

Chemical Analysis Report

SW-DIST-2019-10-23-01

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-2019-10-21-02**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Ben Paswater

For additional information please contact
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Certified by: Colin Wright, Program Administrator

Date Certified: 08-NOV-2019 15:20



NON-CONFORMANCE REPORT INCLUDED

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: 10/22/2019 10:30

Field ID: G4SW0100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2130536	EPA 180.1 Rev. 2.0	Turbidity	0.15		NTU	P373058	
	EPA 300.0 Rev. 2.1	Chloride	7.4		mg Cl/L	P373693	
		Sulfate	13		mg SO4/L	P373696	
	SM 2120 B	Color (true)	2.5	U	PCU	P373098	
	SM 2320 B-97	Total Alkalinity	169	A	mg CaCO3/L	P373214	
	SM 2540 C-97	TDS	188		mg/L	P373593	
	SM 2540 D-97	TSS	2	I	mg/L	P373648	
	SM 4500 F-C-97	Fluoride	0.047	I	mg F/L	P373219	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P373268	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.18	I	mg N/L	P373135	
2130540	EPA 353.2 Rev. 2.0	NO2NO3-N	0.68		mg N/L	P373125	
	EPA 365.1 Rev. 2.0	Total-P	0.033		mg P/L	P373141	
	SM 5310 B-00	Organic Carbon	0.60	I	mg C/L	P373175	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.027		mg P/L	P373029	

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: 10/22/2019 13:10

Field ID: G4SW0021

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2130537	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P373058	
	EPA 300.0 Rev. 2.1	Chloride	2.2		mg Cl/L	P373693	
		Sulfate	0.20	U	mg SO4/L	P373696	
	SM 2120 B	Color (true)	34	A	PCU	P373098	
	SM 2320 B-97	Total Alkalinity	11		mg CaCO3/L	P373214	
	SM 2540 C-97	TDS	32		mg/L	P373593	
	SM 2540 D-97	TSS	2	I	mg/L	P373648	
	SM 4500 F-C-97	Fluoride	0.038	I	mg F/L	P373219	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.006	Y	mg N/L	P373268	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66	Y	mg N/L	P373135	
2130541	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	UY	mg N/L	P373125	
	EPA 365.1 Rev. 2.0	Total-P	0.028	Y	mg P/L	P373141	
	SM 5310 B-00	Organic Carbon	8.9	Y	mg C/L	P373175	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P373029	
	dissolved						

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 351.2 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 353.2 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 365.1 Rev. 2.0: Total-P: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

SM 5310 B-00: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

Sample Location: Cato Lake South

Collection Date/Time: 10/22/2019 11:30

Field ID: G4SW0102

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2130538	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P373058	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P373693	
		Sulfate	0.20	I	mg SO4/L	P373696	
	SM 2120 B	Color (true)	32	A	PCU	P373099	
	SM 2320 B-97	Total Alkalinity	164		mg CaCO3/L	P373214	
	SM 2540 C-97	TDS	219	A	mg/L	P373594	
	SM 2540 D-97	TSS	3	IA	mg/L	P373649	
	SM 4500 F-C-97	Fluoride	0.074	I	mg F/L	P373219	
2130542	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P373268	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.97		mg N/L	P373135	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P373125	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P373141	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P373175	
2130546	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P373029	

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: 10/22/2019 14:10

Field ID: G4SW0025

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2130539	EPA 180.1 Rev. 2.0	Turbidity	8.0		NTU	P373058	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P373693	
		Sulfate	7.5		mg SO4/L	P373696	
	SM 2120 B	Color (true)	33		PCU	P373099	
	SM 2320 B-97	Total Alkalinity	130		mg CaCO3/L	P373214	
	SM 2540 C-97	TDS	157		mg/L	P373594	
	SM 2540 D-97	TSS	6	I	mg/L	P373649	
	SM 4500 F-C-97	Fluoride	0.26		mg F/L	P373219	
2130543	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P373268	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P373135	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.029		mg N/L	P373125	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P373142	
	SM 5310 B-00	Organic Carbon	9.6		mg C/L	P373175	
2130547	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P373029	

Ref. Method and Comment:

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

Non-Conformance Report

NCR ID: 7978

Event(s)

SW-DIST-2019-10-23-01

Job(s)

TLH-2019-10-23-06

Sample(s)

2130541

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Preservation Not Intact

Observation: Sample not preserved to pH < 2.

Resolution: Sample preserved in the laboratory with sulfuric acid.

H2SO4 Lot# SA9203100 | Expiration Date: 07/22/2020

Data will be qualified as appropriate.

Authorized by/Date: Joshua Ayres 10/28/2019

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P373058

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373693

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373696

Component	Result	Code	Units
Sulfate	0.20	U	mg SO ₄ /L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373268

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373135

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373125

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373141

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373142

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P373029

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2120 B
Batch ID: P373098

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P373099

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P373214

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

Reference Method: SM 2540 C-97
Batch ID: P373593

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P373594

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P373648

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P373649

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P373219

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P373175

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: P373693

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373696

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373268

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373135

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373125

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: P373141

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373142

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P373029

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

Reference Method: SM 2120 B
Batch ID: P373098

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.6		P	85 - 115

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P373099

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.5		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P373214

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

Reference Method: SM 4500 F-C-97
Batch ID: P373219

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P373175

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373693

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130490	Chloride	102		P	90 - 110
2130539	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373696

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130490	Sulfate	101		P	90 - 110
2130539	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373268

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130540	Ammonia-N	100	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373135

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130541	Kjeldahl Nitrogen	96.8	109	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373125

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130515	NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373141

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130495	Total-P	99.4	99.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373142

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130543	Total-P	99.8	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P373029

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130544	O-Phosphate-P	96.4	97.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P373219

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130536	Fluoride	95.2	94.7	P/P	89 - 106

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P373175

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2130496	Organic Carbon	99.3	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P373058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130514	Turbidity	2.87	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373693

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130490	Chloride	0.664	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P373696

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130490	Sulfate	0.730	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373268

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130540	Ammonia-N	0.823	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373135

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130541	Kjeldahl Nitrogen	7.42	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373125

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130515	NO2NO3-N	1.00	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373141

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130495	Total-P	0.470	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373142

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130543	Total-P	1.08	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P373029

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130544	O-Phosphate-P	0.969	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P373098

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130537	Color (true)	1.36	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P373099

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130538	Color (true)	3.18	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P373214

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130536	Total Alkalinity	0.201	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P373593

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130520	TDS	4.78	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P373594

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130538	TDS	3.65	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P373219

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130536	Fluoride	0.477	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P373175

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2130496	Organic Carbon	0.892	Spike	P	0 - 20

Quality Assurance Report Precision

* 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: A95195

Included Lab Sample IDs: 2130544, 2130545, 2130546, 2130547

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	98.9	P/P	90 - 110
O-Phosphate-P	98.7	99.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A95209

Included Lab Sample IDs: 2130536, 2130537, 2130538, 2130539

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A95227

Included Lab Sample IDs: 2130536, 2130537, 2130538, 2130539

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.5	99.9	P/P	90 - 115
Color (true)	99.9	100	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A95239

Included Lab Sample IDs: 2130540, 2130541, 2130542, 2130543

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

Reference Method: SM 5310 B-00

Run ID: A95259

Included Lab Sample IDs: 2130540, 2130541, 2130542, 2130543

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.4	99.6	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A95274

Included Lab Sample IDs: 2130536, 2130537, 2130538, 2130539

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	105	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A95274

Included Lab Sample IDs: 2130536, 2130537, 2130538, 2130539

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	99.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A95287

Included Lab Sample IDs: 2130540, 2130541, 2130542, 2130543

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A95287

Included Lab Sample IDs: 2130540, 2130541, 2130542, 2130543

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	100	P/P	90 - 110
Kjeldahl Nitrogen	98.5	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A95288

Included Lab Sample IDs: 2130540, 2130541, 2130542, 2130543

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A95305

Included Lab Sample IDs: 2130543

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: A95312

Included Lab Sample IDs: 2130540, 2130541, 2130542

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	99.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A95482

Included Lab Sample IDs: 2130536, 2130537, 2130538, 2130539

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	104	105	P/P	90 - 110
Chloride	105	105	P/P	90 - 110
Sulfate	104	104	P/P	90 - 110
Sulfate	104	104	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					2.87	
EPA 300.0 Rev. 2.1	Chloride	102	102	102		0.664	
	Sulfate	101	101	100		0.730	
EPA 350.1 Rev. 2.0	Ammonia-N	100	100	101			0.823
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.2	96.8	109			7.42
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	99.5	100			1.00
EPA 365.1 Rev. 2.0	Total-P	98.9	99.4	99.9			0.470
	Total-P	97.8	99.8	98.5			1.08
EPA 365.1 Rev. 2.0 dissolved SM 2120 B	O-Phosphate-P	96.7	96.4	97.6			0.969
	Color (true)	99.6				1.36	
	Color (true)	99.5				3.18	
SM 2320 B-97	Total Alkalinity	104				0.201	
SM 2540 C-97	TDS					4.78	
	TDS					3.65	
SM 4500 F-C-97	Fluoride	95.3	95.2	94.7			0.477
SM 5310 B-00	Organic Carbon	103	99.3	100			0.892

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2130536, 2130537, 2130538, 2130539
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2130536, 2130537, 2130538, 2130539
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2130536, 2130537, 2130538, 2130539
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2130540, 2130541, 2130542, 2130543
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2130540, 2130541, 2130542, 2130543
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2130540, 2130541, 2130542, 2130543
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2130540, 2130541, 2130542, 2130543
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2130544, 2130545, 2130546, 2130547
SM 2120 B / E31780	True Color measured at 450 nm	2130536, 2130537, 2130538, 2130539
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2130536, 2130537, 2130538, 2130539
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2130536, 2130537, 2130538, 2130539
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2130536, 2130537, 2130538, 2130539
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2130536, 2130537, 2130538, 2130539
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2130540, 2130541, 2130542, 2130543

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	10/23/2019			10/23/2019 15:29	Blanca Fach	2130536, 2130537, 2130538, 2130539
EPA 300.0 Rev. 2.1	10/23/2019			11/01/2019 07:26	Jhamieka S. Greenwood	2130539
	10/23/2019			11/01/2019 09:26	Jhamieka S. Greenwood	2130536
	10/23/2019			11/01/2019 09:38	Jhamieka S. Greenwood	2130537
	10/23/2019			11/01/2019 09:51	Jhamieka S. Greenwood	2130538
EPA 350.1 Rev. 2.0	10/23/2019			10/28/2019 13:35	Ping Hua	2130540
	10/23/2019			10/28/2019 13:40	Ping Hua	2130541
	10/23/2019			10/28/2019 13:41	Ping Hua	2130542
	10/23/2019			10/28/2019 13:43	Ping Hua	2130543
EPA 351.2 Rev. 2.0	10/23/2019	10/25/2019 11:38	Sima Feizi	10/28/2019 16:26	Jhamieka S. Greenwood	2130541
	10/23/2019	10/25/2019 11:38	Sima Feizi	10/28/2019 16:39	Jhamieka S. Greenwood	2130540
	10/23/2019	10/25/2019 11:38	Sima Feizi	10/28/2019 16:40	Jhamieka S. Greenwood	2130542
	10/23/2019	10/25/2019 11:38	Sima Feizi	10/28/2019 16:42	Jhamieka S. Greenwood	2130543
EPA 353.2 Rev. 2.0	10/23/2019			10/25/2019 11:15	Beverly Y. Sanders	2130540
	10/23/2019			10/25/2019 11:16	Beverly Y. Sanders	2130541
	10/23/2019			10/25/2019 11:17	Beverly Y. Sanders	2130542
	10/23/2019			10/25/2019 11:18	Beverly Y. Sanders	2130543
EPA 365.1 Rev. 2.0	10/23/2019	10/25/2019 14:30	Lipi Saha	10/28/2019 12:05	Lipi Saha	2130543
	10/23/2019	10/25/2019 14:30	Lipi Saha	10/29/2019 14:39	Lipi Saha	2130540
	10/23/2019	10/25/2019 14:30	Lipi Saha	10/29/2019 14:40	Lipi Saha	2130541
	10/23/2019	10/25/2019 14:30	Lipi Saha	10/29/2019 14:41	Lipi Saha	2130542
EPA 365.1 Rev. 2.0 dissolved	10/23/2019			10/23/2019 14:41	Virginia P. Brown	2130544
	10/23/2019			10/23/2019 15:08	Virginia P. Brown	2130545, 2130546
	10/23/2019			10/23/2019 15:09	Virginia P. Brown	2130547
SM 2120 B	10/23/2019			10/23/2019 16:50	Madeline Funaro	2130536
	10/23/2019			10/23/2019 16:51	Madeline Funaro	2130537
	10/23/2019			10/23/2019 16:56	Madeline Funaro	2130538
	10/23/2019			10/23/2019 16:57	Madeline Funaro	2130539
SM 2320 B-97	10/23/2019			10/26/2019 06:59	Dale L. Simmons	2130536
	10/23/2019			10/26/2019 07:31	Dale L. Simmons	2130537
	10/23/2019			10/26/2019 07:44	Dale L. Simmons	2130538
	10/23/2019			10/26/2019 07:56	Dale L. Simmons	2130539
SM 2540 C-97	10/23/2019			10/25/2019 14:21	Yijie Li	2130536, 2130537, 2130538, 2130539
SM 2540 D-97	10/23/2019			10/25/2019 14:21	Yijie Li	2130536, 2130537, 2130538, 2130539
SM 4500 F-C-97	10/23/2019			10/26/2019 06:48	Dale L. Simmons	2130536
	10/23/2019			10/26/2019 07:31	Dale L. Simmons	2130537
	10/23/2019			10/26/2019 07:44	Dale L. Simmons	2130538
	10/23/2019			10/26/2019 07:56	Dale L. Simmons	2130539
SM 5310 B-00	10/23/2019			10/25/2019 22:35	Madeline Funaro	2130540
	10/23/2019			10/25/2019 22:47	Madeline Funaro	2130541

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	10/23/2019			10/25/2019 23:03	Madeline Funaro	2130542
	10/23/2019			10/25/2019 23:19	Madeline Funaro	2130543