

Chemical Analysis Report

CEN-DIST-2019-12-03-01

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

Event Description: **Spring Garden Crk + D&B**
Request ID: **RQ-2019-10-14-41**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
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3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 19-DEC-2019 08:44

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the "T" and a long horizontal stroke at the end.

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: Spring Garden Creek @ 200m US of Lake Woodruff

Collection Date/Time: 12/02/2019 12:10

Field ID: G2CE0081

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2140070	EPA 180.1 Rev. 2.0	Turbidity	8.7		NTU	P375361	
	EPA 300.0 Rev. 2.1	Chloride	170		mg Cl/L	P375406	
		Sulfate	25		mg SO4/L	P375410	
	SM 2120 B	Color (true)	280		PCU	P375438	
	SM 2320 B-97	Total Alkalinity	68		mg CaCO3/L	P375319	
	SM 2540 C-97	TDS	416		mg/L	P375772	
	SM 2540 D-97	TSS	16		mg/L	P375884	
	SM 4500 F-C-97	Fluoride	0.086	I	mg F/L	P375322	
2140071	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P375579	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P375327	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P375427	
	EPA 365.1 Rev. 2.0	Total-P	0.079		mg P/L	P375337	
	SM 5310 B-00	Organic Carbon	28		mg C/L	P375240	
2140072	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.028		mg P/L	P375148	

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: Spring Garden Creek @ 200m US of Lake Woodruff

Collection Date/Time: 12/02/2019 12:15

Field ID: G2CE0081_Dup

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2140073	EPA 180.1 Rev. 2.0	Turbidity	8.4		NTU	P375361	
	EPA 300.0 Rev. 2.1	Chloride	170		mg Cl/L	P375407	
		Sulfate	25		mg SO4/L	P375411	
	SM 2120 B	Color (true)	280		PCU	P375438	
	SM 2320 B-97	Total Alkalinity	68		mg CaCO3/L	P375319	
	SM 2540 C-97	TDS	443		mg/L	P375772	
	SM 2540 D-97	TSS	16		mg/L	P375884	
	SM 4500 F-C-97	Fluoride	0.085	I	mg F/L	P375322	
2140074	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P375579	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P375327	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P375427	
	EPA 365.1 Rev. 2.0	Total-P	0.081		mg P/L	P375337	
	SM 5310 B-00	Organic Carbon	28		mg C/L	P375240	
2140075	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.027		mg P/L	P375148	

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: Field Blank

Collection Date/Time: 12/02/2019 12:41

Field ID: FB_12022019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2140076	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P375361	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P375407	
		Sulfate	0.20	U	mg SO4/L	P375411	
	SM 2120 B	Color (true)	2.5	U	PCU	P375438	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P375319	
	SM 2540 C-97	TDS	15	U	mg/L	P375770	
	SM 2540 D-97	TSS	2	U	mg/L	P375882	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P375322	
2140077	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P375580	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P375342	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P375427	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P375337	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P375240	
2140078	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P375148	

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: P375361

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375406

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375407

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375410

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375411

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375579

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375580

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375327

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375342

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P375427

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375337

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P375148

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

Reference Method: SM 2120 B
Batch ID: P375438

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P375319

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

Reference Method: SM 2540 C-97
Batch ID: P375770

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P375772

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P375882

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P375884

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P375322

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P375240

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375406

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375407

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375410

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375411

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375579

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: P375580

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: P375327

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375342

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P375427

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	96.5		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375337

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P375148

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

Reference Method: SM 2120 B
Batch ID: P375438

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.9		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P375319

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P375322

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P375240

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375406

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139761	Chloride	103		P	90 - 110
2139982	Chloride	99.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375407

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2140086	Chloride	102		P	90 - 110
2140215	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375410

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139761	Sulfate	99.8		P	90 - 110
2139982	Sulfate	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375411

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2140086	Sulfate	103		P	90 - 110
2140215	Sulfate	99.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375579

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139991	Ammonia-N	101	95.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375580

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2140202	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375327

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139991	Kjeldahl Nitrogen	99.9	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375342

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2140202	Kjeldahl Nitrogen	99.9	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P375427

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: P375427

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2140089	NO2NO3-N	96.5	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375337

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2140071	Total-P	104	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P375148

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139938	O-Phosphate-P	98.1	97.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P375322

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2140216	Fluoride	98.0	98.0	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P375240

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2140088	Organic Carbon	99.0	99.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P375361

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2140086	Turbidity	1.85	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375406

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139761	Chloride	0.418	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375407

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2140086	Chloride	1.01	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375410

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139761	Sulfate	0.817	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2140086	Sulfate	1.45	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375579

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139991	Ammonia-N	5.77	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375580

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2140202	Ammonia-N	0.711	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375327

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139991	Kjeldahl Nitrogen	0.178	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375342

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2140202	Kjeldahl Nitrogen	4.35	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P375427

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2140089	NO2NO3-N	0.255	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375337

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2140071	Total-P	3.48	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P375148

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139938	O-Phosphate-P	0.319	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P375438

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139984	Color (true)	1.03	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P375319

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2140216	Total Alkalinity	0.0597	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P375770

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139969	TDS	3.97	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P375772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139985	TDS	2.45	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P375322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2140216	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P375240

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2140088	Organic Carbon	0.233	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A96079

Included Lab Sample IDs: 2140072, 2140075, 2140078

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	92.8	92.3	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A96087

Included Lab Sample IDs: 2140070, 2140073, 2140076

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

Reference Method: SM 2120 B

Run ID: A96091

Included Lab Sample IDs: 2140070, 2140073

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	105	103	P/P	90 - 115

Reference Method: SM 5310 B-00

Run ID: A96117

Included Lab Sample IDs: 2140071, 2140074, 2140077

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A96118

Included Lab Sample IDs: 2140070, 2140073, 2140076

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A96122

Included Lab Sample IDs: 2140071, 2140074, 2140077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110
NO2NO3-N	102	104	P/P	90 - 110
NO2NO3-N	98.0	100	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A96148

Included Lab Sample IDs: 2140070, 2140073, 2140076

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A96148

Included Lab Sample IDs: 2140070, 2140073, 2140076

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	99.1	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A96192

Included Lab Sample IDs: 2140076

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	105	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A96193

Included Lab Sample IDs: 2140071, 2140074

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A96197

Included Lab Sample IDs: 2140077

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A96219

Included Lab Sample IDs: 2140071, 2140074, 2140077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	105	P/P	90 - 110
Kjeldahl Nitrogen	105	99.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A96246

Included Lab Sample IDs: 2140071, 2140074, 2140077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	103	P/P	90 - 110
Ammonia-N	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	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				1.85	
EPA 300.0 Rev. 2.1	Chloride	103	103	99.6	0.418	
	Chloride	104	102	103	1.01	
	Sulfate	102	99.8	102	0.817	
	Sulfate	103	103	99.6	1.45	
EPA 350.1 Rev. 2.0	Ammonia-N	101	101	95.2		5.77
	Ammonia-N	102	101	102		0.711
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	99.9	99.6		0.178
	Kjeldahl Nitrogen	105	99.9	105		4.35
EPA 353.2 Rev. 2.0	NO2NO3-N	96.5	96.5	97.0		0.255
EPA 365.1 Rev. 2.0	Total-P	103	104	99.4		3.48
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	98.1	97.7		0.319
SM 2120 B	Color (true)	99.9			1.03	
SM 2320 B-97	Total Alkalinity	103			0.0597	
SM 2540 C-97	TDS				3.97	
	TDS				2.45	
SM 4500 F-C-97	Fluoride	97.2	98.0	98.0		0.0
SM 5310 B-00	Organic Carbon	100	99.0	99.4		0.233

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2140070, 2140073, 2140076
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2140070, 2140073, 2140076
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2140070, 2140073, 2140076
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2140071, 2140074, 2140077
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2140071, 2140074, 2140077
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2140071, 2140074, 2140077
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2140071, 2140074, 2140077
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2140072, 2140075, 2140078
SM 2120 B / E31780	True Color measured at 450 nm	2140070, 2140073, 2140076
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2140070, 2140073, 2140076
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2140070, 2140073, 2140076
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2140070, 2140073, 2140076
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2140070, 2140073, 2140076
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2140071, 2140074, 2140077

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	12/03/2019			12/03/2019 16:39	Yen Ta	2140070, 2140073, 2140076
EPA 300.0 Rev. 2.1	12/03/2019			12/07/2019 10:24	Jhamieka S. Greenwood	2140070
	12/03/2019			12/07/2019 12:25	Jhamieka S. Greenwood	2140073
	12/03/2019			12/07/2019 12:37	Jhamieka S. Greenwood	2140076
EPA 350.1 Rev. 2.0	12/03/2019			12/10/2019 11:38	Ping Hua	2140071
	12/03/2019			12/10/2019 11:40	Ping Hua	2140074
	12/03/2019			12/10/2019 11:58	Ping Hua	2140077
EPA 351.2 Rev. 2.0	12/03/2019	12/06/2019 12:22	Sima Feizi	12/09/2019 13:59	Jhamieka S. Greenwood	2140071
	12/03/2019	12/06/2019 12:22	Sima Feizi	12/09/2019 14:01	Jhamieka S. Greenwood	2140074
	12/03/2019	12/06/2019 12:22	Sima Feizi	12/09/2019 14:13	Jhamieka S. Greenwood	2140077
EPA 353.2 Rev. 2.0	12/03/2019			12/05/2019 10:39	Beverly Y. Sanders	2140077
	12/03/2019			12/05/2019 12:10	Beverly Y. Sanders	2140071
	12/03/2019			12/05/2019 12:16	Beverly Y. Sanders	2140074
EPA 365.1 Rev. 2.0	12/03/2019	12/06/2019 14:10	Lipi Saha	12/09/2019 13:22	Benjamin T. Nordmann	2140071
	12/03/2019	12/06/2019 14:10	Lipi Saha	12/09/2019 13:26	Benjamin T. Nordmann	2140074
	12/03/2019	12/06/2019 14:10	Lipi Saha	12/09/2019 16:04	Benjamin T. Nordmann	2140077
EPA 365.1 Rev. 2.0 dissolved	12/03/2019			12/03/2019 16:48	Julia Storbeck	2140078
	12/03/2019			12/03/2019 16:49	Julia Storbeck	2140072
	12/03/2019			12/03/2019 16:50	Julia Storbeck	2140075
SM 2120 B	12/03/2019			12/03/2019 18:21	Madeline Funaro	2140076
	12/03/2019			12/03/2019 19:46	Madeline Funaro	2140070, 2140073
SM 2320 B-97	12/03/2019			12/06/2019 06:42	Dale L. Simmons	2140070
	12/03/2019			12/06/2019 06:55	Dale L. Simmons	2140073
	12/03/2019			12/06/2019 07:09	Dale L. Simmons	2140076
SM 2540 C-97	12/03/2019			12/05/2019 15:36	Yijie Li	2140070, 2140073, 2140076
SM 2540 D-97	12/03/2019			12/05/2019 15:36	Yijie Li	2140070, 2140073, 2140076
SM 4500 F-C-97	12/03/2019			12/06/2019 06:42	Dale L. Simmons	2140070
	12/03/2019			12/06/2019 06:55	Dale L. Simmons	2140073
	12/03/2019			12/06/2019 07:09	Dale L. Simmons	2140076
SM 5310 B-00	12/03/2019			12/05/2019 01:55	Madeline Funaro	2140071
	12/03/2019			12/05/2019 02:09	Madeline Funaro	2140074
	12/03/2019			12/05/2019 02:23	Madeline Funaro	2140077