/2019 13:18	Ping Hua	2106715
	07/30/2019			08/07/2019 13:19	Ping Hua	2106716
EPA 351.2 Rev. 2.0	07/30/2019	08/01/2019 11:45	Adrian Shelby	08/02/2019 15:24	Joseph Suarez	2106708
	07/30/2019	08/01/2019 11:45	Adrian Shelby	08/02/2019 15:26	Joseph Suarez	2106709
	07/30/2019	08/01/2019 11:45	Adrian Shelby	08/02/2019 15:59	Joseph Suarez	2106710
	07/30/2019	08/01/2019 11:45	Adrian Shelby	08/02/2019 16:00	Joseph Suarez	2106711
	07/30/2019	08/01/2019 11:45	Adrian Shelby	08/02/2019 16:02	Joseph Suarez	2106712
	07/30/2019	08/01/2019 11:45	Adrian Shelby	08/02/2019 16:03	Joseph Suarez	2106713
	07/30/2019	08/01/2019 11:45	Adrian Shelby	08/02/2019 16:05	Joseph Suarez	2106714
	07/30/2019	08/01/2019 11:45	Adrian Shelby	08/02/2019 16:06	Joseph Suarez	2106715
EPA 353.2 Rev. 2.0	07/30/2019	08/01/2019 11:45	Adrian Shelby	08/02/2019 16:08	Joseph Suarez	2106716
	07/30/2019			08/01/2019 09:19	Beverly Y. Sanders	2106708
	07/30/2019			08/01/2019 09:21	Beverly Y. Sanders	2106709
	07/30/2019			08/01/2019 09:22	Beverly Y. Sanders	2106710
	07/30/2019			08/01/2019 09:23	Beverly Y. Sanders	2106711
	07/30/2019			08/01/2019 09:24	Beverly Y. Sanders	2106712
	07/30/2019			08/01/2019 09:25	Beverly Y. Sanders	2106713
	07/30/2019			08/01/2019 09:26	Beverly Y. Sanders	2106714
EPA 365.1 Rev. 2.0	07/30/2019			08/01/2019 09:28	Beverly Y. Sanders	2106715
	07/30/2019			08/01/2019 09:29	Beverly Y. Sanders	2106716
	07/30/2019	07/31/2019 12:24	Vijayalakshmi Reddy	08/01/2019 11:42	Lipi Saha	2106710

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0	07/30/2019	07/31/2019 12:24	Vijayalakshmi Reddy	08/01/2019 11:43	Lipi Saha	2106708
	07/30/2019	07/31/2019 12:24	Vijayalakshmi Reddy	08/01/2019 11:44	Lipi Saha	2106709
	07/30/2019	07/31/2019 12:24	Vijayalakshmi Reddy	08/01/2019 11:45	Lipi Saha	2106711
	07/30/2019	07/31/2019 12:24	Vijayalakshmi Reddy	08/01/2019 11:46	Lipi Saha	2106712
	07/30/2019	07/31/2019 12:24	Vijayalakshmi Reddy	08/01/2019 11:47	Lipi Saha	2106713
	07/30/2019	07/31/2019 12:24	Vijayalakshmi Reddy	08/01/2019 11:48	Lipi Saha	2106714
	07/30/2019	07/31/2019 12:24	Vijayalakshmi Reddy	08/01/2019 11:49	Lipi Saha	2106715
	07/30/2019	07/31/2019 12:24	Vijayalakshmi Reddy	08/01/2019 11:50	Lipi Saha	2106716
EPA 365.1 Rev. 2.0 dissolved	07/30/2019			07/30/2019 17:12	Jhamieka S. Greenwood	2106723
	07/30/2019			07/30/2019 17:55	Jhamieka S. Greenwood	2106724
	07/30/2019			07/30/2019 17:56	Jhamieka S. Greenwood	2106725
	07/30/2019			07/30/2019 18:02	Jhamieka S. Greenwood	2106717
	07/30/2019			07/30/2019 18:03	Jhamieka S. Greenwood	2106718
	07/30/2019			07/30/2019 18:04	Jhamieka S. Greenwood	2106719, 2106720
	07/30/2019			07/30/2019 18:05	Jhamieka S. Greenwood	2106721
	07/30/2019			07/30/2019 18:06	Jhamieka S. Greenwood	2106722
SM 2320 B-97	07/30/2019			08/06/2019 00:41	Dale L. Simmons	2106699
	07/30/2019			08/06/2019 19:37	Dale L. Simmons	2106700
	07/30/2019			08/06/2019 22:03	Dale L. Simmons	2106701
	07/30/2019			08/06/2019 22:15	Dale L. Simmons	2106702
	07/30/2019			08/06/2019 22:28	Dale L. Simmons	2106703
	07/30/2019			08/06/2019 22:40	Dale L. Simmons	2106704
	07/30/2019			08/06/2019 22:53	Dale L. Simmons	2106705
	07/30/2019			08/06/2019 23:05	Dale L. Simmons	2106706
SM 2540 D-97	07/30/2019			08/06/2019 23:17	Dale L. Simmons	2106707
	07/30/2019			07/31/2019 16:50	Blanca Fach	2106699, 2106700, 2106701, 2106702, 2106703, 2106704, 2106705, 2106706, 2106707
SM 4500 F-C-97	07/30/2019			08/06/2019 17:42	Dale L. Simmons	2106699
	07/30/2019			08/06/2019 18:30	Dale L. Simmons	2106700
	07/30/2019			08/06/2019 18:34	Dale L. Simmons	2106701
	07/30/2019			08/06/2019 18:38	Dale L. Simmons	2106702
	07/30/2019			08/06/2019 18:42	Dale L. Simmons	2106703
	07/30/2019			08/06/2019 18:47	Dale L. Simmons	2106704
	07/30/2019			08/06/2019 18:51	Dale L. Simmons	2106705
	07/30/2019			08/06/2019 18:55	Dale L. Simmons	2106706
SM 5310 B-00	07/30/2019			08/06/2019 18:59	Dale L. Simmons	2106707
	07/30/2019			08/01/2019 03:08	Lauren Lees	2106710
	07/30/2019			08/01/2019 03:45	Lauren Lees	2106708
	07/30/2019			08/01/2019 03:57	Lauren Lees	2106709

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	07/30/2019			08/01/2019 04:22	Lauren Lees	2106711
	07/30/2019			08/01/2019 05:00	Lauren Lees	2106712
	07/30/2019			08/01/2019 05:12	Lauren Lees	2106713
	07/30/2019			08/01/2019 05:25	Lauren Lees	2106714
	07/30/2019			08/01/2019 05:37	Lauren Lees	2106715
	07/30/2019			08/01/2019 06:01	Lauren Lees	2106716