

Chemical Analysis Report

NW-DIST-2019-01-15-01

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

Event Description: **Crestview/ Laurel Hill**
Request ID: **RQ-2019-01-14-15**
Customer: **NW-DIST**
Project ID: **SMP**

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Date Certified: 30-JAN-2019 14:02



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 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: POVERTY CREEK UPSTREAM OF POVERTY CREEK RD

Collection Date/Time: 01/14/2019 10:05

Field ID: G4NW0427

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2054151	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P357325	
	EPA 300.0 Rev. 2.1	Chloride	2.7		mg Cl/L	P357416	
		Sulfate	2.2		mg SO4/L	P357418	
	SM 2120 B	Color (true)	23		PCU	P357304	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P357659	
	SM 2540 C-97	TDS	21	I	mg/L	P357766	
	SM 2540 D-97	TSS	6	I	mg/L	P357862	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P357663	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P357368	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.13	I	mg N/L	P357346	
2054156	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P357412	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P357359	
	SM 5310 B-00	Organic Carbon	2.6		mg C/L	P357397	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P357296	
	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: HORSEHEAD CREEK UPSTREAM OF STEELE MILL CREEK RD **Collection Date/Time: 01/14/2019 11:15**

Field ID: G4NW0428

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2054166	EPA 180.1 Rev. 2.0	Turbidity	11	A	NTU	P357325	
	EPA 300.0 Rev. 2.1	Chloride	4.0		mg Cl/L	P357416	
		Sulfate	0.94		mg SO4/L	P357418	
	SM 2120 B	Color (true)	82	A	PCU	P357304	
	SM 2320 B-97	Total Alkalinity	5.5		mg CaCO3/L	P357659	
	SM 2540 C-97	TDS	32		mg/L	P357766	
	SM 2540 D-97	TSS	7	I	mg/L	P357862	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P357663	
2054167	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P357490	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.39		mg N/L	P357432	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P357413	
	EPA 365.1 Rev. 2.0	Total-P	0.034		mg P/L	P357360	
	SM 5310 B-00	Organic Carbon	6.7		mg C/L	P357397	
2054168	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.010		mg P/L	P357297	

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 BRANCH UPSTREAM OF BUCK TYNER RD. Collection Date/Time: 01/14/2019 11:40

Field ID: G4NW0207

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2054152	EPA 180.1 Rev. 2.0	Turbidity	4.1		NTU	P357325	
	EPA 300.0 Rev. 2.1	Chloride	4.2		mg Cl/L	P357416	
		Sulfate	1.5		mg SO4/L	P357418	
	SM 2120 B	Color (true)	39		PCU	P357304	
	SM 2320 B-97	Total Alkalinity	5.5		mg CaCO3/L	P357659	
	SM 2540 C-97	TDS	26		mg/L	P357766	
	SM 2540 D-97	TSS	2	I	mg/L	P357862	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P357663	
2054157	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P357368	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.14	I	mg N/L	P357346	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.046		mg N/L	P357413	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P357359	
	SM 5310 B-00	Organic Carbon	3.3		mg C/L	P357397	
2054162	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P357296	

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: DEAD FALL CREEK UPSTREAM JACKSON RD Collection Date/Time: 01/14/2019 12:30

Field ID: G4NW0347

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2054153	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P357325	
	EPA 300.0 Rev. 2.1	Chloride	2.8		mg Cl/L	P357416	
		Sulfate	0.76		mg SO4/L	P357418	
	SM 2120 B	Color (true)	23		PCU	P357304	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P357659	
	SM 2540 C-97	TDS	16	I	mg/L	P357766	
	SM 2540 D-97	TSS	2	U	mg/L	P357862	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P357663	
2054158	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P357368	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P357346	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.027		mg N/L	P357413	
	EPA 365.1 Rev. 2.0	Total-P	0.002	I	mg P/L	P357359	
	SM 5310 B-00	Organic Carbon	2.2		mg C/L	P357397	
2054163	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P357297	

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: OAK CREEK BELOW TOMMY STEEL RD

Collection Date/Time: 01/14/2019 13:05

Field ID: G4NW0395

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2054154	EPA 180.1 Rev. 2.0	Turbidity	6.9		NTU	P357325	
	EPA 300.0 Rev. 2.1	Chloride	3.9		mg Cl/L	P357416	
		Sulfate	1.6		mg SO4/L	P357418	
	SM 2120 B	Color (true)	58		PCU	P357304	
	SM 2320 B-97	Total Alkalinity	2.7		mg CaCO3/L	P357659	
	SM 2540 C-97	TDS	30		mg/L	P357766	
	SM 2540 D-97	TSS	3	I	mg/L	P357862	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P357663	
2054159	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P357368	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P357432	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P357413	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P357359	
	SM 5310 B-00	Organic Carbon	3.2		mg C/L	P357397	
2054164	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P357297	

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: HURRICANE CREEK BELOW HURRICANE LAKE ROAD

Collection Date/Time: 01/14/2019 13:45

Field ID: G4NW0160

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2054155	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P357325	
	EPA 300.0 Rev. 2.1	Chloride	2.5		mg Cl/L	P357416	
		Sulfate	0.35	I	mg SO4/L	P357418	
	SM 2120 B	Color (true)	27		PCU	P357304	
	SM 2320 B-97	Total Alkalinity	3.3		mg CaCO3/L	P357659	
	SM 2540 C-97	TDS	15	U	mg/L	P357766	
	SM 2540 D-97	TSS	3	I	mg/L	P357862	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P357663	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.036		mg N/L	P357490	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31		mg N/L	P357432	
2054160	EPA 353.2 Rev. 2.0	NO2NO3-N	0.025		mg N/L	P357413	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P357360	
	SM 5310 B-00	Organic Carbon	3.7		mg C/L	P357397	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P357297	
	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: P357325

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357416

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357418

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357368

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357490

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357346

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357432

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357412

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357413

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357359

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357360

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357296

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357297

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

Reference Method: SM 2120 B
Batch ID: P357304

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P357659

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

Reference Method: SM 2540 C-97
Batch ID: P357766

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P357862

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P357663

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: P357397

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: P357416

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	96.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357418

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357368

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357490

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357346

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357432

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: P357412

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357413

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357359

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357360

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357296

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357297

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

Reference Method: SM 2120 B
Batch ID: P357304

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	100		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P357659

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P357663

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P357397

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357416

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054106	Chloride	99.4	99.3	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357418

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054106	Sulfate	98.3	98.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357368

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054107	Ammonia-N	97.5	98.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357490

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054160	Ammonia-N	97.5	97.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357346

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054107	Kjeldahl Nitrogen	109	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357432

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054159	Kjeldahl Nitrogen	102	97.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357412

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054096	NO2NO3-N	96.9	95.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357413

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054157	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357359

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054107	Total-P	99.8	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357360

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054446	Total-P	105	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357296

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054161	O-Phosphate-P	97.0	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357297

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054165	O-Phosphate-P	97.9	99.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P357663

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054040	Fluoride	96.7	96.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P357397

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054156	Organic Carbon	97.7	98.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P357325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054166	Turbidity	3.77	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357416

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054106	Chloride	0.0970	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357418

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054106	Sulfate	0.432	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357368

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054107	Ammonia-N	0.702	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357490

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054160	Ammonia-N	0.162	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357346

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054107	Kjeldahl Nitrogen	1.64	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357432

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054159	Kjeldahl Nitrogen	4.54	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357412

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054096	NO2NO3-N	1.10	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054157	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357359

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054107	Total-P	3.50	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357360

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054446	Total-P	0.657	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357296

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054161	O-Phosphate-P	1.53	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357297

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054165	O-Phosphate-P	1.72	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P357304

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054166	Color (true)	1.38	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P357659

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054040	Total Alkalinity	0.286	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P357766

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054507	TDS	8.58	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P357663

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054040	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P357397

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054156	Organic Carbon	0.586	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 300.0 Rev. 2.1

Run ID: A88788

Included Lab Sample IDs: 2054151, 2054152, 2054153, 2054154, 2054155, 2054166

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Sulfate	99.2	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A88821

Included Lab Sample IDs: 2054161, 2054162, 2054163, 2054164, 2054165, 2054168

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	98.3	P/P	90 - 110
O-Phosphate-P	98.3	98.8	P/P	90 - 110
O-Phosphate-P	98.8	98.5	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A88822

Included Lab Sample IDs: 2054151, 2054152, 2054153, 2054154, 2054155, 2054166

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A88832

Included Lab Sample IDs: 2054151, 2054152, 2054153, 2054154, 2054155, 2054166

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88851

Included Lab Sample IDs: 2054156, 2054157, 2054158, 2054159

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.9	99.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A88861

Included Lab Sample IDs: 2054156, 2054157, 2054158, 2054159, 2054160, 2054167

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	100	P/P	90 - 110
Organic Carbon	99.7	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88870

Included Lab Sample IDs: 2054156, 2054157, 2054158, 2054159, 2054160, 2054167

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A88886

Included Lab Sample IDs: 2054156, 2054157, 2054158

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88889

Included Lab Sample IDs: 2054160, 2054167

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88898

Included Lab Sample IDs: 2054156, 2054157, 2054158, 2054159, 2054160, 2054167

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	99.8	P/P	90 - 110
Total-P	99.8	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A88905

Included Lab Sample IDs: 2054159, 2054160, 2054167

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.2	102	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A88947

Included Lab Sample IDs: 2054151, 2054152, 2054153, 2054154, 2054155, 2054166

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A88947

Included Lab Sample IDs: 2054151, 2054152, 2054153, 2054154, 2054155, 2054166

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	100	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				3.77	
EPA 300.0 Rev. 2.1	Chloride	96.6	99.4	99.3		0.0970
	Sulfate	96.4	98.3	98.8		0.432
EPA 350.1 Rev. 2.0	Ammonia-N	96.8	97.5	98.4		0.702
	Ammonia-N	96.7	97.5	97.8		0.162
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	109	107		1.64
	Kjeldahl Nitrogen	99.2	102	97.1		4.54
EPA 353.2 Rev. 2.0	NO2NO3-N	101	96.9	95.4		1.10
	NO2NO3-N	101	101	101		0.0
EPA 365.1 Rev. 2.0	Total-P	106	99.8	103		3.50
	Total-P	104	105	106		0.657
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.6	97.0	98.5		1.53
	O-Phosphate-P	98.1	97.9	99.6		1.72
SM 2120 B	Color (true)	100			1.38	
SM 2320 B-97	Total Alkalinity	102			0.286	
SM 2540 C-97	TDS				8.58	
SM 4500 F-C-97	Fluoride	97.9	96.7	96.7		0.0
SM 5310 B-00	Organic Carbon	98.2	97.7	98.3		0.586

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2054151, 2054152, 2054153, 2054154, 2054155, 2054166
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2054151, 2054152, 2054153, 2054154, 2054155, 2054166
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2054151, 2054152, 2054153, 2054154, 2054155, 2054166
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2054156, 2054157, 2054158, 2054159, 2054160, 2054167
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2054156, 2054157, 2054158, 2054159, 2054160, 2054167
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2054156, 2054157, 2054158, 2054159, 2054160, 2054167
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2054156, 2054157, 2054158, 2054159, 2054160, 2054167
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2054161, 2054162, 2054163, 2054164, 2054165, 2054168
SM 2120 B / E31780	True Color measured at 450 nm	2054151, 2054152, 2054153, 2054154, 2054155, 2054166
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2054151, 2054152, 2054153, 2054154, 2054155, 2054166
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2054151, 2054152, 2054153, 2054154, 2054155, 2054166
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2054151, 2054152, 2054153, 2054154, 2054155, 2054166
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2054151, 2054152, 2054153, 2054154, 2054155, 2054166
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2054156, 2054157, 2054158, 2054159, 2054160, 2054167

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	01/15/2019			01/15/2019 17:10	Megan Treadwell	2054151, 2054152, 2054153, 2054154, 2054155, 2054166
EPA 300.0 Rev. 2.1	01/15/2019			01/16/2019 22:36	Lipi Saha	2054151
	01/15/2019			01/16/2019 22:48	Lipi Saha	2054152
	01/15/2019			01/16/2019 23:00	Lipi Saha	2054153
	01/15/2019			01/16/2019 23:12	Lipi Saha	2054154
	01/15/2019			01/16/2019 23:24	Lipi Saha	2054155
EPA 350.1 Rev. 2.0	01/15/2019			01/16/2019 23:37	Lipi Saha	2054166
	01/15/2019			01/16/2019 13:31	Ping Hua	2054156
	01/15/2019			01/16/2019 13:32	Ping Hua	2054157
	01/15/2019			01/16/2019 13:34	Ping Hua	2054158
	01/15/2019			01/16/2019 13:35	Ping Hua	2054159
EPA 351.2 Rev. 2.0	01/15/2019			01/17/2019 10:44	Ping Hua	2054160
	01/15/2019			01/17/2019 10:48	Ping Hua	2054167
	01/15/2019	01/16/2019 11:15	Adrian Shelby	01/17/2019 14:49	Joseph Suarez	2054156
	01/15/2019	01/16/2019 11:15	Adrian Shelby	01/17/2019 14:51	Joseph Suarez	2054157
	01/15/2019	01/16/2019 11:15	Adrian Shelby	01/17/2019 14:52	Joseph Suarez	2054158
EPA 353.2 Rev. 2.0	01/15/2019	01/17/2019 11:30	Adrian Shelby	01/18/2019 09:59	Joseph Suarez	2054159
	01/15/2019	01/17/2019 11:30	Adrian Shelby	01/18/2019 10:04	Joseph Suarez	2054160
	01/15/2019	01/17/2019 11:30	Adrian Shelby	01/18/2019 10:05	Joseph Suarez	2054167
	01/15/2019			01/16/2019 11:58	Beverly Y. Sanders	2054156
	01/15/2019			01/16/2019 12:06	Beverly Y. Sanders	2054157
EPA 365.1 Rev. 2.0	01/15/2019			01/16/2019 12:13	Beverly Y. Sanders	2054158
	01/15/2019			01/16/2019 12:14	Beverly Y. Sanders	2054159
	01/15/2019			01/16/2019 12:15	Beverly Y. Sanders	2054160
	01/15/2019			01/16/2019 12:16	Beverly Y. Sanders	2054167
	01/15/2019	01/16/2019 12:15	Sima Feizi	01/17/2019 16:50	Rosalyn Ballman	2054156
EPA 365.1 Rev. 2.0 dissolved	01/15/2019	01/16/2019 12:15	Sima Feizi	01/17/2019 16:51	Rosalyn Ballman	2054157
	01/15/2019	01/16/2019 12:15	Sima Feizi	01/17/2019 16:52	Rosalyn Ballman	2054158
	01/15/2019	01/16/2019 12:15	Sima Feizi	01/17/2019 16:53	Rosalyn Ballman	2054159
	01/15/2019	01/16/2019 12:15	Sima Feizi	01/17/2019 17:02	Rosalyn Ballman	2054160
	01/15/2019	01/16/2019 12:15	Sima Feizi	01/17/2019 17:03	Rosalyn Ballman	2054167
SM 2120 B	01/15/2019			01/15/2019 14:27	Jhamieka S. Greenwood	2054161
	01/15/2019			01/15/2019 14:32	Jhamieka S. Greenwood	2054165
	01/15/2019			01/15/2019 14:45	Jhamieka S. Greenwood	2054162
	01/15/2019			01/15/2019 14:46	Jhamieka S. Greenwood	2054163
	01/15/2019			01/15/2019 14:51	Jhamieka S. Greenwood	2054164
	01/15/2019			01/15/2019 14:52	Jhamieka S. Greenwood	2054168
	01/15/2019			01/15/2019 15:55	Chelsea Hernandez	2054151
	01/15/2019			01/15/2019 15:56	Chelsea Hernandez	2054152

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B	01/15/2019			01/15/2019 15:57	Chelsea Hernandez	2054153
	01/15/2019			01/15/2019 15:58	Chelsea Hernandez	2054154
	01/15/2019			01/15/2019 15:59	Chelsea Hernandez	2054155
	01/15/2019			01/15/2019 16:00	Chelsea Hernandez	2054166
SM 2320 B-97	01/15/2019			01/21/2019 19:20	Dale L. Simmons	2054151
	01/15/2019			01/21/2019 19:32	Dale L. Simmons	2054152
	01/15/2019			01/21/2019 19:45	Dale L. Simmons	2054153
	01/15/2019			01/21/2019 19:58	Dale L. Simmons	2054154
	01/15/2019			01/21/2019 20:13	Dale L. Simmons	2054155
	01/15/2019			01/21/2019 20:25	Dale L. Simmons	2054166
SM 2540 C-97	01/15/2019			01/17/2019 13:55	Yijie Li	2054151, 2054152, 2054153, 2054154, 2054155, 2054166
SM 2540 D-97	01/15/2019			01/17/2019 13:55	Yijie Li	2054151, 2054152, 2054153, 2054154, 2054155, 2054166
SM 4500 F-C-97	01/15/2019			01/21/2019 19:20	Dale L. Simmons	2054151
	01/15/2019			01/21/2019 19:32	Dale L. Simmons	2054152
	01/15/2019			01/21/2019 19:45	Dale L. Simmons	2054153
	01/15/2019			01/21/2019 19:58	Dale L. Simmons	2054154
	01/15/2019			01/21/2019 20:13	Dale L. Simmons	2054155
	01/15/2019			01/21/2019 20:25	Dale L. Simmons	2054166
SM 5310 B-00	01/15/2019			01/16/2019 19:27	Megan Treadwell	2054156
	01/15/2019			01/16/2019 20:40	Megan Treadwell	2054157
	01/15/2019			01/16/2019 20:55	Megan Treadwell	2054158
	01/15/2019			01/16/2019 21:07	Megan Treadwell	2054159
	01/15/2019			01/16/2019 21:19	Megan Treadwell	2054160
	01/15/2019			01/16/2019 21:31	Megan Treadwell	2054167