

Chemical Analysis Report

SW-DIST-2021-08-04-02

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

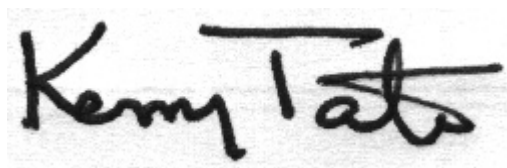
Event Description: **Run 3**
Request ID: **RQ-2021-08-02-66**
Customer: **SW-DIST**
Project ID: **SMP**

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

Date Certified: 27-AUG-2021 13:28

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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: Highland Lake @ Center

Collection Date/Time: 08/03/2021 10:15

Field ID: G5SW0180

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2267242	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P401996	
	EPA 300.0 Rev. 2.1	Chloride	5.1		mg Cl/L	P402412	
		Sulfate	1.5		mg SO4/L	P402415	
	SM 2120 B-2011	Color (true)	89		PCU	P402002	
	SM 2320 B-2011	Total Alkalinity	27		mg CaCO3/L	P402115	
	SM 2540 C-2011	TDS	77		mg/L	P402434	
	SM 2540 D-2011	TSS	12		mg/L	P402192	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P402117	
2267246	EPA 350.1 Rev. 2.0	Ammonia-N	0.095		mg N/L	P402383	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P402784	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P402105	
	EPA 365.1 Rev. 2.0	Total-P	0.046		mg P/L	P402437	MS
	SM 5310 B-2011	Organic Carbon	15		mg C/L	P402490	
2267250	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P401991	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Weeki Wachee Spring

Collection Date/Time: 08/03/2021 09:35

Field ID: G5SW0179

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2267243	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P401996	
	EPA 300.0 Rev. 2.1	Chloride	9.7		mg Cl/L	P402412	
		Sulfate	12		mg SO4/L	P402415	
	SM 2120 B-2011	Color (true)	2.5	U	PCU	P402002	
	SM 2320 B-2011	Total Alkalinity	156		mg CaCO3/L	P402115	
	SM 2540 C-2011	TDS	194		mg/L	P402434	
	SM 2540 D-2011	TSS	2	U	mg/L	P402192	
	SM 4500 F-C-2011	Fluoride	0.094	I	mg F/L	P402117	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P402383	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.11	I J	mg N/L	P402784	MS
2267247	EPA 353.2 Rev. 2.0	NO2NO3-N	0.97		mg N/L	P402105	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P402463	MS
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P402490	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.012		mg P/L	P401991	
2267251	EPA 365.1 Rev. 2.0 dissolved						

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: Blue Bird Spring

Collection Date/Time: 08/03/2021 11:15

Field ID: G5SW0028

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2267244	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P401996	
	EPA 300.0 Rev. 2.1	Chloride	22		mg Cl/L	P402412	
		Sulfate	3.0		mg SO4/L	P402415	
	SM 2120 B-2011	Color (true)	78		PCU	P402002	
	SM 2320 B-2011	Total Alkalinity	50		mg CaCO3/L	P402115	
	SM 2540 C-2011	TDS	140		mg/L	P402434	
	SM 2540 D-2011	TSS	7	I	mg/L	P402192	
	SM 4500 F-C-2011	Fluoride	0.044	I	mg F/L	P402117	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P402383	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.82		mg N/L	P402784	MS
2267248	EPA 353.2 Rev. 2.0	NO2NO3-N	0.025		mg N/L	P402105	
	EPA 365.1 Rev. 2.0	Total-P	0.061		mg P/L	P402463	MS
	SM 5310 B-2011	Organic Carbon	9.6		mg C/L	P402490	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.008	I	mg P/L	P401991	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Jurassic Spring

Collection Date/Time: 08/03/2021 12:15

Field ID: G5SW0178

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2267245	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P401996	
	EPA 300.0 Rev. 2.1	Chloride	2.8		mg Cl/L	P402412	
		Sulfate	3.1		mg SO4/L	P402415	
	SM 2120 B-2011	Color (true)	26	A	PCU	P402002	
	SM 2320 B-2011	Total Alkalinity	45		mg CaCO3/L	P402115	
	SM 2540 C-2011	TDS	65		mg/L	P402434	
	SM 2540 D-2011	TSS	2	I	mg/L	P402192	
	SM 4500 F-C-2011	Fluoride	0.038	I	mg F/L	P402117	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P402383	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P402784	MS
2267249	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P402105	
	EPA 365.1 Rev. 2.0	Total-P	0.070	J	mg P/L	P402463	MS
	SM 5310 B-2011	Organic Carbon	3.3		mg C/L	P402490	
2267253	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.031		mg P/L	P401991	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: Refer to the Lab Analysis Report for an explanation of QC Codes.

Sample Location: House Spring

Collection Date/Time: 08/03/2021 12:00

Field ID: G5SW0177

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2267317	EPA 180.1 Rev. 2.0	Turbidity	0.70	A	NTU	P401997	
	EPA 300.0 Rev. 2.1	Chloride	5.3	A	mg Cl/L	P402412	
		Sulfate	8.9	A	mg SO4/L	P402415	
	SM 2120 B-2011	Color (true)	7.5		PCU	P402002	
	SM 2320 B-2011	Total Alkalinity	78		mg CaCO3/L	P402115	
	SM 2540 C-2011	TDS	120		mg/L	P402434	
	SM 2540 D-2011	TSS	2	I	mg/L	P402192	
	SM 4500 F-C-2011	Fluoride	0.058	I	mg F/L	P402622	
2267318	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P402383	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.081	I	mg N/L	P402784	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.44		mg N/L	P402106	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P402463	MS
	SM 5310 B-2011	Organic Carbon	0.98	I	mg C/L	P402490	
2267319	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.025		mg P/L	P401991	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2011: 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: P401996

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P401997

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402412

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402415

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402383

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402784

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402105

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402106

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402437

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
Batch ID: P402463

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401991

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

Reference Method: SM 2120 B-2011
Batch ID: P402002

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P402115

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

Reference Method: SM 2540 C-2011
Batch ID: P402434

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P402192

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P402117

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P402622

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P402490

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: P402412

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402415

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402383

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402784

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402105

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402106

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402437

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402463

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401991

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B-2011
Batch ID: P402002

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.1		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P402115

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P402117

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.5		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P402622

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P402490

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402412

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2267169	Chloride	97.8		P	90 - 110
2267317	Chloride	99.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402415

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2267169	Sulfate	98.7		P	90 - 110
2267317	Sulfate	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402383

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2267184	Ammonia-N	98.4	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402784

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2267247	Kjeldahl Nitrogen	106	110	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402105

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2267184	NO2NO3-N	99.5	96.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402106

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2267495	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402437

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2267211	Total-P	114	106	F/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402463

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2267249	Total-P	115	114	F/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401991

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2267251	O-Phosphate-P	104	97.2	P/P	90 - 110

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P402117

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2267182	Fluoride	99.6	99.6	P/P	92 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P402622

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2269232	Fluoride	100	102	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P402490

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2267073	Organic Carbon	97.1	96.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P401996

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2267169	Turbidity	8.59	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402412

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2267317	Chloride	1.35	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2267317	Sulfate	0.597	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402383

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2267184	Ammonia-N	0.369	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402784

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2267247	Kjeldahl Nitrogen	3.48	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402105

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2267184	NO2NO3-N	3.58	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P402106

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2267495	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2267211	Total-P	3.73	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P402463

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2267249	Total-P	0.683	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P401991

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2267251	O-Phosphate-P	5.78	Spike	P	0 - 20

Reference Method: SM 2120 B-2011

Batch ID: P402002

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2267245	Color (true)	0.272	Sample	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P402115

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2267182	Total Alkalinity	0.584	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011

Batch ID: P402434

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2267209	TDS	6.56	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011

Batch ID: P402117

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2267182	Fluoride	0.0	Spike	P	0 - 2.1

Reference Method: SM 4500 F-C-2011

Batch ID: P402622

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2269232	Fluoride	0.946	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011

Batch ID: P402490

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2267073	Organic Carbon	0.501	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: A107045

Included Lab Sample IDs: 2267250, 2267251, 2267252, 2267253, 2267319

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.7	98.8	P/P	90 - 110
O-Phosphate-P	98.3	97.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A107046

Included Lab Sample IDs: 2267242, 2267243, 2267244, 2267245, 2267317

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

Reference Method: SM 2120 B-2011

Run ID: A107047

Included Lab Sample IDs: 2267242, 2267243, 2267244, 2267245, 2267317

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.5	99.7	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A107091

Included Lab Sample IDs: 2267246, 2267247, 2267248, 2267249, 2267318

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110
NO2NO3-N	102	102	P/P	90 - 110
NO2NO3-N	102	103	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A107093

Included Lab Sample IDs: 2267242, 2267243, 2267244, 2267245, 2267317

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	101	P/P	90 - 110
Total Alkalinity	99.4	101	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A107093

Included Lab Sample IDs: 2267242, 2267243, 2267244, 2267245

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A107166

Included Lab Sample IDs: 2267242, 2267243, 2267244, 2267245, 2267317

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.0	99.4	P/P	90 - 110
Chloride	99.1	99.0	P/P	90 - 110
Sulfate	98.3	98.7	P/P	90 - 110
Sulfate	98.7	98.3	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A107211

Included Lab Sample IDs: 2267246, 2267247, 2267248, 2267249, 2267318

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

Reference Method: SM 5310 B-2011

Run ID: A107256

Included Lab Sample IDs: 2267246, 2267247, 2267248, 2267249, 2267318

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

Reference Method: SM 4500 F-C-2011

Run ID: A107310

Included Lab Sample IDs: 2267317

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	103	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A107315

Included Lab Sample IDs: 2267248, 2267249

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	108	108	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A107317

Included Lab Sample IDs: 2267247, 2267318

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A107341

Included Lab Sample IDs: 2267246

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A107450

Included Lab Sample IDs: 2267246, 2267247, 2267248, 2267249, 2267318

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.4	99.0	P/P	90 - 110
Kjeldahl Nitrogen	99.0	96.7	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				8.59	
EPA 300.0 Rev. 2.1	Chloride	101	99.6	97.8	1.35	
	Sulfate	101	98.7	98.7	0.597	
EPA 350.1 Rev. 2.0	Ammonia-N	99.6	98.4	98.8		0.369
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	106	110		3.48
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	99.5	96.0		3.58
	NO ₂ NO ₃ -N	102	102	102		0.0
EPA 365.1 Rev. 2.0	Total-P	108	114	106		3.73
	Total-P	110	115	114		0.683
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	104	97.2		5.78
SM 2120 B-2011	Color (true)	98.1			0.272	
SM 2320 B-2011	Total Alkalinity	100			0.584	
SM 2540 C-2011	TDS				6.56	
SM 4500 F-C-2011	Fluoride	99.5	99.6	99.6		0.0
	Fluoride	101	100	102		0.946
SM 5310 B-2011	Organic Carbon	97.0	97.1	96.2		0.501

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2267242, 2267243, 2267244, 2267245, 2267317
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2267242, 2267243, 2267244, 2267245, 2267317
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2267242, 2267243, 2267244, 2267245, 2267317
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2267246, 2267247, 2267248, 2267249, 2267318
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2267246, 2267247, 2267248, 2267249, 2267318
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2267246, 2267247, 2267248, 2267249, 2267318
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2267246, 2267247, 2267248, 2267249, 2267318
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2267250, 2267251, 2267252, 2267253, 2267319
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2267242, 2267243, 2267244, 2267245, 2267317
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2267242, 2267243, 2267244, 2267245, 2267317
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2267242, 2267243, 2267244, 2267245, 2267317
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2267242, 2267243, 2267244, 2267245, 2267317
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2267242, 2267243, 2267244, 2267245, 2267317
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2267246, 2267247, 2267248, 2267249, 2267318

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	08/04/2021			08/04/2021 15:23	Sarah A Nixon	2267242, 2267243, 2267244, 2267245, 2267317
EPA 300.0 Rev. 2.1	08/04/2021			08/11/2021 18:40	Lipi Saha	2267317
	08/04/2021			08/11/2021 20:29	Lipi Saha	2267242
	08/04/2021			08/11/2021 20:41	Lipi Saha	2267243
	08/04/2021			08/11/2021 20:53	Lipi Saha	2267244
	08/04/2021			08/11/2021 21:30	Lipi Saha	2267245
EPA 350.1 Rev. 2.0	08/04/2021			08/12/2021 11:30	Roberta Tatti	2267246
	08/04/2021			08/12/2021 11:31	Roberta Tatti	2267247
	08/04/2021			08/12/2021 11:32	Roberta Tatti	2267248
	08/04/2021			08/12/2021 11:34	Roberta Tatti	2267249
	08/04/2021			08/12/2021 11:35	Roberta Tatti	2267318
EPA 351.2 Rev. 2.0	08/04/2021	08/20/2021 12:58	Benjamin T. Nordmann	08/24/2021 13:55	Virginia P. Brown	2267246
	08/04/2021	08/20/2021 12:58	Benjamin T. Nordmann	08/24/2021 13:57	Virginia P. Brown	2267247
	08/04/2021	08/20/2021 12:58	Benjamin T. Nordmann	08/24/2021 14:02	Virginia P. Brown	2267248
	08/04/2021	08/20/2021 12:58	Benjamin T. Nordmann	08/24/2021 14:03	Virginia P. Brown	2267249
	08/04/2021	08/20/2021 12:58	Benjamin T. Nordmann	08/24/2021 14:08	Virginia P. Brown	2267318
EPA 353.2 Rev. 2.0	08/04/2021			08/06/2021 10:26	Beverly Y. Sanders	2267246
	08/04/2021			08/06/2021 10:30	Beverly Y. Sanders	2267249
	08/04/2021			08/06/2021 11:33	Beverly Y. Sanders	2267247
	08/04/2021			08/06/2021 11:34	Beverly Y. Sanders	2267248
	08/04/2021			08/06/2021 11:47	Beverly Y. Sanders	2267318
EPA 365.1 Rev. 2.0	08/04/2021	08/13/2021 15:00	Simonne.V. Calhoun	08/16/2021 11:21	Shengyu Ding	2267247
	08/04/2021	08/13/2021 15:00	Simonne.V. Calhoun	08/16/2021 11:22	Shengyu Ding	2267318
	08/04/2021	08/13/2021 15:00	Simonne.V. Calhoun	08/18/2021 14:42	Shengyu Ding	2267248
	08/04/2021	08/13/2021 15:00	Simonne.V. Calhoun	08/18/2021 14:43	Shengyu Ding	2267249
	08/04/2021	08/13/2021 15:00	Simonne.V. Calhoun	08/19/2021 14:15	Shengyu Ding	2267246
EPA 365.1 Rev. 2.0 dissolved	08/04/2021			08/04/2021 15:17	Patrick M. Roche	2267251
	08/04/2021			08/04/2021 15:29	Patrick M. Roche	2267250
	08/04/2021			08/04/2021 15:30	Patrick M. Roche	2267252
	08/04/2021			08/04/2021 15:31	Patrick M. Roche	2267253
	08/04/2021			08/04/2021 15:32	Patrick M. Roche	2267319
SM 2120 B-2011	08/04/2021			08/04/2021 16:01	Sarah A Nixon	2267245
	08/04/2021			08/04/2021 16:03	Sarah A Nixon	2267242
	08/04/2021			08/04/2021 16:04	Sarah A Nixon	2267243
	08/04/2021			08/04/2021 16:05	Sarah A Nixon	2267244, 2267317
SM 2320 B-2011	08/04/2021			08/05/2021 18:16	Dale L. Simmons	2267242
	08/04/2021			08/05/2021 18:31	Dale L. Simmons	2267243
	08/04/2021			08/05/2021 18:46	Dale L. Simmons	2267244
	08/04/2021			08/05/2021 19:00	Dale L. Simmons	2267245

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-2011	08/04/2021			08/05/2021 19:49	Dale L. Simmons	2267317
SM 2540 C-2011	08/04/2021			08/06/2021 15:32	Yijie Li	2267242, 2267243, 2267244, 2267245, 2267317
SM 2540 D-2011	08/04/2021			08/06/2021 15:32	Yijie Li	2267242, 2267243, 2267244, 2267245, 2267317
SM 4500 F-C-2011	08/04/2021			08/05/2021 18:16	Dale L. Simmons	2267242
	08/04/2021			08/05/2021 18:31	Dale L. Simmons	2267243
	08/04/2021			08/05/2021 18:46	Dale L. Simmons	2267244
	08/04/2021			08/05/2021 19:00	Dale L. Simmons	2267245
	08/04/2021			08/18/2021 00:18	Dale L. Simmons	2267317
SM 5310 B-2011	08/04/2021			08/14/2021 07:41	Touraj Touran	2267246
	08/04/2021			08/14/2021 07:54	Touraj Touran	2267247
	08/04/2021			08/14/2021 08:09	Touraj Touran	2267248
	08/04/2021			08/14/2021 08:22	Touraj Touran	2267249
	08/04/2021			08/14/2021 08:35	Touraj Touran	2267318