

Chemical Analysis Report

TLH-ROC-2021-01-28-01

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

Event Description: **Run 13**
Request ID: **RQ-2021-01-25-43**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Michael Eckles

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

Certified by: Colin Wright, Program Administrator

Date Certified: 19-FEB-2021 13:18

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

Case Narrative

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

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

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

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

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited by the Florida Department of Health Environmental Laboratory Certification Program or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Camp Branch @ Us90

Collection Date/Time: 01/28/2021 11:20

Field ID: G3TLHR0005

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2222176	EPA 180.1 Rev. 2.0	Turbidity	15		NTU	P393103	
	EPA 300.0 Rev. 2.1	Chloride	6.4		mg Cl/L	P393372	
		Sulfate	1.8		mg SO4/L	P393375	
	SM 2120 B-2011	Color (true)	63	A	PCU	P393101	
	SM 2320 B-2011	Total Alkalinity	13		mg CaCO3/L	P393236	
	SM 2540 C-2011	TDS	51		mg/L	P393488	
	SM 2540 D-2011	TSS	11		mg/L	P393537	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P393239	
2222179	EPA 350.1 Rev. 2.0	Ammonia-N	0.038		mg N/L	P393468	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P393547	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.054		mg N/L	P393226	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P393395	
	SM 5310 B-2011	Organic Carbon	9.1		mg C/L	P393263	
2222182	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.041		mg P/L	P393088	

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: Russ Mill Creek @ Union Rd

Collection Date/Time: 01/28/2021 10:00

Field ID: G2TLHR0037

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2222177	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P393103	
	EPA 300.0 Rev. 2.1	Chloride	4.8		mg Cl/L	P393372	
		Sulfate	1.9		mg SO4/L	P393375	
	SM 2120 B-2011	Color (true)	32	A	PCU	P393100	
	SM 2320 B-2011	Total Alkalinity	100		mg CaCO3/L	P393236	
	SM 2540 C-2011	TDS	121		mg/L	P393488	
	SM 2540 D-2011	TSS	3	I	mg/L	P393537	
	SM 4500 F-C-2011	Fluoride	0.049	I	mg F/L	P393239	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.040		mg N/L	P393468	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.34		mg N/L	P393548	
2222180	EPA 353.2 Rev. 2.0	NO2NO3-N	0.94		mg N/L	P393226	
	EPA 365.1 Rev. 2.0	Total-P	0.046		mg P/L	P393395	
	SM 5310 B-2011	Organic Carbon	4.6		mg C/L	P393263	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.021		mg P/L	P393088	
2222183	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.

Sample Location: Little Creek @ Treatment Plant Rd

Collection Date/Time: 01/28/2021 10:40

Field ID: G3TLHR0002

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2222178	EPA 180.1 Rev. 2.0	Turbidity	24		NTU	P393103	
	EPA 300.0 Rev. 2.1	Chloride	4.9		mg Cl/L	P393372	
		Sulfate	2.2		mg SO4/L	P393375	
	SM 2120 B-2011	Color (true)	46		PCU	P393101	
	SM 2320 B-2011	Total Alkalinity	43		mg CaCO3/L	P393236	
	SM 2540 C-2011	TDS	73	A	mg/L	P393488	
	SM 2540 D-2011	TSS	9	IA	mg/L	P393537	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P393239	
2222181	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P393468	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50		mg N/L	P393548	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.24		mg N/L	P393226	
	EPA 365.1 Rev. 2.0	Total-P	0.089		mg P/L	P393395	
	SM 5310 B-2011	Organic Carbon	7.9		mg C/L	P393263	
2222184	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.037		mg P/L	P393088	

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: P393103

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393372

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393375

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393468

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393547

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393548

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393226

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393395

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393088

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2120 B-2011
Batch ID: P393100

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P393101

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P393236

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

Reference Method: SM 2540 C-2011
Batch ID: P393488

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P393537

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P393239

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P393263

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: P393372

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P393375

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P393468

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P393547

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: P393548

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: P393226

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P393395

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P393088

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

Reference Method: SM 2120 B-2011
 Batch ID: P393100

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	103		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B-2011
Batch ID: P393101

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	103		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P393236

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	93.4		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P393239

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.7		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P393263

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393372

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221957	Chloride	104		P	90 - 110
2222076	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393375

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221957	Sulfate	102		P	90 - 110
2222076	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393468

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2222150	Ammonia-N	96.4	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393547

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2222080	Kjeldahl Nitrogen	104	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393548

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2222233	Kjeldahl Nitrogen	105	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393226

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2222139	NO2NO3-N	95.0	95.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393395

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2222195	Total-P	105	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393088

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2222131	O-Phosphate-P	103	101	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P393239

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2222389	Fluoride	98.0	96.8	P/P	94 - 107

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P393263

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2222180	Organic Carbon	98.3	99.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P393103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2222138	Turbidity	2.22	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221957	Chloride	1.26	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393375

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221957	Sulfate	4.50	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393468

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2222150	Ammonia-N	1.57	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393547

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2222080	Kjeldahl Nitrogen	1.64	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393548

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2222233	Kjeldahl Nitrogen	0.707	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393226

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2222139	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393395

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2222195	Total-P	2.33	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P393088

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2222131	O-Phosphate-P	2.14	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
 Batch ID: P393100

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2222177	Color (true)	0.856	Sample	P	0 - 20

Reference Method: SM 2120 B-2011
 Batch ID: P393101

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2222176	Color (true)	1.21	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
 Batch ID: P393236

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2222389	Total Alkalinity	0.279	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
 Batch ID: P393488

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2222178	TDS	8.22	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
 Batch ID: P393239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2222389	Fluoride	1.01	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
 Batch ID: P393263

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2222180	Organic Carbon	1.31	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: A103293
Included Lab Sample IDs: 2222182, 2222183, 2222184

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

Reference Method: SM 2120 B-2011
Run ID: A103296
Included Lab Sample IDs: 2222176, 2222177, 2222178

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	105	105	P/P	85 - 115
Color (true)	105	105	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A103297
Included Lab Sample IDs: 2222176, 2222177, 2222178

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	102	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A103358
Included Lab Sample IDs: 2222179, 2222180, 2222181

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

Reference Method: SM 2320 B-2011
Run ID: A103361
Included Lab Sample IDs: 2222176, 2222177, 2222178

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.9	95.1	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A103361
Included Lab Sample IDs: 2222176, 2222177, 2222178

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	103	95.9	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A103374
Included Lab Sample IDs: 2222179, 2222180, 2222181

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	101	P/P	90 - 110
Organic Carbon	99.9	99.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A103412

Included Lab Sample IDs: 2222176, 2222177, 2222178

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A103455

Included Lab Sample IDs: 2222179, 2222180, 2222181

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	98.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A103458

Included Lab Sample IDs: 2222179, 2222181

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	94.5	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A103475

Included Lab Sample IDs: 2222180

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A103527

Included Lab Sample IDs: 2222179, 2222180, 2222181

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	103	P/P	90 - 110
Kjeldahl Nitrogen	108	106	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				2.22	
EPA 300.0 Rev. 2.1	Chloride	104	104	101	1.26	
	Sulfate	102	102	101	4.50	
EPA 350.1 Rev. 2.0	Ammonia-N	98.7	96.4	98.4		1.57
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	104	107		1.64
	Kjeldahl Nitrogen	102	105	106		0.707
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	98.5	95.0	95.0		0.0
EPA 365.1 Rev. 2.0	Total-P	102	105	102		2.33
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	103	101		2.14
SM 2120 B-2011	Color (true)	103			0.856	
	Color (true)	103			1.21	
SM 2320 B-2011	Total Alkalinity	93.4			0.279	
SM 2540 C-2011	TDS				8.22	
SM 4500 F-C-2011	Fluoride	98.7	98.0	96.8		1.01
SM 5310 B-2011	Organic Carbon	98.1	98.3	99.9		1.31

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2222176, 2222177, 2222178
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2222176, 2222177, 2222178
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2222176, 2222177, 2222178
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2222179, 2222180, 2222181
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2222179, 2222180, 2222181
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2222179, 2222180, 2222181
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2222179, 2222180, 2222181
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2222182, 2222183, 2222184
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2222176, 2222177, 2222178
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2222176, 2222177, 2222178
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2222176, 2222177, 2222178
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2222176, 2222177, 2222178
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2222176, 2222177, 2222178
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2222179, 2222180, 2222181

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	01/28/2021			01/28/2021 14:59	Yen Ta	2222176, 2222177, 2222178
EPA 300.0 Rev. 2.1	01/28/2021			02/04/2021 07:22	Lipi Saha	2222176
	01/28/2021			02/04/2021 07:34	Lipi Saha	2222177
	01/28/2021			02/04/2021 07:46	Lipi Saha	2222178
EPA 350.1 Rev. 2.0	01/28/2021			02/07/2021 14:46	Ping Hua	2222179
	01/28/2021			02/07/2021 14:47	Ping Hua	2222180
	01/28/2021			02/07/2021 14:49	Ping Hua	2222181
EPA 351.2 Rev. 2.0	01/28/2021	02/09/2021 11:53	Yen Ta	02/10/2021 15:30	Julia Storbeck	2222179
	01/28/2021	02/09/2021 11:53	Yen Ta	02/10/2021 15:42	Julia Storbeck	2222180
	01/28/2021	02/09/2021 11:53	Yen Ta	02/10/2021 15:44	Julia Storbeck	2222181
EPA 353.2 Rev. 2.0	01/28/2021			02/02/2021 09:58	Beverly Y. Sanders	2222179
	01/28/2021			02/02/2021 11:08	Beverly Y. Sanders	2222180
	01/28/2021			02/02/2021 11:10	Beverly Y. Sanders	2222181
EPA 365.1 Rev. 2.0	01/28/2021	02/04/2021 17:06	Madeline Gruver	02/05/2021 15:40	Shengyu Wang	2222179
	01/28/2021	02/04/2021 17:06	Madeline Gruver	02/05/2021 15:42	Shengyu Wang	2222181
	01/28/2021	02/04/2021 17:06	Madeline Gruver	02/08/2021 13:14	Shengyu Wang	2222180
EPA 365.1 Rev. 2.0 dissolved	01/28/2021			01/28/2021 15:36	Blanca Fach	2222182
	01/28/2021			01/28/2021 15:37	Blanca Fach	2222183
	01/28/2021			01/28/2021 15:38	Blanca Fach	2222184
SM 2120 B-2011	01/28/2021			01/28/2021 17:29	Benjamin T. Nordmann	2222177
	01/28/2021			01/28/2021 17:34	Benjamin T. Nordmann	2222176
	01/28/2021			01/28/2021 17:35	Benjamin T. Nordmann	2222178
SM 2320 B-2011	01/28/2021			02/02/2021 06:30	Dale L. Simmons	2222176
	01/28/2021			02/02/2021 06:43	Dale L. Simmons	2222177
	01/28/2021			02/02/2021 06:55	Dale L. Simmons	2222178
SM 2540 C-2011	01/28/2021			02/02/2021 14:20	Yijie Li	2222176, 2222177, 2222178
SM 2540 D-2011	01/28/2021			02/02/2021 14:20	Yijie Li	2222176, 2222177, 2222178
SM 4500 F-C-2011	01/28/2021			02/02/2021 06:30	Dale L. Simmons	2222176
	01/28/2021			02/02/2021 06:43	Dale L. Simmons	2222177
	01/28/2021			02/02/2021 06:55	Dale L. Simmons	2222178
SM 5310 B-2011	01/28/2021			02/01/2021 21:06	Madeline Gruver	2222180
	01/28/2021			02/01/2021 21:55	Madeline Gruver	2222181
	01/28/2021			02/02/2021 01:38	Madeline Gruver	2222179