

Chemical Analysis Report

CEN-DIST-2019-10-22-01

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

Event Description: **Spring Garden Creek + D&B**
Request ID: **RQ-2019-09-30-82**
Customer: **CEN-DIST**
Project ID: **SMP**

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

Date Certified: 07-NOV-2019 14:15

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: 10/21/2019 11:45

Field ID: G2CE0081

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2130244	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P372958	
	EPA 300.0 Rev. 2.1	Chloride	76		mg Cl/L	P373692	
		Sulfate	10		mg SO4/L	P373695	
	SM 2120 B	Color (true)	440		PCU	P372942	
	SM 2320 B-97	Total Alkalinity	48		mg CaCO3/L	P373213	
	SM 2540 C-97	TDS	247	A	mg/L	P373319	
	SM 2540 D-97	TSS	5	IA	mg/L	P373290	
	SM 4500 F-C-97	Fluoride	0.057	I	mg F/L	P373218	
2130245	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P373189	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P373133	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P373122	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P373137	
	SM 5310 B-00	Organic Carbon	41		mg C/L	P373167	
2130246	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.14		mg P/L	P372950	

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: 10/21/2019 11:50

Field ID: G2CE0081_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2130247	EPA 180.1 Rev. 2.0	Turbidity	2.9	AJ	NTU	P372959	RPD
	EPA 300.0 Rev. 2.1	Chloride	76		mg Cl/L	P373692	
		Sulfate	10		mg SO4/L	P373695	
	SM 2120 B	Color (true)	440		PCU	P372942	
	SM 2320 B-97	Total Alkalinity	48		mg CaCO3/L	P373213	
	SM 2540 C-97	TDS	264	A	mg/L	P373321	
	SM 2540 D-97	TSS	6	IA	mg/L	P373292	
	SM 4500 F-C-97	Fluoride	0.059	I	mg F/L	P373218	
2130248	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P373189	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P373133	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P373122	
	EPA 365.1 Rev. 2.0	Total-P	0.20		mg P/L	P373137	
	SM 5310 B-00	Organic Carbon	38		mg C/L	P373167	
2130249	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.14		mg P/L	P372952	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: Refer to the Lab Analysis Report for an explanation of QC Codes.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: FB_10212019

Collection Date/Time: 10/21/2019 11:25

Field ID: FB_10212019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2130250	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P372959	RPD
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P373692	
		Sulfate	0.20	U	mg SO4/L	P373695	
	SM 2120 B	Color (true)	2.5	U	PCU	P372943	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P373213	
	SM 2540 C-97	TDS	15	U	mg/L	P373315	
	SM 2540 D-97	TSS	2	U	mg/L	P373286	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P373218	
2130251	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P373189	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P373133	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P373123	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P373137	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P373167	
2130252	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P372952	

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: P372958

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P372959

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373692

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373695

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373189

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373133

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373122

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373123

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373137

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372950

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372952

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

Reference Method: SM 2120 B
Batch ID: P372942

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P372943

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P373213

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

Reference Method: SM 2540 C-97
Batch ID: P373315

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P373319

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P373321

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P373286

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P373290

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P373292

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P373218

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P373167

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: P373692

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373695

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373189

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373133

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.7		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373122

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373123

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: P373137

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: P372950

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372952

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.7		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P372942

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.7		P	85 - 115

Reference Method: SM 2120 B
Batch ID: P372943

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.1		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P373213

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

Reference Method: SM 4500 F-C-97
Batch ID: P373218

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.8		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P373167

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373692

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130301	Chloride	99.7	100	P/P	90 - 110
2130456	Chloride	99.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373695

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130301	Sulfate	98.4	99.4	P/P	90 - 110
2130456	Sulfate	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373189

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130302	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373133

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130212	Kjeldahl Nitrogen	95.7	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373122

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130116	NO2NO3-N	97.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373123

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130302	NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373137

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130245	Total-P	98.2	96.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372950

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130113	O-Phosphate-P	98.2	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372952

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130325	O-Phosphate-P	97.2	98.3	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P373218

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130203	Fluoride	96.7	95.9	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P373167

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130327	Organic Carbon	95.6	103	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P372958

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130127	Turbidity	8.49	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P372959

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130247	Turbidity	34.4	Sample	F	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373692

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130301	Chloride	0.507	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130301	Sulfate	0.971	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373189

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130302	Ammonia-N	0.910	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373133

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130212	Kjeldahl Nitrogen	3.38	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373122

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130116	NO2NO3-N	0.224	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373123

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130302	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373137

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130245	Total-P	0.877	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372950

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130113	O-Phosphate-P	2.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130325	O-Phosphate-P	0.694	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P372942

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130114	Color (true)	1.29	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P372943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130301	Color (true)	2.46	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P373213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130203	Total Alkalinity	0.276	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P373315

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2129374	TDS	5.98	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P373319

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130244	TDS	5.67	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P373321

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130247	TDS	1.13	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P373218

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130203	Fluoride	0.520	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P373167

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130327	Organic Carbon	5.17	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A95155

Included Lab Sample IDs: 2130244, 2130247, 2130250

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	99.1	P/P	90 - 115
Color (true)	99.5	99.7	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A95157

Included Lab Sample IDs: 2130246, 2130249, 2130252

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.7	99.4	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A95160

Included Lab Sample IDs: 2130244, 2130247, 2130250

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	98.5	P/P	95 - 105
Turbidity	98.5	98.0	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A95239

Included Lab Sample IDs: 2130245, 2130248, 2130251

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

Reference Method: SM 5310 B-00

Run ID: A95256

Included Lab Sample IDs: 2130245, 2130248, 2130251

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A95266

Included Lab Sample IDs: 2130245, 2130248, 2130251

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.5	97.7	P/P	90 - 110
Ammonia-N	97.7	97.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A95274

Included Lab Sample IDs: 2130244, 2130247, 2130250

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A95274

Included Lab Sample IDs: 2130244, 2130247, 2130250

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	98.1	P/P	90 - 110
Fluoride	98.1	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A95286

Included Lab Sample IDs: 2130245, 2130248, 2130251

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A95289

Included Lab Sample IDs: 2130251

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A95305

Included Lab Sample IDs: 2130245, 2130248

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A95482

Included Lab Sample IDs: 2130244, 2130247, 2130250

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	104	103	P/P	90 - 110
Sulfate	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			Precision	
						LCS	MS
EPA 180.1 Rev. 2.0	Turbidity					8.49	
	Turbidity					34.4	
EPA 300.0 Rev. 2.1	Chloride	99.3	99.7	100	99.7		0.507
	Sulfate	98.6	98.4	99.4	98.7		0.971
EPA 350.1 Rev. 2.0	Ammonia-N	96.4	101	102			0.910
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	93.7	95.7	100			3.38
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	97.8				0.224
	NO2NO3-N	100	99.5	99.5			0.0
EPA 365.1 Rev. 2.0	Total-P	103	98.2	96.9			0.877
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.1	98.2	100			2.02
	O-Phosphate-P	96.7	97.2	98.3			0.694
SM 2120 B	Color (true)	98.7				1.29	
	Color (true)	99.1				2.46	
SM 2320 B-97	Total Alkalinity	103				0.276	
SM 2540 C-97	TDS					5.98	
	TDS					5.67	
	TDS					1.13	
SM 4500 F-C-97	Fluoride	94.8	96.7	95.9			0.520
SM 5310 B-00	Organic Carbon	98.8	95.6	103			5.17

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2130244, 2130247, 2130250
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2130244, 2130247, 2130250
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2130244, 2130247, 2130250
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2130245, 2130248, 2130251
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2130245, 2130248, 2130251
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2130245, 2130248, 2130251
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2130245, 2130248, 2130251
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2130246, 2130249, 2130252
SM 2120 B / E31780	True Color measured at 450 nm	2130244, 2130247, 2130250
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2130244, 2130247, 2130250
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2130244, 2130247, 2130250
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2130244, 2130247, 2130250
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2130244, 2130247, 2130250
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2130245, 2130248, 2130251

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	10/22/2019			10/22/2019 17:00	Rosalyn Ballman	2130244, 2130247, 2130250
EPA 300.0 Rev. 2.1	10/22/2019			11/01/2019 02:48	Jhamieka S. Greenwood	2130244
	10/22/2019			11/01/2019 03:00	Jhamieka S. Greenwood	2130247
	10/22/2019			11/01/2019 03:12	Jhamieka S. Greenwood	2130250
EPA 350.1 Rev. 2.0	10/22/2019			10/24/2019 13:48	Ping Hua	2130245
	10/22/2019			10/24/2019 13:50	Ping Hua	2130248
	10/22/2019			10/24/2019 14:00	Ping Hua	2130251
EPA 351.2 Rev. 2.0	10/22/2019	10/25/2019 10:55	Sima Feizi	10/28/2019 13:57	Jhamieka S. Greenwood	2130245
	10/22/2019	10/25/2019 10:55	Sima Feizi	10/28/2019 13:59	Jhamieka S. Greenwood	2130248
	10/22/2019	10/25/2019 10:55	Sima Feizi	10/28/2019 14:00	Jhamieka S. Greenwood	2130251
EPA 353.2 Rev. 2.0	10/22/2019			10/25/2019 10:12	Beverly Y. Sanders	2130245
	10/22/2019			10/25/2019 10:13	Beverly Y. Sanders	2130248
	10/22/2019			10/25/2019 10:28	Beverly Y. Sanders	2130251
EPA 365.1 Rev. 2.0	10/22/2019	10/25/2019 14:30	Lipi Saha	10/28/2019 10:39	Lipi Saha	2130245
	10/22/2019	10/25/2019 14:30	Lipi Saha	10/28/2019 10:42	Lipi Saha	2130248
	10/22/2019	10/25/2019 14:30	Lipi Saha	10/28/2019 16:29	Lipi Saha	2130251
EPA 365.1 Rev. 2.0 dissolved	10/22/2019			10/22/2019 15:39	Virginia P. Brown	2130246
	10/22/2019			10/22/2019 15:40	Virginia P. Brown	2130249
	10/22/2019			10/22/2019 15:41	Virginia P. Brown	2130252
SM 2120 B	10/22/2019			10/22/2019 18:20	Madeline Funaro	2130250
	10/22/2019			10/22/2019 18:46	Madeline Funaro	2130244, 2130247
SM 2320 B-97	10/22/2019			10/26/2019 01:37	Dale L. Simmons	2130244
	10/22/2019			10/26/2019 02:34	Dale L. Simmons	2130247
	10/22/2019			10/26/2019 02:48	Dale L. Simmons	2130250
SM 2540 C-97	10/22/2019			10/23/2019 14:58	Yijie Li	2130244, 2130247, 2130250
SM 2540 D-97	10/22/2019			10/23/2019 14:58	Yijie Li	2130244, 2130247, 2130250
SM 4500 F-C-97	10/22/2019			10/26/2019 01:37	Dale L. Simmons	2130244
	10/22/2019			10/26/2019 02:34	Dale L. Simmons	2130247
	10/22/2019			10/26/2019 02:48	Dale L. Simmons	2130250
SM 5310 B-00	10/22/2019			10/24/2019 23:59	Madeline Funaro	2130245
	10/22/2019			10/25/2019 00:19	Madeline Funaro	2130248
	10/22/2019			10/25/2019 00:35	Madeline Funaro	2130251