

Chemical Analysis Report

TLH-ROC-2021-01-27-01

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-2021-01-25-41**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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2600 Blair Stone Rd
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 17-FEB-2021 15:55



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: N Bay1

Collection Date/Time: 01/27/2021 11:20

Field ID: G3TLHR0021

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2221935	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P393077	
	EPA 300.0 Rev. 2.1	Bromide	36		mg Br/L	P393555	
	SM 2320 B-2011	Total Alkalinity	70		mg CaCO3/L	P393216	
	SM 2540 D-2011	TSS	3	U	mg/L	P393362	
	SM 4500 F-C-2011	Fluoride	0.57		mg F/L	P393219	
2221936	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P393459	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31	I	mg N/L	P393543	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.020		mg N/L	P393289	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P393316	
	SM 5310 B-2011	Organic Carbon	4.2		mg C/L	P393624	
2221937	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P393114	

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: Bayou George Creek @ Us231

Collection Date/Time: 01/27/2021 12:00

Field ID: G3TLHR0030

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2221932	EPA 180.1 Rev. 2.0	Turbidity	9.9		NTU	P393077	
	EPA 300.0 Rev. 2.1	Chloride	6.9		mg Cl/L	P393371	
		Sulfate	2.5		mg SO4/L	P393374	
	SM 2120 B-2011	Color (true)	150		PCU	P393061	
	SM 2320 B-2011	Total Alkalinity	16		mg CaCO3/L	P393235	
	SM 2540 C-2011	TDS	56		mg/L	P393485	
	SM 2540 D-2011	TSS	5	I	mg/L	P393359	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P393238	
2221933	EPA 350.1 Rev. 2.0	Ammonia-N	0.097		mg N/L	P393465	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.49		mg N/L	P393262	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.073		mg N/L	P393193	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P393323	
	SM 5310 B-2011	Organic Carbon	11		mg C/L	P393188	
2221934	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P393113	MS

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: P393077

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393371

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393374

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393555

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393459

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393465

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393262

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393543

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393193

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: P393289

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393316

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393323

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393113

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393114

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

Reference Method: SM 2120 B-2011
Batch ID: P393061

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P393216

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

Reference Method: SM 2320 B-2011
Batch ID: P393235

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

Reference Method: SM 2540 C-2011
Batch ID: P393485

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P393359

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P393362

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P393219

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P393238

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P393188

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

Reference Method: SM 5310 B-2011
Batch ID: P393624

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: P393371

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P393374

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P393555

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P393459

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P393465

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P393262

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P393543

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P393193

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: P393289

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: P393316

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393323

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393113

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393114

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

Reference Method: SM 2120 B-2011
Batch ID: P393061

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P393216

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.8		P	93 - 104

Reference Method: SM 2320 B-2011
Batch ID: P393235

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.1		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P393219

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

Reference Method: SM 4500 F-C-2011
Batch ID: P393238

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.3		P	90 - 106

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P393188

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.2		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P393624

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.9		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393371

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221630	Chloride	101		P	90 - 110
2221703	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393374

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221630	Sulfate	101		P	90 - 110
2221703	Sulfate	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393555

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2222197	Bromide	101		P	90 - 110
2222279	Bromide	101	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393459

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220828	Ammonia-N	98.9	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393465

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221708	Ammonia-N	95.8	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393262

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221667	Kjeldahl Nitrogen	114	110	F/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393543

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221391	Kjeldahl Nitrogen	104	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393193

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221861	NO2NO3-N	98.2	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393289

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221936	NO2NO3-N	100	99.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393316

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221563	Total-P	101	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393323

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221862	Total-P	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393113

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221590	O-Phosphate-P	79.8	79.2	F/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393114

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221774	O-Phosphate-P	101	101	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P393219

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2220715	Fluoride	104	102	P/P	94 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P393238

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221986	Fluoride	101	98.5	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P393188

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2221667	Organic Carbon	96.8	96.5	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P393624

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2223628	Organic Carbon	95.6	95.9	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P393077

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221561	Turbidity	4.07	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393371

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221630	Chloride	0.656	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393374

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221630	Sulfate	0.709	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P393555

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2222279	Bromide	0.371	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393459

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220828	Ammonia-N	3.34	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P393465

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221708	Ammonia-N	2.05	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393262

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221667	Kjeldahl Nitrogen	2.05	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P393543

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221391	Kjeldahl Nitrogen	1.25	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393193

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221861	NO2NO3-N	0.366	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P393289

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221936	NO2NO3-N	0.454	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393316

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221563	Total-P	2.65	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P393323

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221862	Total-P	0.117	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393113

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221590	O-Phosphate-P	0.755	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P393114

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221774	O-Phosphate-P	0.297	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P393061

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221860	Color (true)	0.996	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P393216

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221768	Total Alkalinity	1.09	Sample	P	0 - 8.1

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P393235

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221986	Total Alkalinity	0.967	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P393485

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221710	TDS	3.57	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P393219

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2220715	Fluoride	0.915	Spike	P	0 - 2.8

Reference Method: SM 4500 F-C-2011
Batch ID: P393238

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221986	Fluoride	2.29	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P393188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2221667	Organic Carbon	0.182	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P393624

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2223628	Organic Carbon	0.191	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B-2011

Run ID: A103286

Included Lab Sample IDs: 2221932

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A103288

Included Lab Sample IDs: 2221932, 2221935

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A103306

Included Lab Sample IDs: 2221934, 2221937

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

Reference Method: SM 5310 B-2011

Run ID: A103337

Included Lab Sample IDs: 2221933

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A103338

Included Lab Sample IDs: 2221933

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

Reference Method: SM 2320 B-2011

Run ID: A103352

Included Lab Sample IDs: 2221935

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	94.9	92.2	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A103352

Included Lab Sample IDs: 2221935

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

Reference Method: SM 2320 B-2011

Run ID: A103361

Included Lab Sample IDs: 2221932

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.3	92.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-2011

Run ID: A103361

Included Lab Sample IDs: 2221932

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	103	96.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A103386

Included Lab Sample IDs: 2221936

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A103395

Included Lab Sample IDs: 2221933

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.9	96.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A103412

Included Lab Sample IDs: 2221932

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A103445

Included Lab Sample IDs: 2221933, 2221936

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.0	98.0	P/P	90 - 110
Total-P	97.5	97.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A103455

Included Lab Sample IDs: 2221933, 2221936

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	99.2	P/P	90 - 110
Ammonia-N	98.8	99.3	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A103482

Included Lab Sample IDs: 2221935

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A103526

Included Lab Sample IDs: 2221936

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.6	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A103527

Included Lab Sample IDs: 2221936

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	104	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 SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					4.07	
EPA 300.0 Rev. 2.1	Bromide	103	101	101	101		0.371
	Chloride	102	101	102		0.656	
	Sulfate	102	101	102		0.709	
EPA 350.1 Rev. 2.0	Ammonia-N	100	98.9	103			3.34
	Ammonia-N	97.4	95.8	98.5			2.05
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.1	114	110			2.05
	Kjeldahl Nitrogen	105	104	102			1.25
EPA 353.2 Rev. 2.0	NO2NO3-N	100	98.2	98.8			0.366
	NO2NO3-N	100	100	99.8			0.454
EPA 365.1 Rev. 2.0	Total-P	104	101	104			2.65
	Total-P	104	104	104			0.117
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	79.8	79.2			0.755
	O-Phosphate-P	103	101	101			0.297
SM 2120 B-2011	Color (true)	102				0.996	
SM 2320 B-2011	Total Alkalinity	96.8				1.09	
	Total Alkalinity	98.1				0.967	
SM 2540 C-2011	TDS					3.57	
SM 4500 F-C-2011	Fluoride	98.7	104	102			0.915
	Fluoride	95.3	101	98.5			2.29
SM 5310 B-2011	Organic Carbon	97.2	96.8	96.5			0.182
	Organic Carbon	97.9	95.6	95.9			0.191

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2221932, 2221935
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2221935
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2221932
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2221932
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2221933, 2221936
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2221933, 2221936
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2221933, 2221936
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2221933, 2221936
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2221934, 2221937
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2221932
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2221932, 2221935
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2221932
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2221932, 2221935
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2221932, 2221935
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2221933, 2221936

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	01/27/2021			01/27/2021 16:06	Yen Ta	2221932, 2221935
EPA 300.0 Rev. 2.1	01/27/2021			02/04/2021 01:55	Lipi Saha	2221932
	01/27/2021			02/08/2021 23:56	Lipi Saha	2221935
EPA 350.1 Rev. 2.0	01/27/2021			02/07/2021 10:17	Ping Hua	2221936
	01/27/2021			02/07/2021 13:32	Ping Hua	2221933
EPA 351.2 Rev. 2.0	01/27/2021	02/02/2021 11:45	Yen Ta	02/03/2021 17:12	Julia Storbeck	2221933
	01/27/2021	02/09/2021 11:41	Yen Ta	02/10/2021 16:49	Julia Storbeck	2221936
EPA 353.2 Rev. 2.0	01/27/2021			02/01/2021 10:31	Beverly Y. Sanders	2221933
	01/27/2021			02/03/2021 08:56	Beverly Y. Sanders	2221936
EPA 365.1 Rev. 2.0	01/27/2021	02/03/2021 16:16	Madeline Gruver	02/05/2021 14:18	Shengyu Wang	2221933
	01/27/2021	02/03/2021 16:16	Madeline Gruver	02/05/2021 14:52	Shengyu Wang	2221936
EPA 365.1 Rev. 2.0 dissolved	01/27/2021			01/27/2021 19:45	Virginia P. Brown	2221934
	01/27/2021			01/27/2021 19:46	Virginia P. Brown	2221937
SM 2120 B-2011	01/27/2021			01/27/2021 16:35	Blanca Fach	2221932
SM 2320 B-2011	01/27/2021			01/30/2021 07:02	Dale L. Simmons	2221935
	01/27/2021			02/02/2021 01:29	Dale L. Simmons	2221932
SM 2540 C-2011	01/27/2021			01/29/2021 15:32	Yijie Li	2221932
SM 2540 D-2011	01/27/2021			01/29/2021 15:32	Yijie Li	2221932, 2221935
SM 4500 F-C-2011	01/27/2021			01/30/2021 04:55	Dale L. Simmons	2221935
	01/27/2021			02/02/2021 01:29	Dale L. Simmons	2221932
SM 5310 B-2011	01/27/2021			01/30/2021 10:09	Madeline Gruver	2221933
	01/27/2021			02/09/2021 10:17	Madeline Gruver	2221936