

Chemical Analysis Report

TLH-ROC-2021-12-06-01

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

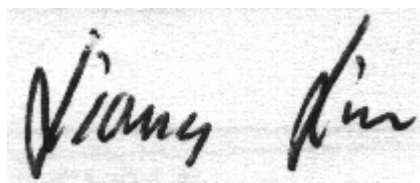
Event Description: **Run 15**
Request ID: **RQ-2021-08-02-69**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 29-DEC-2021 08:51

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: Fenholloway River

Collection Date/Time: 12/06/2021 12:05

Field ID: G1TLHR0030

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2293225	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P407146	
	EPA 300.0 Rev. 2.1	Chloride	10		mg Cl/L	P407362	
		Sulfate	8.7		mg SO4/L	P407365	
	SM 2120 B-2011	Color (true)	440		PCU	P407133	
	SM 2320 B-2011	Total Alkalinity	105		mg CaCO3/L	P407287	
	SM 2540 C-2011	TDS	186		mg/L	P407670	
	SM 2540 D-2011	TSS	2	I	mg/L	P407692	
	SM 4500 F-C-2011	Fluoride	0.098	I	mg F/L	P407293	
2293227	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P407749	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.82		mg N/L	P407647	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.062		mg N/L	P407180	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P407126	
	SM 5310 B-2011	Organic Carbon	29		mg C/L	P407554	
2293229	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P407118	

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: Weaver Warrior @ Old RR Track

Collection Date/Time: 12/06/2021 11:30

Field ID: G1TLHR0118

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2293226	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P407146	
	EPA 300.0 Rev. 2.1	Chloride	5.5		mg Cl/L	P407362	
		Sulfate	0.20	U	mg SO4/L	P407365	
	SM 2120 B-2011	Color (true)	260		PCU	P407133	
	SM 2320 B-2011	Total Alkalinity	40		mg CaCO3/L	P407287	
	SM 2540 C-2011	TDS	98		mg/L	P407670	
	SM 2540 D-2011	TSS	4	I	mg/L	P407692	
	SM 4500 F-C-2011	Fluoride	0.058	I	mg F/L	P407293	
2293228	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P407749	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.98		mg N/L	P407461	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P407180	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P407126	
	SM 5310 B-2011	Organic Carbon	26		mg C/L	P407604	
2293230	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.019		mg P/L	P407118	

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: 12/06/2021 11:40

Field ID: FB_12062021

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2293231	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P407146	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P407362	
		Sulfate	0.20	U	mg SO4/L	P407365	
		Color (true)	2.5	U	PCU	P407133	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P407287	
	SM 2540 C-2011	TDS	15	U	mg/L	P407670	
	SM 2540 D-2011	TSS	2	U	mg/L	P407692	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P407293	
2293232	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P407749	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P407461	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P407180	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P407126	
	SM 5310 B-2011	Organic Carbon	0.56	I	mg C/L	P407605	
2293233	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P407118	

Ref. Method and Comment:

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

SM 5310 B-2011: The result was confirmed on 12/20/2021.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P407146

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407362

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407365

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407749

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407461

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407647

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P407180

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P407126

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P407118

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: P407133

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P407287

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

Reference Method: SM 2540 C-2011
Batch ID: P407670

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P407692

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P407293

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P407554

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

Reference Method: SM 5310 B-2011
Batch ID: P407604

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

Reference Method: SM 5310 B-2011
Batch ID: P407605

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: P407362

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407365

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407749

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407461

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407647

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P407180

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: P407126

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P407118

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

Reference Method: SM 2120 B-2011
Batch ID: P407133

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.2		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P407287

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.7		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P407293

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

Reference Method: SM 5310 B-2011
Batch ID: P407554

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.5		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P407604

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.6		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P407605

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407362

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2292967	Chloride	102		P	90 - 110
2293205	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407365

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2292967	Sulfate	98.5		P	90 - 110
2293205	Sulfate	97.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407749

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2293200	Ammonia-N	96.8	96.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407461

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2293206	Kjeldahl Nitrogen	98.9	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407647

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2293199	Kjeldahl Nitrogen	98.3	97.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P407180

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2293192	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P407126

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2293228	Total-P	108	109	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P407118

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2293204	O-Phosphate-P	97.7	99.2	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P407293

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2293857	Fluoride	101	101	P/P	92 - 107

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P407554

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2292006	Organic Carbon	97.2	97.4	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P407604

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2292611	Organic Carbon	94.4	95.4	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P407605

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2293908	Organic Carbon	97.2	95.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P407146

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293191	Turbidity	1.60	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407362

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292967	Chloride	0.722	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P407365

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292967	Sulfate	0.922	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P407749

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293200	Ammonia-N	0.0	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407461

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293206	Kjeldahl Nitrogen	0.774	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P407647

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293199	Kjeldahl Nitrogen	0.872	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P407180

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293192	NO2NO3-N	0.484	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P407126

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293228	Total-P	1.14	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P407118

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293204	O-Phosphate-P	1.22	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P407133

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293475	Color (true)	2.22	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P407287

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293857	Total Alkalinity	0.339	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P407670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293198	TDS	4.30	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P407293

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293857	Fluoride	0.0	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P407554

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292006	Organic Carbon	0.0944	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P407604

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2292611	Organic Carbon	0.598	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P407605

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2293908	Organic Carbon	1.16	Spike	P	0 - 20

Quality Assurance Report Precision

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A109244

Included Lab Sample IDs: 2293229, 2293230, 2293233

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.5	99.7	P/P	90 - 110
O-Phosphate-P	99.7	101	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A109249

Included Lab Sample IDs: 2293225, 2293226, 2293231

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A109254

Included Lab Sample IDs: 2293225, 2293226, 2293231

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A109256

Included Lab Sample IDs: 2293225, 2293226, 2293231

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	104	104	P/P	90 - 110
Sulfate	100	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A109264

Included Lab Sample IDs: 2293227, 2293228, 2293232

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A109294

Included Lab Sample IDs: 2293227

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	104	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A109296

Included Lab Sample IDs: 2293228, 2293232

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	100	P/P	90 - 110
Total-P	99.5	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A109312

Included Lab Sample IDs: 2293225, 2293226, 2293231

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.3	100	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A109312

Included Lab Sample IDs: 2293225, 2293226, 2293231

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

Reference Method: SM 5310 B-2011

Run ID: A109430

Included Lab Sample IDs: 2293227

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	96.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A109450

Included Lab Sample IDs: 2293228, 2293232

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.4	95.3	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A109452

Included Lab Sample IDs: 2293228, 2293232

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.0	96.4	P/P	90 - 110
Organic Carbon	96.4	96.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A109511

Included Lab Sample IDs: 2293227, 2293228, 2293232

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.4	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A109533

Included Lab Sample IDs: 2293227

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	101	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				1.60	
EPA 300.0 Rev. 2.1	Chloride	101	102	100	0.722	
	Sulfate	97.0	98.5	97.0	0.922	
EPA 350.1 Rev. 2.0	Ammonia-N	97.6	96.8	96.8		0.0
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.9	98.9	98.0		0.774
	Kjeldahl Nitrogen	104	98.3	97.4		0.872
EPA 353.2 Rev. 2.0	NO2NO3-N	102	104	103		0.484
EPA 365.1 Rev. 2.0	Total-P	106	108	109		1.14
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.2	97.7	99.2		1.22
SM 2120 B-2011	Color (true)	99.2			2.22	
SM 2320 B-2011	Total Alkalinity	99.7			0.339	
SM 2540 C-2011	TDS				4.30	
SM 4500 F-C-2011	Fluoride	101	101	101		0.0
SM 5310 B-2011	Organic Carbon	94.5	97.2	97.4		0.0944
	Organic Carbon	93.6	94.4	95.4		0.598
	Organic Carbon	94.8	97.2	95.6		1.16

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2293225, 2293226, 2293231
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2293225, 2293226, 2293231
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2293225, 2293226, 2293231
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2293227, 2293228, 2293232
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2293227, 2293228, 2293232
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2293227, 2293228, 2293232
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2293227, 2293228, 2293232
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2293229, 2293230, 2293233
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2293225, 2293226, 2293231
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2293225, 2293226, 2293231
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2293225, 2293226, 2293231
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2293225, 2293226, 2293231
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2293225, 2293226, 2293231
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2293227, 2293228, 2293232

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	12/06/2021			12/07/2021 17:29	Khloe J Berg	2293225, 2293226, 2293231
EPA 300.0 Rev. 2.1	12/06/2021			12/10/2021 15:39	Roberta Tatti	2293225
	12/06/2021			12/10/2021 15:51	Roberta Tatti	2293226
	12/06/2021			12/10/2021 16:03	Roberta Tatti	2293231
EPA 350.1 Rev. 2.0	12/06/2021			12/21/2021 11:59	Ping Hua	2293227
	12/06/2021			12/21/2021 12:00	Ping Hua	2293228
	12/06/2021			12/21/2021 12:02	Ping Hua	2293232
EPA 351.2 Rev. 2.0	12/06/2021	12/15/2021 10:04	Alexandra J Mattheus	12/16/2021 14:25	Alexandra J Mattheus	2293228
	12/06/2021	12/15/2021 10:04	Alexandra J Mattheus	12/16/2021 14:27	Alexandra J Mattheus	2293232
	12/06/2021	12/20/2021 10:35	Samantha L Bates	12/22/2021 10:05	Alexandra J Mattheus	2293227
EPA 353.2 Rev. 2.0	12/06/2021			12/08/2021 09:10	Beverly Y. Sanders	2293228
	12/06/2021			12/08/2021 09:12	Beverly Y. Sanders	2293232
	12/06/2021			12/08/2021 10:13	Beverly Y. Sanders	2293227
EPA 365.1 Rev. 2.0	12/06/2021	12/08/2021 18:00	Simonne.V. Calhoun	12/09/2021 13:27	Shengyu Ding	2293227
	12/06/2021	12/08/2021 18:00	Simonne.V. Calhoun	12/09/2021 13:48	Shengyu Ding	2293232
	12/06/2021	12/08/2021 18:00	Simonne.V. Calhoun	12/09/2021 13:57	Shengyu Ding	2293228
EPA 365.1 Rev. 2.0 dissolved	12/06/2021			12/07/2021 15:05	James L Waggeberby	2293229
	12/06/2021			12/07/2021 15:06	James L Waggeberby	2293230
	12/06/2021			12/07/2021 15:11	James L Waggeberby	2293233
SM 2120 B-2011	12/06/2021			12/07/2021 15:37	Sarah A Nixon	2293231
	12/06/2021			12/07/2021 16:23	Sarah A Nixon	2293225
	12/06/2021			12/07/2021 16:24	Sarah A Nixon	2293226
SM 2320 B-2011	12/06/2021			12/09/2021 19:42	Dale L. Simmons	2293225
	12/06/2021			12/09/2021 19:56	Dale L. Simmons	2293226
	12/06/2021			12/09/2021 20:04	Dale L. Simmons	2293231
SM 2540 C-2011	12/06/2021			12/10/2021 15:28	Yijie Li	2293225, 2293226, 2293231
SM 2540 D-2011	12/06/2021			12/10/2021 15:28	Yijie Li	2293225, 2293226, 2293231
SM 4500 F-C-2011	12/06/2021			12/09/2021 19:42	Dale L. Simmons	2293225
	12/06/2021			12/09/2021 19:56	Dale L. Simmons	2293226
	12/06/2021			12/09/2021 20:04	Dale L. Simmons	2293231
SM 5310 B-2011	12/06/2021			12/15/2021 23:33	Khloe J Berg	2293227
	12/06/2021			12/16/2021 21:27	Khloe J Berg	2293228
	12/06/2021			12/16/2021 23:33	Khloe J Berg	2293232