

Chemical Analysis Report

SO-DIST-2017-02-01-01

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

Event Description: **SMP: Bay of Florida**
Request ID: **RQ-2017-01-16-20**
Customer: **SO-DIST**
Project ID: **SMP**

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

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 21-FEB-2017 09:57



Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical group are included in this report: Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: 8070 - North

Collection Date/Time: 01/31/2017 13:00

Field ID: G5SD0075

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868663	EPA 180.1 Rev. 2.0	Turbidity	31	A	NTU	P319114	
	SM 2320 B-97	Total Alkalinity	154		mg CaCO3/L	P319274	
	SM 2540 D-97	TSS	29	A	mg/L	P319491	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P319277	
1868670	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P319357	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P319212	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.009	I	mg N/L	P319163	
	EPA 365.1 Rev. 2.0	Total-P	0.042		mg P/L	P319132	MS
	SM 5310 B-00	Organic Carbon	4.5		mg C/L	P319300	
1868677	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P319108	

Sample Location: WBID 8069

Collection Date/Time: 01/31/2017 12:35

Field ID: G5SD0036

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868664	EPA 180.1 Rev. 2.0	Turbidity	45		NTU	P319114	
	SM 2320 B-97	Total Alkalinity	160		mg CaCO3/L	P319274	
	SM 2540 D-97	TSS	45		mg/L	P319491	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P319277	
1868671	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P319357	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.76		mg N/L	P319295	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P319164	
	EPA 365.1 Rev. 2.0	Total-P	0.055		mg P/L	P319132	MS
	SM 5310 B-00	Organic Carbon	5.0		mg C/L	P319300	
1868678	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P319108	

Sample Location: 8069 - ENRE13

Collection Date/Time: 01/31/2017 14:10

Field ID: G5SD0076

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868665	EPA 180.1 Rev. 2.0	Turbidity	6.8		NTU	P319114	
	SM 2320 B-97	Total Alkalinity	177		mg CaCO3/L	P319274	
	SM 2540 D-97	TSS	10		mg/L	P319491	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P319277	
1868672	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P319357	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.74		mg N/L	P319295	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.034		mg N/L	P319164	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P319132	MS
	SM 5310 B-00	Organic Carbon	5.3		mg C/L	P319300	
1868679	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P319108	

Sample Location: WBID 8067

Collection Date/Time: 01/31/2017 11:40

Field ID: G5SD0038

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868666	EPA 180.1 Rev. 2.0	Turbidity	37		NTU	P319114	
	SM 2320 B-97	Total Alkalinity	151		mg CaCO3/L	P319274	
	SM 2540 D-97	TSS	52		mg/L	P319491	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P319277	
1868673	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P319357	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56		mg N/L	P319212	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P319164	
	EPA 365.1 Rev. 2.0	Total-P	0.074		mg P/L	P319132	MS
	SM 5310 B-00	Organic Carbon	4.3		mg C/L	P319300	
1868680	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P319108	

Sample Location: WBID 8066

Collection Date/Time: 01/31/2017 11:10

Field ID: G5SD0039

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868667	EPA 180.1 Rev. 2.0	Turbidity	7.3		NTU	P319114	
	SM 2320 B-97	Total Alkalinity	152		mg CaCO3/L	P319274	
	SM 2540 D-97	TSS	20		mg/L	P319491	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P319277	
1868674	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P319357	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40		mg N/L	P319212	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P319164	
	EPA 365.1 Rev. 2.0	Total-P	0.037		mg P/L	P319132	MS
	SM 5310 B-00	Organic Carbon	4.3		mg C/L	P319300	
1868681	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P319108	

Sample Location: 8066 - ENRE10

Collection Date/Time: 01/31/2017 15:35

Field ID: G5SD0079

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868668	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P319114	
	SM 2320 B-97	Total Alkalinity	145		mg CaCO3/L	P319274	
	SM 2540 D-97	TSS	5	I	mg/L	P319491	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P319277	
1868675	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P319357	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32	I	mg N/L	P319212	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P319164	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P319132	MS
	SM 5310 B-00	Organic Carbon	3.6		mg C/L	P319300	
1868682	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P319108	

Sample Location: WBID 8068

Collection Date/Time: 01/31/2017 12:10

Field ID: G5SD0037

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G5SD0037

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1868669	EPA 180.1 Rev. 2.0	Turbidity	18		NTU	P319115	
	SM 2320 B-97	Total Alkalinity	161		mg CaCO3/L	P319274	
	SM 2540 D-97	TSS	26		mg/L	P319491	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P319277	
1868676	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P319357	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.70		mg N/L	P319295	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P319685	
	EPA 365.1 Rev. 2.0	Total-P	0.043		mg P/L	P319352	MS
	SM 5310 B-00	Organic Carbon	5.3		mg C/L	P319300	
1868683	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P319108	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P319114

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P319115

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319357

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319212

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319295

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319163

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319164

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: P319685

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319132

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319352

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319108

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

Reference Method: SM 2320 B-97
Batch ID: P319274

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

Reference Method: SM 2540 D-97
Batch ID: P319491

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P319277

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P319300

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319357

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319212

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319295

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319163

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	105		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319164

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319685

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: P319132

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319352

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	94.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319108

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P319274

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

Reference Method: SM 4500 F-C-97
Batch ID: P319277

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P319300

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 350.1 Rev. 2.0
Batch ID: P319357

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868673	Ammonia-N	102	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319212

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868675	Kjeldahl Nitrogen	96.3	94.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319295

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869344	Kjeldahl Nitrogen	102	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319163

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868124	NO2NO3-N	103	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319164

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868671	NO2NO3-N	106	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319685

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P319685

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1866814	NO2NO3-N	101	101	P/P	90 - 110
1866814	NO2NO3-N	101		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P319132

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868451	Total-P	88.4	90.1	F/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P319352

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1869345	Total-P	91.6	89.8	P/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P319108

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868677	O-Phosphate-P	99.1	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P319277

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868117	Fluoride	93.5	95.0	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P319300

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1868451	Organic Carbon	87.4	90.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P319114

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868663	Turbidity	4.83	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P319115

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868817	Turbidity	1.52	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319357

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868673	Ammonia-N	2.53	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319212

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868675	Kjeldahl Nitrogen	1.51	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319295

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869344	Kjeldahl Nitrogen	1.63	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319163

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868124	NO2NO3-N	4.46	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868671	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319685

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1866814	NO2NO3-N	0.277	Spike	P	0 - 15

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319132

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868451	Total-P	1.88	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319352

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1869345	Total-P	2.09	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319108

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868677	O-Phosphate-P	1.44	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P319274

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868117	Total Alkalinity	0.0198	Sample	P	0 - 4.8

Reference Method: SM 2540 D-97
Batch ID: P319491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868663	TSS	0.0	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P319277

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868117	Fluoride	0.960	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P319300

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1868451	Organic Carbon	2.82	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 365.1 Rev. 2.0 dissolved
Run ID: A74214
Included Lab Sample IDs: 1868677, 1868678, 1868679, 1868680, 1868681, 1868682, 1868683

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	102	P/P	90 - 110
O-Phosphate-P	102	99.6	P/P	90 - 110
O-Phosphate-P	105	100	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A74215
Included Lab Sample IDs: 1868663, 1868664, 1868665, 1868666, 1868667, 1868668, 1868669

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A74215

Included Lab Sample IDs: 1868663, 1868664, 1868665, 1868666, 1868667, 1868668, 1868669

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	99.0	P/P	95 - 105
Turbidity	99.0	98.0	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74232

Included Lab Sample IDs: 1868670, 1868671, 1868672, 1868673, 1868674, 1868675

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

Reference Method: SM 2320 B-97

Run ID: A74269

Included Lab Sample IDs: 1868663, 1868664, 1868665, 1868666, 1868667, 1868668, 1868669

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

Reference Method: SM 4500 F-C-97

Run ID: A74269

Included Lab Sample IDs: 1868663, 1868664, 1868665, 1868666, 1868667, 1868668, 1868669

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.0	99.0	P/P	90 - 110
Fluoride	99.0	98.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A74275

Included Lab Sample IDs: 1868670, 1868671, 1868672, 1868673, 1868674, 1868675, 1868676

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.4	94.0	P/P	90 - 110
Organic Carbon	98.6	94.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74283

Included Lab Sample IDs: 1868670, 1868671, 1868672, 1868673, 1868674, 1868675

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74284

Included Lab Sample IDs: 1868670, 1868673, 1868674, 1868675

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	99.4	P/P	90 - 110
Kjeldahl Nitrogen	97.9	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A74296

Included Lab Sample IDs: 1868670, 1868671, 1868672, 1868673, 1868674, 1868675, 1868676

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.2	P/P	90 - 110
Ammonia-N	99.0	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74347

Included Lab Sample IDs: 1868676

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74363

Included Lab Sample IDs: 1868671, 1868672, 1868676

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	104	P/P	90 - 110
Kjeldahl Nitrogen	104	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74410

Included Lab Sample IDs: 1868676

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	101	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						4.83	
	Turbidity						1.52	
EPA 350.1 Rev. 2.0	Ammonia-N	96.0		102	99.4			2.53
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101		96.3	94.6			1.51
	Kjeldahl Nitrogen	108		102	104			1.63
EPA 353.2 Rev. 2.0	NO2NO3-N	105		103	108			4.46
	NO2NO3-N	106		106	106			0.0
	NO2NO3-N	100		101	101	101		0.277 RSD
EPA 365.1 Rev. 2.0	Total-P	96.2		88.4	90.1			1.88
	Total-P	94.0		91.6	89.8			2.09
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104		99.1	101			1.44
SM 2320 B-97	Total Alkalinity	103					0.0198	
SM 2540 D-97	TSS						0.0	
SM 4500 F-C-97	Fluoride	97.4		93.5	95.0			0.960
SM 5310 B-00	Organic Carbon	96.2		87.4	90.9			2.82

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1868663, 1868664, 1868665, 1868666, 1868667, 1868668, 1868669
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1868670, 1868671, 1868672, 1868673, 1868674, 1868675, 1868676
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1868670, 1868671, 1868672, 1868673, 1868674, 1868675, 1868676
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1868670, 1868671, 1868672, 1868673, 1868674, 1868675, 1868676
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1868670, 1868671, 1868672, 1868673, 1868674, 1868675, 1868676
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1868677, 1868678, 1868679, 1868680, 1868681, 1868682, 1868683
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1868663, 1868664, 1868665, 1868666, 1868667, 1868668, 1868669
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1868663, 1868664, 1868665, 1868666, 1868667, 1868668, 1868669
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1868663, 1868664, 1868665, 1868666, 1868667, 1868668, 1868669
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1868670, 1868671, 1868672, 1868673, 1868674, 1868675, 1868676

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	02/01/2017			02/01/2017 16:18	Julie Michelle Frank	1868663, 1868664, 1868665, 1868666, 1868667, 1868668, 1868669
EPA 350.1 Rev. 2.0	02/01/2017			02/06/2017	Sofia Elnemr	1868670, 1868671, 1868672, 1868673, 1868674, 1868675, 1868676
EPA 351.2 Rev. 2.0	02/01/2017	02/03/2017	Adrian Shelby	02/06/2017	Joseph Suarez	1868670, 1868673, 1868674, 1868675
	02/01/2017	02/06/2017	Adrian Shelby	02/09/2017	Joseph Suarez	1868671, 1868672, 1868676
EPA 353.2 Rev. 2.0	02/01/2017			02/02/2017	Beverly Y. Sanders	1868670, 1868671, 1868672, 1868673, 1868674, 1868675
	02/01/2017			02/10/2017	Virginia P. Brown	1868676
EPA 365.1 Rev. 2.0	02/01/2017	02/02/2017	Adrian Shelby	02/06/2017	Lipi Saha	1868670, 1868671, 1868672, 1868673, 1868674, 1868675
	02/01/2017	02/06/2017	Vijayalakshmi Reddy	02/08/2017	Lipi Saha	1868676
EPA 365.1 Rev. 2.0 dissolved	02/01/2017			02/01/2017 14:39	Julia Storbeck	1868677
	02/01/2017			02/01/2017 15:17	Julia Storbeck	1868678
	02/01/2017			02/01/2017 15:18	Julia Storbeck	1868679
	02/01/2017			02/01/2017 15:19	Julia Storbeck	1868680, 1868681
	02/01/2017			02/01/2017 15:25	Julia Storbeck	1868682, 1868683
SM 2320 B-97	02/01/2017			02/03/2017	Dale L. Simmons	1868663, 1868664, 1868665, 1868666, 1868667, 1868668, 1868669
SM 2540 D-97	02/01/2017			02/02/2017	Sima Feizi	1868663, 1868664, 1868665, 1868666, 1868667, 1868668, 1868669
SM 4500 F-C-97	02/01/2017			02/03/2017	Dale L. Simmons	1868663, 1868664, 1868665, 1868666, 1868667, 1868668, 1868669
SM 5310 B-00	02/01/2017			02/04/2017	Julie Michelle Frank	1868670, 1868671, 1868672, 1868673, 1868674, 1868675, 1868676