

Chemical Analysis Report

SW-DIST-2019-11-05-01

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

Event Description: **Bear, Green Thomas**

Request ID: **RQ-2019-11-11-01**

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

Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Colin Wright, Program Administrator

Date Certified: 22-NOV-2019 14:05

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray rectangular background.

Case Narrative

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

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

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

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

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited 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: Bear Creek @ Beacon

Collection Date/Time: 11/04/2019 09:50

Field ID: G5SW0102

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2133264	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P373750	
	EPA 300.0 Rev. 2.1	Chloride	130		mg Cl/L	P374077	
		Sulfate	35		mg SO4/L	P374082	
	SM 2120 B	Color (true)	18		PCU	P373730	
	SM 2320 B-97	Total Alkalinity	189		mg CaCO3/L	P374210	
	SM 2540 C-97	TDS	467		mg/L	P374058	
	SM 2540 D-97	TSS	2	I	mg/L	P374029	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P374213	
2133269	EPA 350.1 Rev. 2.0	Ammonia-N	0.43		mg N/L	P373980	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.94		mg N/L	P373895	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.34		mg N/L	P373935	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P373792	
	SM 5310 B-00	Organic Carbon	4.0		mg C/L	P374198	
2133274	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.10		mg P/L	P373713	

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: Bear Creek @ Sidewalk

Collection Date/Time: 11/04/2019 10:00

Field ID: G5SW0103

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2133265	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P373750	
	EPA 300.0 Rev. 2.1	Chloride	140		mg Cl/L	P374077	
		Sulfate	34		mg SO4/L	P374082	
	SM 2120 B	Color (true)	18	A	PCU	P373730	
	SM 2320 B-97	Total Alkalinity	192		mg CaCO3/L	P374210	
	SM 2540 C-97	TDS	475		mg/L	P374058	
	SM 2540 D-97	TSS	3	I	mg/L	P374029	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P374213	
2133270	EPA 350.1 Rev. 2.0	Ammonia-N	0.24		mg N/L	P373980	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.73		mg N/L	P373895	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.30		mg N/L	P373935	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P373792	
	SM 5310 B-00	Organic Carbon	4.0		mg C/L	P374198	
2133275	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.070		mg P/L	P373713	

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: Lake Thomas @ Center

Collection Date/Time: 11/04/2019 11:25

Field ID: G5SW0111

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2133266	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P373750	
	EPA 300.0 Rev. 2.1	Chloride	22		mg Cl/L	P374077	
		Sulfate	6.9		mg SO4/L	P374082	
	SM 2120 B	Color (true)	27		PCU	P373730	
	SM 2320 B-97	Total Alkalinity	1.9	I	mg CaCO3/L	P374210	
	SM 2540 C-97	TDS	49		mg/L	P374058	
	SM 2540 D-97	TSS	2	I	mg/L	P374029	
	SM 4500 F-C-97	Fluoride	0.073	I	mg F/L	P374213	
2133271	EPA 350.1 Rev. 2.0	Ammonia-N	0.044		mg N/L	P373980	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.65		mg N/L	P373895	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P373935	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P373792	
	SM 5310 B-00	Organic Carbon	8.0		mg C/L	P374198	
2133276	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P373713	

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: Green Lake North

Collection Date/Time: 11/04/2019 10:40

Field ID: G5SW0107

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2133267	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P373750	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P374077	
		Sulfate	0.27	I	mg SO4/L	P374082	
	SM 2120 B	Color (true)	32		PCU	P373730	
	SM 2320 B-97	Total Alkalinity	17		mg CaCO3/L	P374210	
	SM 2540 C-97	TDS	63		mg/L	P374058	
	SM 2540 D-97	TSS	2	I	mg/L	P374029	
	SM 4500 F-C-97	Fluoride	0.060	I	mg F/L	P374213	
2133272	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P373980	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.74		mg N/L	P373895	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P373935	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P373792	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P374198	
2133277	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P373713	

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: Lake Harvey Center

Collection Date/Time: 11/04/2019 12:20

Field ID: G1SW0001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2133268	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P373751	
	EPA 300.0 Rev. 2.1	Chloride	24		mg Cl/L	P374077	
		Sulfate	3.0		mg SO4/L	P374082	
	SM 2120 B	Color (true)	69		PCU	P373730	
	SM 2320 B-97	Total Alkalinity	31		mg CaCO3/L	P374210	
	SM 2540 C-97	TDS	106	A	mg/L	P374059	
	SM 2540 D-97	TSS	3	IA	mg/L	P374030	
	SM 4500 F-C-97	Fluoride	0.070	I	mg F/L	P374213	
2133273	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P373980	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.68		mg N/L	P373895	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P373935	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P373922	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P374198	
2133278	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P373713	

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: P373750

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P373751

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374077

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374082

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373980

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373895

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373935

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373792

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373922

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: P373713

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

Reference Method: SM 2120 B
Batch ID: P373730

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P374210

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

Reference Method: SM 2540 C-97
Batch ID: P374058

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P374059

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P374029

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P374030

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P374213

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P374198

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: P374077

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374082

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373980

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373895

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373935

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: P373792

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373922

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P373713

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.1		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P373730

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P374210

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P374213

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.8		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P374198

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374077

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2133162	Chloride	101		P	90 - 110
2133216	Chloride	97.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374082

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2133162	Sulfate	100		P	90 - 110
2133216	Sulfate	97.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373980

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2133285	Ammonia-N	97.6	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373895

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2133285	Kjeldahl Nitrogen	92.3	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373935

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2133221	NO2NO3-N	95.6	96.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373792

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2133024	Total-P	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373922

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2132795	Total-P	104	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P373713

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2133276	O-Phosphate-P	98.7	99.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P374213

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2134358	Fluoride	98.5	98.5	P/P	89 - 106

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P374198

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2133271	Organic Carbon	106	103	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P373750

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2133215	Turbidity	0.366	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P373751

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2133345	Turbidity	9.81	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374077

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2133162	Chloride	0.205	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P374082

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2133162	Sulfate	0.681	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P373980

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2133285	Ammonia-N	0.538	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P373895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2133285	Kjeldahl Nitrogen	7.58	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P373935

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2133221	NO2NO3-N	0.752	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373792

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2133024	Total-P	0.191	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P373922

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2132795	Total-P	1.91	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P373713

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2133276	O-Phosphate-P	0.707	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P373730

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2133265	Color (true)	6.85	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P374210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134358	Total Alkalinity	0.339	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P374058

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2133166	TDS	0.0	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P374059

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2133268	TDS	3.77	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P374213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2134358	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P374198

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2133271	Organic Carbon	2.24	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: A95489

Included Lab Sample IDs: 2133274, 2133275, 2133276, 2133277, 2133278

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	98.4	P/P	90 - 110
O-Phosphate-P	99.7	98.5	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A95502

Included Lab Sample IDs: 2133264, 2133265, 2133266, 2133267, 2133268

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A95510

Included Lab Sample IDs: 2133264, 2133265, 2133266, 2133267, 2133268

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	98.5	P/P	95 - 105
Turbidity	99.0	100	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A95511

Included Lab Sample IDs: 2133264, 2133265, 2133266, 2133267, 2133268

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A95552

Included Lab Sample IDs: 2133269, 2133270

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A95555

Included Lab Sample IDs: 2133271, 2133272

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A95595

Included Lab Sample IDs: 2133269, 2133270, 2133271, 2133272, 2133273

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A95616

Included Lab Sample IDs: 2133269, 2133270, 2133271, 2133272, 2133273

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A95662

Included Lab Sample IDs: 2133273

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A95663

Included Lab Sample IDs: 2133269, 2133270, 2133271, 2133272, 2133273

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	101	P/P	90 - 110
Kjeldahl Nitrogen	99.6	102	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A95721

Included Lab Sample IDs: 2133269, 2133270, 2133271, 2133272, 2133273

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	102	106	P/P	90 - 110
Organic Carbon	104	105	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A95725

Included Lab Sample IDs: 2133264, 2133265, 2133266, 2133267, 2133268

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A95725

Included Lab Sample IDs: 2133264, 2133265, 2133266, 2133267, 2133268

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	101	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	
						SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					0.366	
	Turbidity					9.81	
EPA 300.0 Rev. 2.1	Chloride	100	101	97.9		0.205	
	Sulfate	100	100	97.7		0.681	
EPA 350.1 Rev. 2.0	Ammonia-N	97.4	97.6	98.2			0.538
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	93.2	92.3	101			7.58
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	95.6	96.6			0.752
EPA 365.1 Rev. 2.0	Total-P	99.0	102	101			0.191
	Total-P	99.8	104	108			1.91
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.1	98.7	99.4			0.707
SM 2120 B	Color (true)	99.5				6.85	
SM 2320 B-97	Total Alkalinity	100				0.339	
SM 2540 C-97	TDS					0.0	
	TDS					3.77	
SM 4500 F-C-97	Fluoride	97.8	98.5	98.5			0.0
SM 5310 B-00	Organic Carbon	102	106	103			2.24

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2133264, 2133265, 2133266, 2133267, 2133268
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2133264, 2133265, 2133266, 2133267, 2133268
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2133264, 2133265, 2133266, 2133267, 2133268
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2133269, 2133270, 2133271, 2133272, 2133273
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2133269, 2133270, 2133271, 2133272, 2133273
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2133269, 2133270, 2133271, 2133272, 2133273
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2133269, 2133270, 2133271, 2133272, 2133273
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2133274, 2133275, 2133276, 2133277, 2133278
SM 2120 B / E31780	True Color measured at 450 nm	2133264, 2133265, 2133266, 2133267, 2133268
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2133264, 2133265, 2133266, 2133267, 2133268
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2133264, 2133265, 2133266, 2133267, 2133268
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2133264, 2133265, 2133266, 2133267, 2133268
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2133264, 2133265, 2133266, 2133267, 2133268
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2133269, 2133270, 2133271, 2133272, 2133273

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	11/05/2019			11/05/2019 17:26	Rosalyn Ballman	2133264, 2133265, 2133266, 2133267, 2133268
EPA 300.0 Rev. 2.1	11/05/2019			11/07/2019 19:01	Jhamieka S. Greenwood	2133264
	11/05/2019			11/07/2019 19:13	Jhamieka S. Greenwood	2133265
	11/05/2019			11/07/2019 19:25	Jhamieka S. Greenwood	2133266
	11/05/2019			11/07/2019 19:37	Jhamieka S. Greenwood	2133267
	11/05/2019			11/07/2019 19:49	Jhamieka S. Greenwood	2133268
EPA 350.1 Rev. 2.0	11/05/2019			11/06/2019 11:36	Ping Hua	2133272
	11/05/2019			11/06/2019 11:38	Ping Hua	2133273
	11/05/2019			11/06/2019 13:06	Ping Hua	2133269
	11/05/2019			11/06/2019 13:41	Ping Hua	2133270
	11/05/2019			11/06/2019 13:42	Ping Hua	2133271
EPA 351.2 Rev. 2.0	11/05/2019	11/08/2019 09:35	Sima Feizi	11/12/2019 15:42	Jhamieka S. Greenwood	2133269
	11/05/2019	11/08/2019 09:35	Sima Feizi	11/12/2019 15:44	Jhamieka S. Greenwood	2133270
	11/05/2019	11/08/2019 09:35	Sima Feizi	11/12/2019 15:48	Jhamieka S. Greenwood	2133271
	11/05/2019	11/08/2019 09:35	Sima Feizi	11/12/2019 15:50	Jhamieka S. Greenwood	2133272
	11/05/2019	11/08/2019 09:35	Sima Feizi	11/12/2019 15:51	Jhamieka S. Greenwood	2133273
EPA 353.2 Rev. 2.0	11/05/2019			11/07/2019 09:54	Beverly Y. Sanders	2133269
	11/05/2019			11/07/2019 09:55	Beverly Y. Sanders	2133270
	11/05/2019			11/07/2019 09:57	Beverly Y. Sanders	2133271
	11/05/2019			11/07/2019 09:58	Beverly Y. Sanders	2133272
	11/05/2019			11/07/2019 09:59	Beverly Y. Sanders	2133273
EPA 365.1 Rev. 2.0	11/05/2019	11/06/2019 15:02	Yen Ta	11/07/2019 12:36	Benjamin T. Nordmann	2133269
	11/05/2019	11/06/2019 15:02	Yen Ta	11/07/2019 12:37	Benjamin T. Nordmann	2133270
	11/05/2019	11/06/2019 15:02	Yen Ta	11/07/2019 14:42	Benjamin T. Nordmann	2133271
	11/05/2019	11/06/2019 15:02	Yen Ta	11/07/2019 14:43	Benjamin T. Nordmann	2133272
	11/05/2019	11/08/2019 13:00	Lipi Saha	11/12/2019 16:08	Benjamin T. Nordmann	2133273
EPA 365.1 Rev. 2.0 dissolved	11/05/2019			11/05/2019 13:58	Ping Hua	2133276
	11/05/2019			11/05/2019 14:10	Ping Hua	2133274
	11/05/2019			11/05/2019 14:11	Ping Hua	2133275
	11/05/2019			11/05/2019 14:12	Ping Hua	2133277
	11/05/2019			11/05/2019 14:13	Ping Hua	2133278
SM 2120 B	11/05/2019			11/05/2019 17:21	Madeline Funaro	2133264
	11/05/2019			11/05/2019 17:22	Madeline Funaro	2133265
	11/05/2019			11/05/2019 17:23	Madeline Funaro	2133266
	11/05/2019			11/05/2019 17:24	Madeline Funaro	2133267
	11/05/2019			11/05/2019 17:25	Madeline Funaro	2133268
SM 2320 B-97	11/05/2019			11/14/2019 01:23	Dale L. Simmons	2133264
	11/05/2019			11/14/2019 01:38	Dale L. Simmons	2133265
	11/05/2019			11/14/2019 01:48	Dale L. Simmons	2133266

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-97	11/05/2019			11/14/2019 01:59	Dale L. Simmons	2133267
	11/05/2019			11/14/2019 02:11	Dale L. Simmons	2133268
SM 2540 C-97	11/05/2019			11/06/2019 14:36	Yijie Li	2133264, 2133265, 2133266, 2133267, 2133268
SM 2540 D-97	11/05/2019			11/06/2019 14:36	Yijie Li	2133264, 2133265, 2133266, 2133267, 2133268
SM 4500 F-C-97	11/05/2019			11/14/2019 01:23	Dale L. Simmons	2133264
	11/05/2019			11/14/2019 01:38	Dale L. Simmons	2133265
	11/05/2019			11/14/2019 01:48	Dale L. Simmons	2133266
	11/05/2019			11/14/2019 01:59	Dale L. Simmons	2133267
	11/05/2019			11/14/2019 02:11	Dale L. Simmons	2133268
SM 5310 B-00	11/05/2019			11/13/2019 16:35	Madeline Funaro	2133271
	11/05/2019			11/13/2019 17:28	Madeline Funaro	2133272
	11/05/2019			11/13/2019 21:40	Madeline Funaro	2133269
	11/05/2019			11/13/2019 21:54	Madeline Funaro	2133270
	11/05/2019			11/13/2019 22:06	Madeline Funaro	2133273