

Chemical Analysis Report

SO-DIST-2019-07-31-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
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
Attn: Maryann Dugan

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Certified by: Colin Wright, Program Administrator

Date Certified: 14-AUG-2019 14:04

A handwritten signature in black ink, appearing to read "Colin Wright", is shown on a light-colored background.

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: 8079 @ENRG3 StockIsland

Collection Date/Time: 07/30/2019 10:20

Field ID: G5SD0067

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2107420	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P368245	
	EPA 300.0	Bromide	76		mg Br/L	P368407	
	SM 2320 B-97	Total Alkalinity	121		mg CaCO3/L	P368720	
	SM 2540 D-97	TSS	3	U	mg/L	P368481	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P368723	
2107427	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P368786	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	U	mg N/L	P368374	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368298	
	EPA 365.1 Rev. 2.0	Total-P	0.006	I	mg P/L	P368269	
	SM 5310 B-00	Organic Carbon	1.3	I	mg C/L	P368350	
2107434	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368253	

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: 67 Resample

Collection Date/Time: 07/30/2019 10:30

Field ID: G5SD0109

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2107421	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P368245	
	EPA 300.0	Bromide	75		mg Br/L	P368407	
	SM 2320 B-97	Total Alkalinity	121		mg CaCO3/L	P368720	
	SM 2540 D-97	TSS	3	U	mg/L	P368482	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P368723	
2107428	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P368786	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	U	mg N/L	P368374	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368298	
	EPA 365.1 Rev. 2.0	Total-P	0.006	I	mg P/L	P368269	
	SM 5310 B-00	Organic Carbon	1.2	I	mg C/L	P368350	
2107435	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368253	

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: 8073@ENRG4 WofKeywest#1

Collection Date/Time: 07/30/2019 10:55

Field ID: G5SD0063

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2107422	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P368246	
	EPA 300.0	Bromide	73		mg Br/L	P368846	
	SM 2320 B-97	Total Alkalinity	121		mg CaCO3/L	P368720	
	SM 2540 D-97	TSS	3	UA	mg/L	P368481	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P368723	
2107429	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P368786	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20	I	mg N/L	P368374	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368298	
	EPA 365.1 Rev. 2.0	Total-P	0.006	I	mg P/L	P368441	
	SM 5310 B-00	Organic Carbon	1.3	I	mg C/L	P368350	
2107436	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368255	

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: 8073@ENRG4 WofKeywest#2

Collection Date/Time: 07/30/2019 11:20

Field ID: G5SD0081

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2107423	EPA 180.1 Rev. 2.0	Turbidity	0.55		NTU	P368246	
	EPA 300.0	Bromide	73		mg Br/L	P368846	
	SM 2320 B-97	Total Alkalinity	121		mg CaCO3/L	P368720	
	SM 2540 D-97	TSS	3	U	mg/L	P368482	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P368723	
2107430	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P368805	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P368374	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368299	
	EPA 365.1 Rev. 2.0	Total-P	0.01	I	mg P/L	P368441	
	SM 5310 B-00	Organic Carbon	1.2	I	mg C/L	P368350	
2107437	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368255	

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: 8073 @ENRG6 Out@Reef #2

Collection Date/Time: 07/30/2019 11:50

Field ID: G5SD0083

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2107424	EPA 180.1 Rev. 2.0	Turbidity	0.25		NTU	P368246	
	EPA 300.0	Bromide	76		mg Br/L	P368846	
	SM 2320 B-97	Total Alkalinity	122		mg CaCO3/L	P368720	
	SM 2540 D-97	TSS	4	I	mg/L	P368482	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P368723	
2107431	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P368805	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20	I	mg N/L	P368374	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368299	
	EPA 365.1 Rev. 2.0	Total-P	0.005	I	mg P/L	P368441	
	SM 5310 B-00	Organic Carbon	1.1	I	mg C/L	P368350	
2107438	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368255	

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: 8073 @ENRG6 Out@Reef #1

Collection Date/Time: 07/30/2019 12:05

Field ID: G5SD0064

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2107425	EPA 180.1 Rev. 2.0	Turbidity	0.30		NTU	P368246	
	EPA 300.0	Bromide	73		mg Br/L	P368846	
	SM 2320 B-97	Total Alkalinity	122		mg CaCO3/L	P368720	
	SM 2540 D-97	TSS	3	U	mg/L	P368482	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P368723	
2107432	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P368805	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20	I	mg N/L	P368374	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P368299	
	EPA 365.1 Rev. 2.0	Total-P	0.005	I	mg P/L	P368441	
	SM 5310 B-00	Organic Carbon	1.0	I	mg C/L	P368350	
2107439	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368255	

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: 64 Resample

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

Field ID: G5SD0110

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2107426	EPA 180.1 Rev. 2.0	Turbidity	0.40		NTU	P368246	
	EPA 300.0	Bromide	74		mg Br/L	P368846	
	SM 2320 B-97	Total Alkalinity	124		mg CaCO3/L	P368720	
	SM 2540 D-97	TSS	3	UA	mg/L	P368482	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P368723	
2107433	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P368805	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25	I	mg N/L	P368374	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P368299	
	EPA 365.1 Rev. 2.0	Total-P	0.006	I	mg P/L	P368362	MS
	SM 5310 B-00	Organic Carbon	1.7	I	mg C/L	P368427	
2107440	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P368255	

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: P368245

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368246

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P368407

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0
Batch ID: P368846

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368786

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368805

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368374

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368298

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: P368299

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368269

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368362

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368441

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368253

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368255

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

Reference Method: SM 2320 B-97
Batch ID: P368720

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

Reference Method: SM 2540 D-97
Batch ID: P368481

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P368482

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P368723

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P368350

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

Reference Method: SM 5310 B-00
Batch ID: P368427

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: P368407

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

Reference Method: EPA 300.0
Batch ID: P368846

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	97.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368786

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368805

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368374

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	106		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368298

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: P368299

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: P368269

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: P368362

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368441

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368253

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368255

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

Reference Method: SM 2320 B-97
Batch ID: P368720

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

Reference Method: SM 4500 F-C-97
Batch ID: P368723

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P368350

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

Reference Method: SM 5310 B-00
Batch ID: P368427

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P368407

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2106858	Bromide	99.5	101	P/P	90 - 110
2106859	Bromide	100		P	90 - 110

Reference Method: EPA 300.0
Batch ID: P368846

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107773	Bromide	96.6	98.0	P/P	90 - 110
2107774	Bromide	95.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368786

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107427	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368805

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107430	Ammonia-N	100	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368374

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107263	Kjeldahl Nitrogen	104	109	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368298

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107147	NO2NO3-N	99.7	98.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368299

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107430	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368269

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107428	Total-P	93.5	91.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368362

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107520	Total-P	88.5	90.2	F/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368441

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107889	Total-P	90.0	94.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368253

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107434	O-Phosphate-P	95.8	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368255

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107526	O-Phosphate-P	96.4	96.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P368723

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107517	Fluoride	92.6	92.6	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P368350

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107255	Organic Carbon	98.2	97.5	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P368427

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2107782	Organic Carbon	99.1	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368245

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107369	Turbidity	1.03	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368246

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107517	Turbidity	1.47	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P368407

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2106858	Bromide	1.21	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P368846

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107773	Bromide	1.32	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368786

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107427	Ammonia-N	0.539	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P368805

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107430	Ammonia-N	1.85	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P368374

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107263	Kjeldahl Nitrogen	3.54	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368298

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107147	NO2NO3-N	0.922	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P368299

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107430	NO2NO3-N	0.484	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368269

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107428	Total-P	2.65	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368362

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107520	Total-P	1.87	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368441

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107889	Total-P	4.96	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368253

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107434	O-Phosphate-P	1.45	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368255

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107526	O-Phosphate-P	0.312	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P368720

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107517	Total Alkalinity	0.197	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-97
Batch ID: P368723

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107517	Fluoride	0.0	Spike	P	0 - 2.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P368350

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107255	Organic Carbon	0.614	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P368427

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2107782	Organic Carbon	0.706	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: A93173

Included Lab Sample IDs: 2107420, 2107421, 2107422, 2107423, 2107424, 2107425, 2107426

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105
Turbidity	101	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A93174

Included Lab Sample IDs: 2107434, 2107435, 2107436, 2107437, 2107438, 2107439, 2107440

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	101	P/P	90 - 110
O-Phosphate-P	101	101	P/P	90 - 110
O-Phosphate-P	101	99.9	P/P	90 - 110
O-Phosphate-P	99.9	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93194

Included Lab Sample IDs: 2107427, 2107428, 2107429, 2107430, 2107431, 2107432, 2107433

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	99.5	P/P	90 - 110
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A93216

Included Lab Sample IDs: 2107427, 2107428, 2107429, 2107430, 2107431, 2107432

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	99.5	P/P	90 - 110
Organic Carbon	99.5	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93233

Included Lab Sample IDs: 2107427, 2107428

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

Reference Method: EPA 300.0

Run ID: A93239

Included Lab Sample IDs: 2107420, 2107421

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

Reference Method: SM 5310 B-00

Run ID: A93248

Included Lab Sample IDs: 2107433

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	102	99.1	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93263

Included Lab Sample IDs: 2107433

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93288

Included Lab Sample IDs: 2107427, 2107428, 2107429, 2107430, 2107431, 2107432, 2107433

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93319

Included Lab Sample IDs: 2107429, 2107430, 2107431, 2107432

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	97.5	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A93367

Included Lab Sample IDs: 2107420, 2107421, 2107422, 2107423, 2107424, 2107425, 2107426

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	104	P/P	90 - 110
Total Alkalinity	104	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A93367

Included Lab Sample IDs: 2107420, 2107421, 2107422, 2107423, 2107424, 2107425, 2107426

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93398

Included Lab Sample IDs: 2107427, 2107428, 2107429

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93406

Included Lab Sample IDs: 2107430, 2107431, 2107432, 2107433

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

Reference Method: EPA 300.0

Run ID: A93422

Included Lab Sample IDs: 2107422, 2107423, 2107424, 2107425, 2107426

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

Reference Method: EPA 300.0

Run ID: A93422

Included Lab Sample IDs: 2107422, 2107423, 2107424, 2107425, 2107426

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	101	103	P/P	90 - 110
Bromide	103	103	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					1.03	
	Turbidity					1.47	
EPA 300.0	Bromide	100	99.5	101	100		1.21
	Bromide	97.3	96.6	98.0	95.4		1.32
EPA 350.1 Rev. 2.0	Ammonia-N	101	102	101			0.539
	Ammonia-N	99.6	100	102			1.85
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	104	109			3.54
EPA 353.2 Rev. 2.0	NO2NO3-N	102	99.7	98.7			0.922
	NO2NO3-N	100	104	103			0.484
EPA 365.1 Rev. 2.0	Total-P	103	93.5	91.1			2.65
	Total-P	102	88.5	90.2			1.87
	Total-P	98.4	90.0	94.6			4.96
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	95.8	97.2			1.45
	O-Phosphate-P	103	96.4	96.1			0.312
SM 2320 B-97	Total Alkalinity	106				0.197	
SM 4500 F-C-97	Fluoride	97.9	92.6	92.6			0.0
SM 5310 B-00	Organic Carbon	102	98.2	97.5			0.614
	Organic Carbon	101	99.1	100			0.706

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2107420, 2107421, 2107422, 2107423, 2107424, 2107425, 2107426
EPA 300.0 / E31780	Bromide in aqueous matrices	2107420, 2107421, 2107422, 2107423, 2107424, 2107425, 2107426
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2107427, 2107428, 2107429, 2107430, 2107431, 2107432, 2107433
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2107427, 2107428, 2107429, 2107430, 2107431, 2107432, 2107433
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2107427, 2107428, 2107429, 2107430, 2107431, 2107432, 2107433
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2107427, 2107428, 2107429, 2107430, 2107431, 2107432, 2107433
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2107434, 2107435, 2107436, 2107437, 2107438, 2107439, 2107440
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2107420, 2107421, 2107422, 2107423, 2107424, 2107425, 2107426
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2107420, 2107421, 2107422, 2107423, 2107424, 2107425, 2107426
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2107420, 2107421, 2107422, 2107423, 2107424, 2107425, 2107426
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2107427, 2107428, 2107429, 2107430, 2107431, 2107432, 2107433

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	07/31/2019			07/31/2019 16:21	Samantha Davila	2107420, 2107421, 2107422, 2107423, 2107424, 2107425, 2107426
EPA 300.0	07/31/2019			08/02/2019 11:16	Jhamieka S. Greenwood	2107420
	07/31/2019			08/02/2019 11:33	Jhamieka S. Greenwood	2107421
	07/31/2019			08/09/2019 01:38	Jhamieka S. Greenwood	2107422
	07/31/2019			08/09/2019 01:55	Jhamieka S. Greenwood	2107423
	07/31/2019			08/09/2019 02:12	Jhamieka S. Greenwood	2107424
	07/31/2019			08/09/2019 02:29	Jhamieka S. Greenwood	2107425
	07/31/2019			08/09/2019 03:20	Jhamieka S. Greenwood	2107426
EPA 350.1 Rev. 2.0	07/31/2019			08/09/2019 12:41	Ping Hua	2107427
	07/31/2019			08/09/2019 13:02	Ping Hua	2107428
	07/31/2019			08/09/2019 13:03	Ping Hua	2107429
	07/31/2019			08/10/2019 12:15	Ping Hua	2107430
	07/31/2019			08/10/2019 12:20	Ping Hua	2107431
	07/31/2019			08/10/2019 12:21	Ping Hua	2107432
	07/31/2019			08/10/2019 12:23	Ping Hua	2107433
EPA 351.2 Rev. 2.0	07/31/2019	08/02/2019 12:30	Adrian Shelby	08/06/2019 10:41	Joseph Suarez	2107427
	07/31/2019	08/02/2019 12:30	Adrian Shelby	08/06/2019 10:42	Joseph Suarez	2107428
	07/31/2019	08/02/2019 12:30	Adrian Shelby	08/06/2019 10:43	Joseph Suarez	2107429
	07/31/2019	08/02/2019 12:30	Adrian Shelby	08/06/2019 10:44	Joseph Suarez	2107430
	07/31/2019	08/02/2019 12:30	Adrian Shelby	08/06/2019 10:46	Joseph Suarez	2107431
	07/31/2019	08/02/2019 12:30	Adrian Shelby	08/06/2019 10:47	Joseph Suarez	2107432
	07/31/2019	08/02/2019 12:30	Adrian Shelby	08/06/2019 10:48	Joseph Suarez	2107433
EPA 353.2 Rev. 2.0	07/31/2019			08/01/2019 10:11	Beverly Y. Sanders	2107427
	07/31/2019			08/01/2019 10:13	Beverly Y. Sanders	2107428
	07/31/2019			08/01/2019 10:14	Beverly Y. Sanders	2107429
	07/31/2019			08/01/2019 10:21	Beverly Y. Sanders	2107430
	07/31/2019			08/01/2019 10:27	Beverly Y. Sanders	2107431
	07/31/2019			08/01/2019 10:28	Beverly Y. Sanders	2107432
	07/31/2019			08/01/2019 10:29	Beverly Y. Sanders	2107433
EPA 365.1 Rev. 2.0	07/31/2019	08/01/2019 11:17	Vijayalakshmi Reddy	08/02/2019 13:26	Lipi Saha	2107428
	07/31/2019	08/01/2019 11:17	Vijayalakshmi Reddy	08/02/2019 13:34	Lipi Saha	2107427
	07/31/2019	08/02/2019 12:14	Vijayalakshmi Reddy	08/05/2019 12:04	Lipi Saha	2107433
	07/31/2019	08/05/2019 12:54	Vijayalakshmi Reddy	08/06/2019 11:39	Lipi Saha	2107429
	07/31/2019	08/05/2019 12:54	Vijayalakshmi Reddy	08/06/2019 11:40	Lipi Saha	2107430
	07/31/2019	08/05/2019 12:54	Vijayalakshmi Reddy	08/06/2019 11:41	Lipi Saha	2107431
	07/31/2019	08/05/2019 12:54	Vijayalakshmi Reddy	08/06/2019 11:42	Lipi Saha	2107432
EPA 365.1 Rev. 2.0 dissolved	07/31/2019			07/31/2019 16:20	Jhamieka S. Greenwood	2107434
	07/31/2019			07/31/2019 16:58	Jhamieka S. Greenwood	2107435
	07/31/2019			07/31/2019 17:10	Jhamieka S. Greenwood	2107436

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 dissolved	07/31/2019			07/31/2019 17:11	Jhamieka S. Greenwood	2107437
	07/31/2019			07/31/2019 17:12	Jhamieka S. Greenwood	2107438, 2107439
	07/31/2019			07/31/2019 17:18	Jhamieka S. Greenwood	2107440
SM 2320 B-97	07/31/2019			08/07/2019 07:53	Dale L. Simmons	2107420
	07/31/2019			08/07/2019 08:05	Dale L. Simmons	2107421
	07/31/2019			08/07/2019 08:17	Dale L. Simmons	2107422
	07/31/2019			08/07/2019 08:29	Dale L. Simmons	2107423
	07/31/2019			08/07/2019 08:41	Dale L. Simmons	2107424
	07/31/2019			08/07/2019 08:53	Dale L. Simmons	2107425
	07/31/2019			08/07/2019 10:03	Dale L. Simmons	2107426
	07/31/2019			08/01/2019 14:10	Sima Feizi	2107420, 2107421, 2107422, 2107423, 2107424, 2107425, 2107426
SM 4500 F-C-97	07/31/2019			08/07/2019 04:12	Dale L. Simmons	2107420
	07/31/2019			08/07/2019 04:16	Dale L. Simmons	2107421
	07/31/2019			08/07/2019 04:20	Dale L. Simmons	2107422
	07/31/2019			08/07/2019 04:24	Dale L. Simmons	2107423
	07/31/2019			08/07/2019 04:29	Dale L. Simmons	2107424
	07/31/2019			08/07/2019 04:33	Dale L. Simmons	2107425
	07/31/2019			08/07/2019 04:37	Dale L. Simmons	2107426
SM 5310 B-00	07/31/2019			08/02/2019 04:21	Madeline Funaro	2107427
	07/31/2019			08/02/2019 04:33	Madeline Funaro	2107428
	07/31/2019			08/02/2019 04:45	Madeline Funaro	2107429
	07/31/2019			08/02/2019 04:57	Madeline Funaro	2107430
	07/31/2019			08/02/2019 05:48	Madeline Funaro	2107431
	07/31/2019			08/02/2019 06:01	Madeline Funaro	2107432
	07/31/2019			08/03/2019 00:30	Madeline Funaro	2107433