

Chemical Analysis Report

TLH-ROC-2021-09-27-01

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

Event Description: **Run 11**
Request ID: **RQ-2021-09-06-57**
Customer: **TLH-ROC**
Project ID: **SMP**

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Date Certified: 21-OCT-2021 15:17



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: Boggy Creek @ SR22

Collection Date/Time: 09/27/2021 11:20

Field ID: G3TLHR0015

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2278421	EPA 180.1 Rev. 2.0	Turbidity	28		NTU	P404328	
	EPA 300.0 Rev. 2.1	Chloride	4.1		mg Cl/L	P404490	
		Sulfate	0.46	I	mg SO4/L	P404495	
	SM 2120 B-2011	Color (true)	370	J	PCU	P404281	
	SM 2320 B-2011	Total Alkalinity	0.75	I	mg CaCO3/L	P404535	
	SM 2540 C-2011	TDS	45		mg/L	P404764	
	SM 2540 D-2011	TSS	37		mg/L	P404756	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P404539	
2278423	EPA 350.1 Rev. 2.0	Ammonia-N	0.28		mg N/L	P404473	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P404325	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P404334	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P404311	
	SM 5310 B-2011	Organic Carbon	24		mg C/L	P404841	
2278425	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P404291	

Ref. Method and Comment:

SM 2120 B-2011: The result may be biased high because of matrix interference.

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

Sample Location: Mule Creek @ Alvie Holmes Rd.

Collection Date/Time: 09/27/2021 11:45

Field ID: G3TLHR0017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2278422	EPA 180.1 Rev. 2.0	Turbidity	4.8	A	NTU	P404328	
	EPA 300.0 Rev. 2.1	Chloride	4.1		mg Cl/L	P404490	
		Sulfate	0.43	I	mg SO4/L	P404495	
	SM 2120 B-2011	Color (true)	61		PCU	P404281	
	SM 2320 B-2011	Total Alkalinity	6.4		mg CaCO3/L	P404535	
	SM 2540 C-2011	TDS	24	I	mg/L	P404764	
	SM 2540 D-2011	TSS	2	I	mg/L	P404756	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P404539	
2278424	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P404473	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P404325	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.044		mg N/L	P404334	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P404311	
	SM 5310 B-2011	Organic Carbon	4.1		mg C/L	P404841	
2278426	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P404291	

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: FB

Collection Date/Time: 09/27/2021 11:50

Field ID: FB_09272021

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2278433	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P404327	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P404535	
	SM 2540 D-2011	TSS	2	U	mg/L	P404759	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P404539	
2278434	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P404412	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P404325	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P404334	
	EPA 365.1 Rev. 2.0	Total-P	0.002	I	mg P/L	P404311	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P405149	
2278435	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P404291	

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: The result was confirmed on 10/07/2021.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The result was confirmed on 9/28/2021.

Sample Location: Sandy Creek Upstream Boat Ramp

Collection Date/Time: 09/27/2021 12:05

Field ID: G3TLHR0037

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2278427	EPA 180.1 Rev. 2.0	Turbidity	6.2	A	NTU	P404327	
	SM 2320 B-2011	Total Alkalinity	1.3	I	mg CaCO3/L	P404535	
	SM 2540 D-2011	TSS	5	I	mg/L	P404759	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P404539	
2278429	EPA 350.1 Rev. 2.0	Ammonia-N	0.094		mg N/L	P404412	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P404325	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.062		mg N/L	P404334	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P404311	
	SM 5310 B-2011	Organic Carbon	14		mg C/L	P404841	
2278431	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P404291	

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: Eagle Nest Continuous Monitoring

Collection Date/Time: 09/27/2021 12:40

Field ID: G3TLHR0019

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2278428	EPA 180.1 Rev. 2.0	Turbidity	7.1		NTU	P404327	
	SM 2320 B-2011	Total Alkalinity	7.2		mg CaCO3/L	P404535	
	SM 2540 D-2011	TSS	8	I	mg/L	P404759	
	SM 4500 F-C-2011	Fluoride	0.054	I	mg F/L	P404539	
2278430	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P404412	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.94		mg N/L	P404325	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.024		mg N/L	P404334	
	EPA 365.1 Rev. 2.0	Total-P	0.059		mg P/L	P404311	
	SM 5310 B-2011	Organic Carbon	25		mg C/L	P404841	
2278432	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P404291	

Ref. Method and Comment:

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: P404327

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P404328

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404490

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404495

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404412

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404473

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404325

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404334

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404311

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404291

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

Reference Method: SM 2120 B-2011
Batch ID: P404281

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P404535

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

Reference Method: SM 2540 C-2011
Batch ID: P404764

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P404756

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P404759

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P404539

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P404841

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

Reference Method: SM 5310 B-2011
Batch ID: P405149

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: P404490

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404495

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404412

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404473

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404325

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404334

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: P404311

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: P404291

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	95.7		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P404281

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.8		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P404535

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

Reference Method: SM 4500 F-C-2011
Batch ID: P404539

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P404841

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

Reference Method: SM 5310 B-2011
Batch ID: P405149

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404490

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2277567	Chloride	103		P	90 - 110
2278659	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404495

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2277567	Sulfate	105		P	90 - 110
2278659	Sulfate	106		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404412

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278228	Ammonia-N	95.4	95.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404473

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278551	Ammonia-N	95.2	95.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404325

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278554	Kjeldahl Nitrogen	99.9	109	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404334

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278424	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404311

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278115	Total-P	110	110	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404291

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278559	O-Phosphate-P	98.2	97.3	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P404539

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278659	Fluoride	101	101	P/P	92 - 107

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P404841

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278606	Organic Carbon	94.6	95.2	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P405149

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2282115	Organic Carbon	92.8	94.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P404327

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278427	Turbidity	1.63	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P404328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278422	Turbidity	1.66	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404490

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278659	Chloride	0.527	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404495

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278659	Sulfate	0.542	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404412

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278228	Ammonia-N	0.186	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404473

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278551	Ammonia-N	0.0	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278554	Kjeldahl Nitrogen	5.22	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404334

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278424	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P404311

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278115	Total-P	0.321	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P404291

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278559	O-Phosphate-P	0.616	Spike	P	0 - 20

Reference Method: SM 2120 B-2011

Batch ID: P404281

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278604	Color (true)	1.99	Sample	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P404535

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278659	Total Alkalinity	1.33	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011

Batch ID: P404764

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278718	TDS	3.17	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011

Batch ID: P404539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278659	Fluoride	0.472	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011

Batch ID: P404841

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278606	Organic Carbon	0.499	Spike	P	0 - 20

Reference Method: SM 5310 B-2011

Batch ID: P405149

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2282115	Organic Carbon	1.28	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: SM 2120 B-2011

Run ID: A108034

Included Lab Sample IDs: 2278421, 2278422

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	101	P/P	85 - 115
Color (true)	99.8	102	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A108036

Included Lab Sample IDs: 2278425, 2278426, 2278431, 2278432, 2278435

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.1	97.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A108050

Included Lab Sample IDs: 2278421, 2278422, 2278427, 2278428, 2278433

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105
Turbidity	99.0	100	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A108052

Included Lab Sample IDs: 2278423, 2278424, 2278429, 2278430, 2278434

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A108078

Included Lab Sample IDs: 2278429, 2278430, 2278434

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.4	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A108079

Included Lab Sample IDs: 2278430

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A108100

Included Lab Sample IDs: 2278423, 2278424, 2278429, 2278430, 2278434

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: A108109

Included Lab Sample IDs: 2278423, 2278424

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A108109

Included Lab Sample IDs: 2278423, 2278424

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.9	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A108110

Included Lab Sample IDs: 2278423, 2278424, 2278429, 2278434

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	100	P/P	90 - 110
Total-P	99.0	98.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A108118

Included Lab Sample IDs: 2278421, 2278422

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Sulfate	101	103	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A108136

Included Lab Sample IDs: 2278421, 2278422, 2278427, 2278428, 2278433

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	95.5	P/P	90 - 110
Total Alkalinity	95.8	100	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A108136

Included Lab Sample IDs: 2278421, 2278422, 2278427, 2278428, 2278433

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

Reference Method: SM 5310 B-2011

Run ID: A108260

Included Lab Sample IDs: 2278423, 2278424, 2278429, 2278430

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.8	94.3	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A108370

Included Lab Sample IDs: 2278434

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.6	93.2	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				1.63	
	Turbidity				1.66	
EPA 300.0 Rev. 2.1	Chloride	101	103	103	0.527	
	Sulfate	104	106	105	0.542	
EPA 350.1 Rev. 2.0	Ammonia-N	96.4	95.4	95.6		0.186
	Ammonia-N	98.0	95.2	95.2		0.0
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	99.9	109		5.22
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	101	101		0.0
EPA 365.1 Rev. 2.0	Total-P	110	110	110		0.321
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	95.7	98.2	97.3		0.616
SM 2120 B-2011	Color (true)	99.8			1.99	
SM 2320 B-2011	Total Alkalinity	100			1.33	
SM 2540 C-2011	TDS				3.17	
SM 4500 F-C-2011	Fluoride	100	101	101		0.472
SM 5310 B-2011	Organic Carbon	97.0	94.6	95.2		0.499
	Organic Carbon	97.6	92.8	94.2		1.28

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2278421, 2278422, 2278427, 2278428, 2278433
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2278421, 2278422
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2278421, 2278422
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2278423, 2278424, 2278429, 2278430, 2278434
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2278423, 2278424, 2278429, 2278430, 2278434
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2278423, 2278424, 2278429, 2278430, 2278434
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2278423, 2278424, 2278429, 2278430, 2278434
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2278425, 2278426, 2278431, 2278432, 2278435
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2278421, 2278422
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2278421, 2278422, 2278427, 2278428, 2278433
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2278421, 2278422
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2278421, 2278422, 2278427, 2278428, 2278433
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2278421, 2278422, 2278427, 2278428, 2278433
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2278423, 2278424, 2278429, 2278430, 2278434

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	09/27/2021			09/28/2021 16:48	Khloe J Berg	2278421, 2278422, 2278427, 2278428, 2278433
EPA 300.0 Rev. 2.1	09/27/2021			10/01/2021 15:37	Lipi Saha	2278421
	09/27/2021			10/01/2021 15:50	Lipi Saha	2278422
EPA 350.1 Rev. 2.0	09/27/2021			09/30/2021 14:56	Ping Hua	2278429
	09/27/2021			09/30/2021 14:57	Ping Hua	2278430
	09/27/2021			09/30/2021 15:00	Ping Hua	2278434
	09/27/2021			10/01/2021 12:06	Ping Hua	2278423
	09/27/2021			10/01/2021 12:07	Ping Hua	2278424
EPA 351.2 Rev. 2.0	09/27/2021	09/29/2021 11:23	Benjamin T. Nordmann	10/01/2021 10:12	Alexandra J Mattheus	2278423
	09/27/2021	09/29/2021 11:23	Benjamin T. Nordmann	10/01/2021 10:14	Alexandra J Mattheus	2278424
	09/27/2021	09/29/2021 11:23	Benjamin T. Nordmann	10/01/2021 10:16	Alexandra J Mattheus	2278429
	09/27/2021	09/29/2021 11:23	Benjamin T. Nordmann	10/01/2021 10:17	Alexandra J Mattheus	2278430
	09/27/2021	09/29/2021 11:23	Benjamin T. Nordmann	10/01/2021 10:19	Alexandra J Mattheus	2278434
EPA 353.2 Rev. 2.0	09/27/2021			09/29/2021 09:25	Beverly Y. Sanders	2278424
	09/27/2021			09/29/2021 09:31	Beverly Y. Sanders	2278423
	09/27/2021			09/29/2021 09:33	Beverly Y. Sanders	2278429
	09/27/2021			09/29/2021 09:34	Beverly Y. Sanders	2278430
	09/27/2021			09/29/2021 09:35	Beverly Y. Sanders	2278434
EPA 365.1 Rev. 2.0	09/27/2021	09/29/2021 16:23	Simonne.V. Calhoun	09/30/2021 14:48	Lipi Saha	2278430
	09/27/2021	09/29/2021 16:23	Simonne.V. Calhoun	10/01/2021 12:15	Sarah A Nixon	2278423
	09/27/2021	09/29/2021 16:23	Simonne.V. Calhoun	10/01/2021 12:16	Sarah A Nixon	2278424
	09/27/2021	09/29/2021 16:23	Simonne.V. Calhoun	10/01/2021 12:17	Sarah A Nixon	2278429
	09/27/2021	09/29/2021 16:23	Simonne.V. Calhoun	10/01/2021 12:48	Sarah A Nixon	2278434
EPA 365.1 Rev. 2.0 dissolved	09/27/2021			09/28/2021 14:24	James L Waggeberby	2278425
	09/27/2021			09/28/2021 14:25	James L Waggeberby	2278426, 2278431
	09/27/2021			09/28/2021 14:26	James L Waggeberby	2278432
	09/27/2021			09/28/2021 14:27	James L Waggeberby	2278435
SM 2120 B-2011	09/27/2021			09/28/2021 14:41	Benjamin T. Nordmann	2278422
	09/27/2021			09/28/2021 15:12	Benjamin T. Nordmann	2278421
SM 2320 B-2011	09/27/2021			09/30/2021 21:44	Dale L. Simmons	2278421
	09/27/2021			09/30/2021 21:55	Dale L. Simmons	2278422
	09/27/2021			09/30/2021 22:04	Dale L. Simmons	2278427
	09/27/2021			09/30/2021 22:12	Dale L. Simmons	2278433
	09/27/2021			10/01/2021 00:34	Dale L. Simmons	2278428
SM 2540 C-2011	09/27/2021			09/30/2021 15:26	Yijie Li	2278421, 2278422
SM 2540 D-2011	09/27/2021			09/30/2021 15:26	Yijie Li	2278421, 2278422, 2278427, 2278428, 2278433
SM 4500 F-C-2011	09/27/2021			09/30/2021 21:44	Dale L. Simmons	2278421
	09/27/2021			09/30/2021 21:55	Dale L. Simmons	2278422

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 4500 F-C-2011	09/27/2021			09/30/2021 22:04	Dale L. Simmons	2278427
	09/27/2021			09/30/2021 22:12	Dale L. Simmons	2278433
	09/27/2021			10/01/2021 00:34	Dale L. Simmons	2278428
SM 5310 B-2011	09/27/2021			10/06/2021 20:09	Khloe J Berg	2278423
	09/27/2021			10/06/2021 20:19	Khloe J Berg	2278424
	09/27/2021			10/06/2021 20:29	Khloe J Berg	2278429
	09/27/2021			10/06/2021 20:40	Khloe J Berg	2278430
	09/27/2021			10/13/2021 17:27	Khloe J Berg	2278434