

Chemical Analysis Report

SW-DIST-2019-07-11-01

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

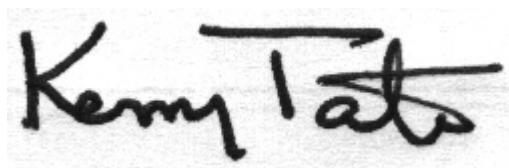
Event Description: **Run 13 Citrus & Hernando**
Request ID: **RQ-2019-07-15-07**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 30-JUL-2019 13:30

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" in "Tate".

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: BLUE SPRINGS RUN

Collection Date/Time: 07/10/2019 10:40

Field ID: G4SW0100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2102049	EPA 180.1 Rev. 2.0	Turbidity	0.20		NTU	P367119	
	EPA 300.0 Rev. 2.1	Chloride	7.2		mg Cl/L	P367302	
		Sulfate	15		mg SO4/L	P367304	
	SM 2120 B	Color (true)	2.5	U	PCU	P367108	
	SM 2320 B-97	Total Alkalinity	162	A	mg CaCO3/L	P367553	
	SM 2540 C-97	TDS	194	A	mg/L	P367440	
	SM 2540 D-97	TSS	2	UA	mg/L	P367240	
	SM 4500 F-C-97	Fluoride	0.051	I	mg F/L	P367558	
2102053	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P367429	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.15	I	mg N/L	P367372	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.79		mg N/L	P367142	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P367213	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P367488	
2102057	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.027		mg P/L	P367100	

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: CATO LAKE SOUTH

Collection Date/Time: 07/10/2019 11:45

Field ID: G4SW0102

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2102050	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P367120	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P367302	
		Sulfate	0.20	U	mg SO4/L	P367304	
	SM 2120 B	Color (true)	30	A	PCU	P367108	
	SM 2320 B-97	Total Alkalinity	143		mg CaCO3/L	P367553	
	SM 2540 C-97	TDS	203		mg/L	P367440	
	SM 2540 D-97	TSS	2	I	mg/L	P367240	
	SM 4500 F-C-97	Fluoride	0.085	I	mg F/L	P367558	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P367629	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.82		mg N/L	P367372	
2102054	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P367142	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P367213	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P367488	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P367100	
	dissolved						

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: IRVIN LAKE CENTER

Collection Date/Time: 07/10/2019 13:50

Field ID: G4SW0025

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2102051	EPA 180.1 Rev. 2.0	Turbidity	7.0	A	NTU	P367120	
	EPA 300.0 Rev. 2.1	Chloride	7.0		mg Cl/L	P367302	
		Sulfate	3.8		mg SO4/L	P367304	
	SM 2120 B	Color (true)	65		PCU	P367108	
	SM 2320 B-97	Total Alkalinity	58		mg CaCO3/L	P367553	
	SM 2540 C-97	TDS	97		mg/L	P367440	
	SM 2540 D-97	TSS	10		mg/L	P367240	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P367558	
2102055	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P367629	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.98		mg N/L	P367372	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P367142	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P367213	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P367488	
2102059	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P367100	

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: MCKETHAN LAKE @ CENTER

Collection Date/Time: 07/10/2019 12:50

Field ID: G4SW0021

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2102052	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P367120	
	EPA 300.0 Rev. 2.1	Chloride	1.9		mg Cl/L	P367302	
		Sulfate	0.20	U	mg SO4/L	P367304	
	SM 2120 B	Color (true)	13		PCU	P367109	
	SM 2320 B-97	Total Alkalinity	7.4		mg CaCO3/L	P367553	
	SM 2540 C-97	TDS	26		mg/L	P367440	
	SM 2540 D-97	TSS	2	U	mg/L	P367240	
	SM 4500 F-C-97	Fluoride	0.042	I	mg F/L	P367558	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P367629	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.61		mg N/L	P367372	
2102056	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P367143	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P367213	
	SM 5310 B-00	Organic Carbon	6.6		mg C/L	P367488	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P367101	
	dissolved						

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: P367119

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P367120

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367302

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367304

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P367429

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P367629

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P367372

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367142

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367143

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367213

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367100

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367101

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

Reference Method: SM 2120 B
Batch ID: P367108

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P367109

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P367553

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

Reference Method: SM 2540 C-97
Batch ID: P367440

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P367240

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P367558

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: P367488

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: P367302

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367304

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P367429

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P367629

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	109		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P367372

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367142

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367143

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367213

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367100

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.8		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367101

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.4		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P367108

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

Reference Method: SM 2120 B
Batch ID: P367109

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	103		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P367553

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

Reference Method: SM 4500 F-C-97
Batch ID: P367558

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P367488

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367302

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2101847	Chloride	97.7		P	90 - 110
2102049	Chloride	99.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367304

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2101847	Sulfate	99.3		P	90 - 110
2102049	Sulfate	99.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P367429

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2101914	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P367629

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2102054	Ammonia-N	104	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P367372

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2101860	Kjeldahl Nitrogen	99.8	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367142

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2101960	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367143

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2102056	NO2NO3-N	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367213

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2102053	Total-P	108	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367100

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2101981	O-Phosphate-P	97.5	97.9	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367101

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2102060	O-Phosphate-P	95.8	96.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P367558

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2102049	Fluoride	95.7	95.7	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P367488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2102054	Organic Carbon	97.8	98.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P367119

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2102022	Turbidity	1.46	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P367120

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2102051	Turbidity	2.85	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367302

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101847	Chloride	0.0650	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P367304

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101847	Sulfate	0.130	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P367429

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101914	Ammonia-N	0.659	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P367629

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2102054	Ammonia-N	1.47	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P367372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101860	Kjeldahl Nitrogen	2.42	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367142

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101960	NO2NO3-N	0.480	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P367143

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2102056	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P367213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2102053	Total-P	4.65	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367100

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2101981	O-Phosphate-P	0.409	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P367101

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2102060	O-Phosphate-P	0.209	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P367108

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2102050	Color (true)	1.22	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P367109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2102112	Color (true)	4.07	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P367553

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2102049	Total Alkalinity	0.263	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P367440

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2102049	TDS	0.514	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P367558

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2102049	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P367488

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2102054	Organic Carbon	0.401	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: A92716

Included Lab Sample IDs: 2102057, 2102058, 2102059, 2102060

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.7	96.8	P/P	90 - 110
O-Phosphate-P	98.7	98.2	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A92718

Included Lab Sample IDs: 2102049, 2102050, 2102051, 2102052

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	90 - 115
Color (true)	101	102	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A92721

Included Lab Sample IDs: 2102049, 2102050, 2102051, 2102052

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	101	P/P	95 - 105
Turbidity	102	102	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A92730

Included Lab Sample IDs: 2102053, 2102054, 2102055, 2102056

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A92780

Included Lab Sample IDs: 2102055

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A92790

Included Lab Sample IDs: 2102053, 2102054, 2102056

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A92796

Included Lab Sample IDs: 2102049, 2102050, 2102051, 2102052

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Chloride	101	106	P/P	90 - 110
Sulfate	101	102	P/P	90 - 110
Sulfate	102	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A92838

Included Lab Sample IDs: 2102053

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

Reference Method: SM 5310 B-00

Run ID: A92860

Included Lab Sample IDs: 2102053, 2102054, 2102055, 2102056

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A92880

Included Lab Sample IDs: 2102053, 2102054, 2102055, 2102056

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	95.9	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A92887

Included Lab Sample IDs: 2102049, 2102050, 2102051, 2102052

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

Reference Method: SM 4500 F-C-97

Run ID: A92887

Included Lab Sample IDs: 2102049, 2102050, 2102051, 2102052

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.7	99.0	P/P	90 - 110
Fluoride	98.6	100	P/P	90 - 110
Fluoride	99.0	98.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A92906

Included Lab Sample IDs: 2102054, 2102055, 2102056

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	103	P/P	90 - 110
Ammonia-N	103	102	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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					1.46	
	Turbidity					2.85	
EPA 300.0 Rev. 2.1	Chloride	98.7	97.7	99.6		0.0650	
	Sulfate	99.5	99.3	99.4		0.130	
EPA 350.1 Rev. 2.0	Ammonia-N	104	102	101			0.659
	Ammonia-N	109	104	102			1.47
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.6	99.8	103			2.42
EPA 353.2 Rev. 2.0	NO2NO3-N	104	104	104			0.480
	NO2NO3-N	106	106	106			0.0
EPA 365.1 Rev. 2.0	Total-P	105	108	103			4.65
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.8	97.5	97.9			0.409
	O-Phosphate-P	99.4	95.8	96.0			0.209
SM 2120 B	Color (true)	102				1.22	
	Color (true)	103				4.07	
SM 2320 B-97	Total Alkalinity	104				0.263	
SM 2540 C-97	TDS					0.514	
SM 4500 F-C-97	Fluoride	96.9	95.7	95.7			0.0
SM 5310 B-00	Organic Carbon	97.8	97.8	98.4			0.401

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2102049, 2102050, 2102051, 2102052
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2102049, 2102050, 2102051, 2102052
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2102049, 2102050, 2102051, 2102052
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2102053, 2102054, 2102055, 2102056
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2102053, 2102054, 2102055, 2102056
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2102053, 2102054, 2102055, 2102056
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2102053, 2102054, 2102055, 2102056
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2102057, 2102058, 2102059, 2102060
SM 2120 B / E31780	True Color measured at 450 nm	2102049, 2102050, 2102051, 2102052
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2102049, 2102050, 2102051, 2102052
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2102049, 2102050, 2102051, 2102052
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2102049, 2102050, 2102051, 2102052
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2102049, 2102050, 2102051, 2102052
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2102053, 2102054, 2102055, 2102056

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	07/11/2019			07/11/2019 17:53	Samantha Davila	2102049, 2102050, 2102051, 2102052
EPA 300.0 Rev. 2.1	07/11/2019			07/15/2019 23:35	Jhamieka S. Greenwood	2102049
	07/11/2019			07/16/2019 03:38	Jhamieka S. Greenwood	2102050
	07/11/2019			07/16/2019 03:50	Jhamieka S. Greenwood	2102051
	07/11/2019			07/16/2019 04:02	Jhamieka S. Greenwood	2102052
EPA 350.1 Rev. 2.0	07/11/2019			07/17/2019 16:02	Virginia P. Brown	2102053
	07/11/2019			07/19/2019 12:08	Virginia P. Brown	2102054
	07/11/2019			07/19/2019 12:19	Virginia P. Brown	2102055
	07/11/2019			07/19/2019 12:20	Virginia P. Brown	2102056
EPA 351.2 Rev. 2.0	07/11/2019	07/17/2019 12:50	Adrian Shelby	07/18/2019 13:59	Joseph Suarez	2102053
	07/11/2019	07/17/2019 12:50	Adrian Shelby	07/18/2019 14:00	Joseph Suarez	2102054
	07/11/2019	07/17/2019 12:50	Adrian Shelby	07/18/2019 14:02	Joseph Suarez	2102055
	07/11/2019	07/17/2019 12:50	Adrian Shelby	07/18/2019 14:03	Joseph Suarez	2102056
EPA 353.2 Rev. 2.0	07/11/2019			07/12/2019 12:27	Beverly Y. Sanders	2102053
	07/11/2019			07/12/2019 12:29	Beverly Y. Sanders	2102054
	07/11/2019			07/12/2019 12:30	Beverly Y. Sanders	2102055
	07/11/2019			07/12/2019 12:37	Beverly Y. Sanders	2102056
EPA 365.1 Rev. 2.0	07/11/2019	07/15/2019 12:55	Sima Feizi	07/16/2019 09:02	Lipi Saha	2102055
	07/11/2019	07/15/2019 12:55	Sima Feizi	07/16/2019 11:18	Lipi Saha	2102053
	07/11/2019	07/15/2019 12:55	Sima Feizi	07/16/2019 11:30	Lipi Saha	2102054, 2102056
EPA 365.1 Rev. 2.0 dissolved	07/11/2019			07/11/2019 16:14	Jhamieka S. Greenwood	2102060
	07/11/2019			07/11/2019 16:49	Jhamieka S. Greenwood	2102058, 2102059
	07/11/2019			07/11/2019 16:52	Jhamieka S. Greenwood	2102057
SM 2120 B	07/11/2019			07/11/2019 16:59	Madeline Funaro	2102049
	07/11/2019			07/11/2019 17:01	Madeline Funaro	2102050
	07/11/2019			07/11/2019 17:02	Madeline Funaro	2102051
	07/11/2019			07/11/2019 17:06	Madeline Funaro	2102052
SM 2320 B-97	07/11/2019			07/18/2019 05:01	Dale L. Simmons	2102049
	07/11/2019			07/18/2019 09:19	Dale L. Simmons	2102050
	07/11/2019			07/18/2019 09:31	Dale L. Simmons	2102051
	07/11/2019			07/18/2019 10:13	Dale L. Simmons	2102052
SM 2540 C-97	07/11/2019			07/12/2019 20:35	Rosalyn Ballman	2102049, 2102050, 2102051, 2102052
SM 2540 D-97	07/11/2019			07/12/2019 20:35	Rosalyn Ballman	2102049, 2102050, 2102051, 2102052
SM 4500 F-C-97	07/11/2019			07/18/2019 04:50	Dale L. Simmons	2102049
	07/11/2019			07/18/2019 09:19	Dale L. Simmons	2102050
	07/11/2019			07/18/2019 09:31	Dale L. Simmons	2102051
	07/11/2019			07/18/2019 10:13	Dale L. Simmons	2102052
SM 5310 B-00	07/11/2019			07/17/2019 16:10	Madeline Funaro	2102054
	07/11/2019			07/17/2019 16:59	Madeline Funaro	2102056
	07/11/2019			07/17/2019 18:43	Madeline Funaro	2102053

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	07/11/2019			07/17/2019 18:55	Madeline Funaro	2102055