

Chemical Analysis Report

SE-DIST-2021-12-10-01

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

Event Description: **SMP - 3203B - Mosquito Creek**
Request ID: **RQ-2021-10-04-50**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Drew Liddick

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: Liang Lin, Environmental Administrator

Date Certified: 06-JAN-2022 14:03

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored 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: Mosquito Creek @ 70

Collection Date/Time: 12/09/2021 11:00

Field ID: G1SE0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2294506	EPA 180.1 Rev. 2.0	Turbidity	2.7	A	NTU	P407325	
	EPA 300.0 Rev. 2.1	Chloride	50		mg Cl/L	P407526	
		Sulfate	80		mg SO4/L	P407905	
		Color (true)	53	A	PCU	P407324	
	SM 2320 B-2011	Total Alkalinity	52		mg CaCO3/L	P407452	
	SM 2540 C-2011	TDS	323		mg/L	P407668	
	SM 2540 D-2011	TSS	3	I	mg/L	P407485	
	SM 4500 F-C-2011	Fluoride	0.035	I	mg F/L	P407453	
2294509	EPA 350.1 Rev. 2.0	Ammonia-N	0.058		mg N/L	P407808	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P407875	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.3		mg N/L	P407375	
	EPA 365.1 Rev. 2.0	Total-P	0.23		mg P/L	P407345	MS
	SM 5310 B-2011	Organic Carbon	20		mg C/L	P407795	
2294512	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P407312	

Sample Location: Mosquito Creek @ 710

Collection Date/Time: 12/09/2021 11:30

Field ID: G1SE0014

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2294507	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P407325	
	EPA 300.0 Rev. 2.1	Chloride	180		mg Cl/L	P407526	
		Sulfate	110		mg SO4/L	P407529	
	SM 2120 B-2011	Color (true)	80		PCU	P407324	
	SM 2320 B-2011	Total Alkalinity	67		mg CaCO3/L	P407452	
	SM 2540 C-2011	TDS	600		mg/L	P407668	
	SM 2540 D-2011	TSS	2	I	mg/L	P407485	
	SM 4500 F-C-2011	Fluoride	0.094	I	mg F/L	P407453	
2294510	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P407808	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P407793	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.84		mg N/L	P407375	
	EPA 365.1 Rev. 2.0	Total-P	0.23		mg P/L	P407345	MS
	SM 5310 B-2011	Organic Carbon	21		mg C/L	P407795	
2294513	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.17		mg P/L	P407312	

Sample Location: Ten-mile creek North of Bennington Lane

Collection Date/Time: 12/09/2021 12:30

Field ID: G2SE0064

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2294508	EPA 180.1 Rev. 2.0	Turbidity	4.1		NTU	P407325	
	EPA 300.0 Rev. 2.1	Chloride	350		mg Cl/L	P407526	
		Sulfate	90		mg SO4/L	P407529	
		Color (true)	38		PCU	P407324	
	SM 2320 B-2011	Total Alkalinity	183		mg CaCO3/L	P407452	
	SM 2540 C-2011	TDS	892		mg/L	P407668	
	SM 2540 D-2011	TSS	4	I	mg/L	P407485	
	SM 4500 F-C-2011	Fluoride	0.36		mg F/L	P407453	
2294511	EPA 350.1 Rev. 2.0	Ammonia-N	0.064		mg N/L	P407808	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.72		mg N/L	P407865	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.081		mg N/L	P407376	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P407345	MS
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P407796	
2294514	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.076		mg P/L	P407312	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P407325

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407526

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407529

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407905

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407808

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407793

Component	Result	Code	Units
Kjeldahl Nitrogen	0.090	I	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407865

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407875

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P407375

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P407376

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P407345

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P407312

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

Reference Method: SM 2120 B-2011
Batch ID: P407324

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P407452

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 C-2011
Batch ID: P407668

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P407485

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P407453

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P407795

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P407796

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: P407526

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407529

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407905

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407808

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	93.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407793

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407865

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407875

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P407375

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: P407376

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P407345

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P407312

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.9		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P407324

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.4		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P407452

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P407453

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P407795

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.8		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P407796

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407526

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2294304	Chloride	96.5		P	90 - 110
2294454	Chloride	97.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407529

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2294304	Sulfate	95.3		P	90 - 110
2294454	Sulfate	98.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407905

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2295799	Sulfate	96.7		P	90 - 110
2296187	Sulfate	97.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407808

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2294502	Ammonia-N	96.8	97.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407793

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2294064	Kjeldahl Nitrogen	106	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407865

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2293192	Kjeldahl Nitrogen	101	98.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2294502	Kjeldahl Nitrogen	97.4	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P407375

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2294502	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P407376

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2294511	NO2NO3-N	100	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P407345

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2294583	Total-P	107	111	P/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P407312

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2294537	O-Phosphate-P	97.5	96.8	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P407453

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2294582	Fluoride	100	100	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P407795

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2294509	Organic Carbon	101		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P407796

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2294602	Organic Carbon	95.8	96.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P407325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294506	Turbidity	6.64	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407526

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294304	Chloride	0.557	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407529

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294304	Sulfate	1.37	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407905

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2295799	Sulfate	0.364	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407808

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294502	Ammonia-N	0.823	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407793

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294064	Kjeldahl Nitrogen	2.41	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407865

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293192	Kjeldahl Nitrogen	2.63	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294502	Kjeldahl Nitrogen	3.03	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P407375

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294502	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P407376

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294511	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P407345

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294583	Total-P	3.65	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P407312

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294537	O-Phosphate-P	0.554	Spike	P	0 - 20

Reference Method: SM 2120 B-2011

Batch ID: P407324

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294506	Color (true)	0.214	Sample	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P407452

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294582	Total Alkalinity	1.39	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011

Batch ID: P407668

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294582	TDS	3.52	Sample	P	0 - 10

Reference Method: SM 2540 D-2011

Batch ID: P407485

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294857	TSS	7.14	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P407453

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294582	Fluoride	0.0	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P407795

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294509	Organic Carbon	0.178	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P407796

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2294602	Organic Carbon	0.383	Spike	P	0 - 20

* 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: A109320

Included Lab Sample IDs: 2294512, 2294513, 2294514

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.9	99.4	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A109325

Included Lab Sample IDs: 2294506, 2294507, 2294508

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.4	99.9	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A109326

Included Lab Sample IDs: 2294506, 2294507, 2294508

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A109348

Included Lab Sample IDs: 2294509, 2294510, 2294511

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110
NO2NO3-N	100	100	P/P	90 - 110
NO2NO3-N	102	103	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A109384

Included Lab Sample IDs: 2294506, 2294507, 2294508

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.1	P/P	90 - 110
Total Alkalinity	98.1	102	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A109384

Included Lab Sample IDs: 2294506, 2294507, 2294508

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A109387

Included Lab Sample IDs: 2294506, 2294507, 2294508

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Sulfate	101	99.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A109471

Included Lab Sample IDs: 2294509, 2294510, 2294511

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

Reference Method: SM 5310 B-2011

Run ID: A109530

Included Lab Sample IDs: 2294509, 2294510, 2294511

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	96.4	P/P	90 - 110
Organic Carbon	97.4	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A109570

Included Lab Sample IDs: 2294510

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A109573

Included Lab Sample IDs: 2294506

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A109591

Included Lab Sample IDs: 2294511

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.6	93.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A109613

Included Lab Sample IDs: 2294509

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.0	90.5	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				6.64	
EPA 300.0 Rev. 2.1	Chloride	98.5	96.5	97.5	0.557	
	Sulfate	97.3	95.3	98.1	1.37	
	Sulfate	96.7	96.7	97.5	0.364	
EPA 350.1 Rev. 2.0	Ammonia-N	93.6	96.8	97.6		0.823
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	109	106	102		2.41
	Kjeldahl Nitrogen	97.8	101	98.7		2.63
	Kjeldahl Nitrogen	98.0	97.4	101		3.03
EPA 353.2 Rev. 2.0	NO2NO3-N	100	102	102		0.0
	NO2NO3-N	100	100	100		0.0
EPA 365.1 Rev. 2.0	Total-P	108	107	111		3.65
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.9	97.5	96.8		0.554
SM 2120 B-2011	Color (true)	98.4			0.214	
SM 2320 B-2011	Total Alkalinity	101			1.39	
SM 2540 C-2011	TDS				3.52	
SM 2540 D-2011	TSS				7.14	
SM 4500 F-C-2011	Fluoride	101	100	100		0.0
SM 5310 B-2011	Organic Carbon	96.8	101			0.178
	Organic Carbon	96.4	95.8	96.3		0.383

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2294506, 2294507, 2294508
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2294506, 2294507, 2294508
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2294506, 2294507, 2294508
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2294509, 2294510, 2294511
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2294509, 2294510, 2294511
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2294509, 2294510, 2294511
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2294509, 2294510, 2294511
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2294512, 2294513, 2294514
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2294506, 2294507, 2294508
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2294506, 2294507, 2294508
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2294506, 2294507, 2294508
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2294506, 2294507, 2294508
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2294506, 2294507, 2294508
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2294509, 2294510, 2294511

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	12/10/2021			12/10/2021 14:47	Khloe J Berg	2294506, 2294507, 2294508
EPA 300.0 Rev. 2.1	12/10/2021			12/15/2021 16:59	Roberta Tatti	2294506
	12/10/2021			12/15/2021 17:11	Roberta Tatti	2294507
	12/10/2021			12/15/2021 17:23	Roberta Tatti	2294508
	12/10/2021			12/22/2021 16:27	Roberta Tatti	2294506
EPA 350.1 Rev. 2.0	12/10/2021			12/22/2021 13:40	Ping Hua	2294509
	12/10/2021			12/22/2021 13:41	Ping Hua	2294510
	12/10/2021			12/22/2021 13:42	Ping Hua	2294511
EPA 351.2 Rev. 2.0	12/10/2021	12/22/2021 12:57	Samantha L Bates	12/27/2021 15:29	Alexandra J Mattheus	2294510
	12/10/2021	12/27/2021 11:03	Samantha L Bates	12/28/2021 12:44	Virginia P. Brown	2294511
	12/10/2021	12/28/2021 02:23	Samantha L Bates	12/29/2021 16:22	Alexandra J Mattheus	2294509
EPA 353.2 Rev. 2.0	12/10/2021			12/13/2021 11:21	Beverly Y. Sanders	2294511
	12/10/2021			12/13/2021 12:06	Beverly Y. Sanders	2294509
	12/10/2021			12/13/2021 12:10	Beverly Y. Sanders	2294510
EPA 365.1 Rev. 2.0	12/10/2021	12/14/2021 10:43	Simonne.V. Calhoun	12/17/2021 16:59	Shengyu Ding	2294509
	12/10/2021	12/14/2021 10:43	Simonne.V. Calhoun	12/17/2021 17:02	Shengyu Ding	2294510
	12/10/2021	12/14/2021 10:43	Simonne.V. Calhoun	12/17/2021 17:03	Shengyu Ding	2294511
EPA 365.1 Rev. 2.0 dissolved	12/10/2021			12/10/2021 14:21	James L Waggeberby	2294512
	12/10/2021			12/10/2021 14:22	James L Waggeberby	2294513, 2294514
SM 2120 B-2011	12/10/2021			12/10/2021 15:28	Sarah A Nixon	2294506, 2294507
	12/10/2021			12/10/2021 15:29	Sarah A Nixon	2294508
SM 2320 B-2011	12/10/2021			12/14/2021 11:37	Sarah A Nixon	2294506
	12/10/2021			12/14/2021 11:49	Sarah A Nixon	2294507
	12/10/2021			12/14/2021 13:10	Sarah A Nixon	2294508
SM 2540 C-2011	12/10/2021			12/14/2021 13:02	Yijie Li	2294506, 2294507, 2294508
SM 2540 D-2011	12/10/2021			12/14/2021 13:02	Yijie Li	2294506, 2294507, 2294508
SM 4500 F-C-2011	12/10/2021			12/14/2021 11:37	Sarah A Nixon	2294506
	12/10/2021			12/14/2021 11:49	Sarah A Nixon	2294507
	12/10/2021			12/14/2021 13:10	Sarah A Nixon	2294508
SM 5310 B-2011	12/10/2021			12/20/2021 20:29	Khloe J Berg	2294509
	12/10/2021			12/20/2021 21:13	Khloe J Berg	2294510
	12/10/2021			12/21/2021 03:04	Khloe J Berg	2294511