

Chemical Analysis Report

SO-DIST-2017-02-16-01

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

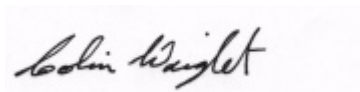
Event Description: **SMP: Wilderness WW**
Request ID: **RQ-2017-02-13-21**
Customer: **SO-DIST**
Project ID: **SMP**

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: Colin Wright, Program Administrator

Date Certified: 08-MAR-2017 13:19

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray rectangular 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 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: ENRE9 CHATHAM RIVER

Collection Date/Time: 02/15/2017 12:00

Field ID: G5SD021517-5

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1873344	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P319996	
	SM 2320 B-97	Total Alkalinity	164		mg CaCO3/L	P320239	
	SM 2540 D-97	TSS	8	I	mg/L	P320452	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P320240	
1873353	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P320246	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.55		mg N/L	P320039	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P320349	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P320073	
	SM 5310 B-00	Organic Carbon	7.0		mg C/L	P320101	
1873362	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P320011	

Sample Location: ENER11 AT HUSTON BAY

Collection Date/Time: 02/15/2017 13:45

Field ID: G5SD021517-6

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1873345	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P319996	
	SM 2320 B-97	Total Alkalinity	169		mg CaCO3/L	P320239	
	SM 2540 D-97	TSS	6	I	mg/L	P320452	
	SM 4500 F-C-97	Fluoride	1.0		mg F/L	P320240	
1873354	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P320246	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.69		mg N/L	P320039	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P320349	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P320073	
	SM 5310 B-00	Organic Carbon	8.9		mg C/L	P320101	
1873363	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P320011	

Sample Location: ENRE9 HUSTON RIVER

Collection Date/Time: 02/15/2017 14:30

Field ID: G5SD021517-7

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1873346	EPA 180.1 Rev. 2.0	Turbidity	3.7		NTU	P319996	
	SM 2320 B-97	Total Alkalinity	166		mg CaCO3/L	P320239	
	SM 2540 D-97	TSS	9	I	mg/L	P320452	
	SM 4500 F-C-97	Fluoride	1.1		mg F/L	P320240	
1873355	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P320246	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.60		mg N/L	P320039	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P320349	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P320073	
	SM 5310 B-00	Organic Carbon	6.5		mg C/L	P320101	
1873364	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P320011	

Sample Location: COPELAND AVE. @ BRIDGE 030161

Collection Date/Time: 02/15/2017 16:15

Field ID: G1SD021517-8

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1873347	EPA 180.1 Rev. 2.0	Turbidity	24		NTU	P319996	
	SM 2320 B-97	Total Alkalinity	172		mg CaCO3/L	P320239	
	SM 2540 D-97	TSS	41		mg/L	P320452	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P320240	
1873356	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P320246	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.74		mg N/L	P320039	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P320349	
	EPA 365.1 Rev. 2.0	Total-P	0.070		mg P/L	P320073	
	SM 5310 B-00	Organic Carbon	6.7		mg C/L	P320101	
1873365	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.014		mg P/L	P320011	
	dissolved						

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The result was confirmed on 02/23/2017.

SM 2540 D-97: The result was confirmed on 03/01/2017.

EPA 365.1 Rev. 2.0: Total-P: The result was confirmed on 02/28/2017.

Sample Location: ENRE11 AT DADS BAY

Collection Date/Time: 02/15/2017 12:30

Field ID: G5SD021517-1

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1873348	EPA 180.1 Rev. 2.0	Turbidity	15		NTU	P319996	
	SM 2320 B-97	Total Alkalinity	180	A	mg CaCO3/L	P320239	
	SM 2540 D-97	TSS	54		mg/L	P320451	
	SM 4500 F-C-97	Fluoride	0.44		mg F/L	P320240	
1873357	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P320246	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.0		mg N/L	P320039	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P320349	
	EPA 365.1 Rev. 2.0	Total-P	0.044		mg P/L	P320073	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P320098	
1873366	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.005	I	mg P/L	P320011	
	dissolved						

Sample Location: ENRE11 AT ALLIGATOR BAY

Collection Date/Time: 02/15/2017 12:50

Field ID: G5SD021517-2

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1873349	EPA 180.1 Rev. 2.0	Turbidity	6.6	A	NTU	P319996	
	SM 2320 B-97	Total Alkalinity	182		mg CaCO3/L	P320239	
	SM 2540 D-97	TSS	19		mg/L	P320452	
	SM 4500 F-C-97	Fluoride	0.53		mg F/L	P320240	
1873358	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P320246	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P320039	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P320349	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P320073	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P320101	
1873367	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.005	I	mg P/L	P320011	
	dissolved						

Sample Location: ENRE11 AT CANNON BAY

Collection Date/Time: 02/15/2017 13:15

Field ID: G5SD021517-3

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1873350	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P319996	
	SM 2320 B-97	Total Alkalinity	181		mg CaCO3/L	P320239	
	SM 2540 D-97	TSS	27		mg/L	P320452	
	SM 4500 F-C-97	Fluoride	0.90		mg F/L	P320240	
1873359	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P320246	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P320039	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P320349	
	EPA 365.1 Rev. 2.0	Total-P	0.069		mg P/L	P320178	MS
	SM 5310 B-00	Organic Carbon	14		mg C/L	P320101	
1873368	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P320011	

Sample Location: ENRE11 AT CHEVELIER BAY

Collection Date/Time: 02/15/2017 13:30

Field ID: G5SD021517-4

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1873351	EPA 180.1 Rev. 2.0	Turbidity	4.7		NTU	P319996	
	SM 2320 B-97	Total Alkalinity	168		mg CaCO3/L	P320239	
	SM 2540 D-97	TSS	12		mg/L	P320452	
	SM 4500 F-C-97	Fluoride	1.0		mg F/L	P320240	
1873360	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P320317	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84		mg N/L	P320039	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P320349	
	EPA 365.1 Rev. 2.0	Total-P	0.026	J	mg P/L	P320178	MS
	SM 5310 B-00	Organic Carbon	9.8		mg C/L	P320101	
1873369	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P320011	

Ref. Method and Comment:
EPA 365.1 Rev. 2.0: Total-P: Refer to the narrative for an explanation of QC Codes.

Sample Location: COPELAND AVE. @ BRIDGE DUP

Collection Date/Time: 02/15/2017 16:20

Field ID: G1SD021517-9

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1873352	EPA 180.1 Rev. 2.0	Turbidity	19		NTU	P319996	
	SM 2320 B-97	Total Alkalinity	171		mg CaCO3/L	P320239	
	SM 2540 D-97	TSS	26		mg/L	P320452	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P320240	
1873361	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P320317	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.70		mg N/L	P320039	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P320349	
	EPA 365.1 Rev. 2.0	Total-P	0.055		mg P/L	P320178	MS
	SM 5310 B-00	Organic Carbon	6.9		mg C/L	P320101	
1873370	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.013		mg P/L	P320011	

Ref. Method and Comment:
EPA 180.1 Rev. 2.0: The result was confirmed on 02/23/2017.
SM 2540 D-97: The result was confirmed on 03/01/2017.
EPA 365.1 Rev. 2.0: Total-P: The result was confirmed on 02/28/2017.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P319996

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320246

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320317

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320039

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320349

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320073

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320178

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320011

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

Reference Method: SM 2320 B-97
Batch ID: P320239

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P320451

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P320452

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P320240

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P320098

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

Reference Method: SM 5310 B-00
Batch ID: P320101

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: P320246

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: P320317

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320039

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	107		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320349

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320349

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320073

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: P320178

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320011

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

Reference Method: SM 2320 B-97
Batch ID: P320239

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

Reference Method: SM 4500 F-C-97
Batch ID: P320240

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P320098

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.1		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P320101

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320246

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320246

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873353	Ammonia-N	107	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320317

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873360	Ammonia-N	103	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320039

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873355	Kjeldahl Nitrogen	104	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320349

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873304	NO2NO3-N	104	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320073

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873022	Total-P	92.9	90.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320178

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873360	Total-P	83.9	84.4	F/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320011

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873362	O-Phosphate-P	96.5	97.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P320240

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870137	Fluoride	97.4	98.1	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P320098

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873400	Organic Carbon	95.9	94.6	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P320101

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873304	Organic Carbon	90.6	92.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P319996

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873349	Turbidity	13.1	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P320246

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873353	Ammonia-N	0.577	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P320317

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873360	Ammonia-N	3.01	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P320039

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873355	Kjeldahl Nitrogen	1.26	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P320349

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873304	NO2NO3-N	1.74	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P320073

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873022	Total-P	2.12	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P320178

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873360	Total-P	0.578	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P320011

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873362	O-Phosphate-P	0.943	Spike	P	0 - 20

Reference Method: SM 2320 B-97

Batch ID: P320239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873348	Total Alkalinity	0.0568	Sample	P	0 - 4.8

Reference Method: SM 2540 D-97

Batch ID: P320451

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873314	TSS	2.27	Sample	P	0 - 10

Reference Method: SM 2540 D-97

Batch ID: P320452

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873302	TSS	0.0	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97

Batch ID: P320240

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870137	Fluoride	0.473	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00

Batch ID: P320098

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873400	Organic Carbon	1.32	Spike	P	0 - 20

Reference Method: SM 5310 B-00

Batch ID: P320101

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873304	Organic Carbon	1.38	Spike	P	0 - 20

Quality Assurance Report Precision

* 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: A74532

Included Lab Sample IDs: 1873344, 1873345, 1873346, 1873347, 1873348, 1873349, 1873350, 1873351, 1873352

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.0	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A74536

Included Lab Sample IDs: 1873362, 1873363, 1873364, 1873365, 1873366, 1873367, 1873368, 1873369, 1873370

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

Reference Method: SM 5310 B-00

Run ID: A74569

Included Lab Sample IDs: 1873353, 1873354, 1873355, 1873356, 1873357, 1873358, 1873359, 1873360, 1873361

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.6	96.4	P/P	90 - 110
Organic Carbon	96.4	95.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74613

Included Lab Sample IDs: 1873353, 1873354, 1873355, 1873356, 1873357, 1873358

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.0	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74614

Included Lab Sample IDs: 1873353, 1873354, 1873355, 1873356, 1873357, 1873358, 1873359, 1873360, 1873361

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.0	97.8	P/P	90 - 110
Kjeldahl Nitrogen	97.8	94.9	P/P	90 - 110
Kjeldahl Nitrogen	99.9	103	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A74626

Included Lab Sample IDs: 1873344, 1873345, 1873346, 1873347, 1873348, 1873349, 1873350, 1873351, 1873352

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A74626

Included Lab Sample IDs: 1873344, 1873345, 1873346, 1873347, 1873348, 1873349, 1873350, 1873351, 1873352

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	98.1	P/P	90 - 110
Fluoride	98.1	97.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A74627

Included Lab Sample IDs: 1873353, 1873354, 1873355, 1873356, 1873357, 1873358, 1873359

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.0	99.3	P/P	90 - 110
Ammonia-N	99.7	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74650

Included Lab Sample IDs: 1873359, 1873360, 1873361

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	99.0	P/P	90 - 110
Total-P	99.8	99.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A74655

Included Lab Sample IDs: 1873360, 1873361

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74669

Included Lab Sample IDs: 1873353, 1873354, 1873355, 1873356, 1873357, 1873358, 1873359, 1873360, 1873361

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	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				13.1	
EPA 350.1 Rev. 2.0	Ammonia-N	101	107	106		0.577
	Ammonia-N	102	103	99.6		3.01
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	104	105		1.26
EPA 353.2 Rev. 2.0	NO2NO3-N	104	104	106		1.74
EPA 365.1 Rev. 2.0	Total-P	96.2	92.9	90.9		2.12
	Total-P	91.2	83.9	84.4		0.578
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	96.5	97.5		0.943

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
SM 2320 B-97	Total Alkalinity	103			0.0568	
SM 2540 D-97	TSS				2.27	
	TSS				0.0	
SM 4500 F-C-97	Fluoride	99.2	97.4	98.1		0.473
SM 5310 B-00	Organic Carbon	93.1	95.9	94.6		1.32
	Organic Carbon	95.1	90.6	92.3		1.38

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1873344, 1873345, 1873346, 1873347, 1873348, 1873349, 1873350, 1873351, 1873352
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1873353, 1873354, 1873355, 1873356, 1873357, 1873358, 1873359, 1873360, 1873361
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1873353, 1873354, 1873355, 1873356, 1873357, 1873358, 1873359, 1873360, 1873361
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1873353, 1873354, 1873355, 1873356, 1873357, 1873358, 1873359, 1873360, 1873361
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1873353, 1873354, 1873355, 1873356, 1873357, 1873358, 1873359, 1873360, 1873361
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1873362, 1873363, 1873364, 1873365, 1873366, 1873367, 1873368, 1873369, 1873370
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1873344, 1873345, 1873346, 1873347, 1873348, 1873349, 1873350, 1873351, 1873352
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1873344, 1873345, 1873346, 1873347, 1873348, 1873349, 1873350, 1873351, 1873352
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1873344, 1873345, 1873346, 1873347, 1873348, 1873349, 1873350, 1873351, 1873352
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1873353, 1873354, 1873355, 1873356, 1873357, 1873358, 1873359, 1873360, 1873361

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	02/16/2017			02/16/2017 14:44	Julie Michelle Frank	1873344, 1873345, 1873346, 1873347, 1873348, 1873349, 1873350, 1873351, 1873352
EPA 350.1 Rev. 2.0	02/16/2017			02/21/2017	Sofia Elnemr	1873353, 1873354, 1873355, 1873356, 1873357, 1873358, 1873359
EPA 351.2 Rev. 2.0	02/16/2017	02/17/2017	Adrian Shelby	02/22/2017 02/21/2017	Sofia Elnemr Joseph Suarez	1873360, 1873361 1873353, 1873354, 1873355, 1873356, 1873357, 1873358, 1873359, 1873360, 1873361
EPA 353.2 Rev. 2.0	02/16/2017			02/23/2017	Beverly Y. Sanders	1873353, 1873354, 1873355, 1873356, 1873357, 1873358, 1873359, 1873360, 1873361
EPA 365.1 Rev. 2.0	02/16/2017	02/17/2017	Vijayalakshmi Reddy	02/21/2017	Lipi Saha	1873353, 1873354, 1873355, 1873356, 1873357, 1873358
EPA 365.1 Rev. 2.0 dissolved	02/16/2017	02/21/2017	Adrian Shelby	02/22/2017	Lipi Saha	1873359, 1873360, 1873361
	02/16/2017			02/16/2017 16:04	Julia Storbeck	1873362
	02/16/2017			02/16/2017 16:12	Julia Storbeck	1873363
	02/16/2017			02/16/2017 16:13	Julia Storbeck	1873364
	02/16/2017			02/16/2017 16:14	Julia Storbeck	1873365
	02/16/2017			02/16/2017 16:15	Julia Storbeck	1873366
	02/16/2017			02/16/2017 16:16	Julia Storbeck	1873367, 1873368
	02/16/2017			02/16/2017 16:17	Julia Storbeck	1873369
	02/16/2017			02/16/2017 16:18	Julia Storbeck	1873370
SM 2320 B-97	02/16/2017			02/21/2017	Dale L. Simmons	1873348
	02/16/2017			02/22/2017	Dale L. Simmons	1873344, 1873345, 1873346, 1873347, 1873349, 1873350, 1873351, 1873352
SM 2540 D-97	02/16/2017			02/20/2017	Sima Feizi	1873344, 1873345, 1873346, 1873347, 1873348, 1873349, 1873350, 1873351, 1873352
SM 4500 F-C-97	02/16/2017			02/21/2017	Dale L. Simmons	1873344, 1873345, 1873346, 1873347, 1873348, 1873349, 1873350, 1873351, 1873352
SM 5310 B-00	02/16/2017			02/17/2017	Julie Michelle Frank	1873357
	02/16/2017			02/18/2017	Julie Michelle Frank	1873353, 1873354, 1873355, 1873356, 1873358, 1873359, 1873360, 1873361