

Chemical Analysis Report

TLH-ROC-2022-01-05-02

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

Event Description: **Run 12**
Request ID: **RQ-2022-01-10-35**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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2600 Blair Stone Rd
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 27-JAN-2022 11:53

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the "T" and a long horizontal stroke at the end.

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: 01/05/2022 10:10

Field ID: G3TLHR0015

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2297664	EPA 180.1 Rev. 2.0	Turbidity	6.6		NTU	P408197	
	EPA 300.0 Rev. 2.1	Chloride	6.6		mg Cl/L	P408944	
		Sulfate	1.6		mg SO4/L	P408947	
	SM 2120 B-2011	Color (true)**	78		PCU	P408178	
	SM 2320 B-2011	Total Alkalinity	5.0		mg CaCO3/L	P408233	
	SM 2540 C-2011	TDS	33		mg/L	P408445	
	SM 2540 D-2011	TSS	3	I	mg/L	P408436	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P408234	
2297665	EPA 350.1 Rev. 2.0	Ammonia-N	0.12		mg N/L	P408413	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40		mg N/L	P408324	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.048		mg N/L	P408327	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P408330	
	SM 5310 B-2011	Organic Carbon	6.9		mg C/L	P408350	
2297666	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P408172	

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: Parker Bayou Continuous Monitoring

Collection Date/Time: 01/05/2022 10:25

Field ID: G3TLHR0018

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2297670	EPA 180.1 Rev. 2.0	Turbidity	4.4		NTU	P408197	
	SM 2320 B-2011	Total Alkalinity	78		mg CaCO3/L	P408277	
	SM 2540 D-2011	TSS	10	A	mg/L	P408442	
	SM 4500 F-C-2011	Fluoride	0.65		mg F/L	P408280	
2297672	EPA 350.1 Rev. 2.0	Ammonia-N	0.095		mg N/L	P408414	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.43		mg N/L	P408325	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.026		mg N/L	P408288	
	EPA 365.1 Rev. 2.0	Total-P	0.033		mg P/L	P408336	
	SM 5310 B-2011	Organic Carbon	3.7		mg C/L	P408313	
2297674	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P408171	

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: Parker Bayou @ Mouth

Collection Date/Time: 01/05/2022 10:40

Field ID: G3TLHR0043

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2297671	EPA 180.1 Rev. 2.0	Turbidity	2.2	A	NTU	P408197	
	SM 2320 B-2011	Total Alkalinity	83		mg CaCO3/L	P408277	
	SM 2540 D-2011	TSS	4	I	mg/L	P408442	
	SM 4500 F-C-2011	Fluoride	0.79		mg F/L	P408280	
2297673	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P408414	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25	I	mg N/L	P408325	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018		mg N/L	P408288	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P408336	
	SM 5310 B-2011	Organic Carbon	4.3		mg C/L	P408313	
2297675	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P408171	

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: Parker Creek @ Park

Collection Date/Time: 01/05/2022 11:00

Field ID: G3TLHR0040

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2297667	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P408197	
	EPA 300.0 Rev. 2.1	Chloride	9.6		mg Cl/L	P408944	
		Sulfate	20		mg SO4/L	P408947	
	SM 2120 B-2011	Color (true)**	23	A	PCU	P408178	
	SM 2320 B-2011	Total Alkalinity	15		mg CaCO3/L	P408233	
	SM 2540 C-2011	TDS	64		mg/L	P408445	
	SM 2540 D-2011	TSS	2	I	mg/L	P408436	
	SM 4500 F-C-2011	Fluoride	0.041	I	mg F/L	P408234	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P408415	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24		mg N/L	P408326	
2297668	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P408328	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P408330	
	SM 5310 B-2011	Organic Carbon	4.3		mg C/L	P408350	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P408172	
	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: Watson Bayou South

Collection Date/Time: 01/05/2022 11:35

Field ID: G3TLHR0006

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2297661	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P408197	
	SM 2320 B-2011	Total Alkalinity	104		mg CaCO3/L	P408277	
	SM 2540 D-2011	TSS	4	I	mg/L	P408441	
	SM 4500 F-C-2011	Fluoride	0.99		mg F/L	P408280	
2297662	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P408414	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27	I	mg N/L	P408325	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P408288	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P408118	
	SM 5310 B-2011	Organic Carbon	2.8		mg C/L	P408585	
2297663	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P408171	

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P408197

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P408944

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P408947

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P408413

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P408414

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P408415

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408324

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408325

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408326

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408288

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408327

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408328

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P408118

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P408330

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P408336

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P408171

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P408172

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

Reference Method: SM 2120 B-2011
Batch ID: P408178

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P408233

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

Reference Method: SM 2320 B-2011
Batch ID: P408277

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

Reference Method: SM 2540 C-2011
Batch ID: P408445

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P408436

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P408441

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P408442

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P408234

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P408280

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P408313

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P408350

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

Reference Method: SM 5310 B-2011
Batch ID: P408585

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: P408944

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P408947

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P408413

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P408414

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P408415

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408324

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408325

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.5		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408326

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: P408288

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408327

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	105		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408328

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: P408118

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P408330

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P408336

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	107		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P408171

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P408172

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.9		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P408178

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.1		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P408233

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.9		P	94 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P408277

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

Reference Method: SM 4500 F-C-2011
Batch ID: P408234

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.7		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P408280

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.6		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P408313

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

Reference Method: SM 5310 B-2011
Batch ID: P408350

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

Reference Method: SM 5310 B-2011
Batch ID: P408585

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P408944

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297392	Chloride	99.7		P	90 - 110
2297606	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P408947

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297392	Sulfate	95.8		P	90 - 110
2297606	Sulfate	97.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P408413

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297645	Ammonia-N	99.0	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P408414

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297662	Ammonia-N	100	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P408415

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297668	Ammonia-N	97.6	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408324

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297838	Kjeldahl Nitrogen	101	99.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408325

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297945	Kjeldahl Nitrogen	96.2	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408326

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297775	Kjeldahl Nitrogen	90.5	94.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408288

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297529	NO2NO3-N	103	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408327

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297610	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408328

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297668	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P408118

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297479	Total-P	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P408330

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297746	Total-P	108	109	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P408336

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297945	Total-P	103	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P408171

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297738	O-Phosphate-P	99.0	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P408172

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297717	O-Phosphate-P	94.3	101	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P408234

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297392	Fluoride	99.5	98.3	P/P	92 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P408280

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297988	Fluoride	99.7	100	P/P	92 - 107

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P408313

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297673	Organic Carbon	97.2	95.5	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P408350

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2297650	Organic Carbon	97.4	98.8	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P408585

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2298648	Organic Carbon	95.4	96.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P408197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297671	Turbidity	4.06	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P408944

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297392	Chloride	1.70	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P408947

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297392	Sulfate	0.0651	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P408413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297645	Ammonia-N	1.80	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P408414

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297662	Ammonia-N	0.186	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P408415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297668	Ammonia-N	0.609	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408324

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297838	Kjeldahl Nitrogen	1.30	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297945	Kjeldahl Nitrogen	6.09	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408326

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297775	Kjeldahl Nitrogen	4.00	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408288

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297529	NO2NO3-N	0.466	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408327

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297610	NO2NO3-N	0.489	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297668	NO2NO3-N	0.662	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P408118

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297479	Total-P	0.459	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P408330

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297746	Total-P	0.422	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P408336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297945	Total-P	1.31	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P408171

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297738	O-Phosphate-P	0.291	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P408172

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297717	O-Phosphate-P	4.67	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P408178

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297667	Color (true)	2.61	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P408233

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297392	Total Alkalinity	0.275	Sample	P	0 - 5.2

Reference Method: SM 2320 B-2011
Batch ID: P408277

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297988	Total Alkalinity	2.63	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P408445

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297164	TDS	3.61	Sample	P	0 - 10

Reference Method: SM 2540 D-2011
Batch ID: P408441

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297478	TSS	7.06	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P408234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297392	Fluoride	0.990	Spike	P	0 - 2.1

Reference Method: SM 4500 F-C-2011
Batch ID: P408280

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297988	Fluoride	0.483	Spike	P	0 - 2.1

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P408313

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297673	Organic Carbon	1.54	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P408350

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2297650	Organic Carbon	0.838	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P408585

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2298648	Organic Carbon	1.20	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: A109704

Included Lab Sample IDs: 2297663, 2297666, 2297669, 2297674, 2297675

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.9	P/P	90 - 110
O-Phosphate-P	100	101	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A109708

Included Lab Sample IDs: 2297664, 2297667

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A109721

Included Lab Sample IDs: 2297661, 2297664, 2297667, 2297670, 2297671

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

Reference Method: SM 2320 B-2011

Run ID: A109737

Included Lab Sample IDs: 2297664, 2297667

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.6	98.8	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A109737

Included Lab Sample IDs: 2297664, 2297667

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	99.0	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A109759

Included Lab Sample IDs: 2297661, 2297670, 2297671

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

Reference Method: SM 4500 F-C-2011

Run ID: A109759

Included Lab Sample IDs: 2297661, 2297670, 2297671

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A109769

Included Lab Sample IDs: 2297662, 2297672, 2297673

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A109779

Included Lab Sample IDs: 2297672, 2297673

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.5	97.2	P/P	90 - 110
Organic Carbon	97.2	95.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A109786

Included Lab Sample IDs: 2297665, 2297668

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

Reference Method: SM 5310 B-2011

Run ID: A109789

Included Lab Sample IDs: 2297665, 2297668

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	97.8	P/P	90 - 110
Organic Carbon	98.6	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A109813

Included Lab Sample IDs: 2297662

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.0	96.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A109818

Included Lab Sample IDs: 2297662, 2297665, 2297668, 2297672, 2297673

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	99.9	P/P	90 - 110
Ammonia-N	99.2	102	P/P	90 - 110
Ammonia-N	99.9	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A109845

Included Lab Sample IDs: 2297662, 2297665, 2297668, 2297672, 2297673

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.0	94.6	P/P	90 - 110
Kjeldahl Nitrogen	94.1	96.9	P/P	90 - 110
Kjeldahl Nitrogen	95.6	92.0	P/P	90 - 110
Kjeldahl Nitrogen	96.9	95.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A109871

Included Lab Sample IDs: 2297672, 2297673

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A109878

Included Lab Sample IDs: 2297665, 2297668

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	98.5	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A109902

Included Lab Sample IDs: 2297662

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.2	95.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A110040

Included Lab Sample IDs: 2297664, 2297667

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Sulfate	99.7	100	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				4.06	
EPA 300.0 Rev. 2.1	Chloride	98.8	99.7	100	1.70	
	Sulfate	96.8	95.8	97.5	0.0651	
EPA 350.1 Rev. 2.0	Ammonia-N	98.8	99.0	101		1.80
	Ammonia-N	98.0	100	101		0.186
	Ammonia-N	98.4	97.6	98.6		0.609
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.8	101	99.1		1.30
	Kjeldahl Nitrogen	99.5	96.2	104		6.09
	Kjeldahl Nitrogen	101	90.5	94.2		4.00
EPA 353.2 Rev. 2.0	NO2NO3-N	102	103	103		0.466
	NO2NO3-N	105	102	102		0.489
	NO2NO3-N	102	101	100		0.662
EPA 365.1 Rev. 2.0	Total-P	110	103	103		0.459
	Total-P	108	108	109		0.422
	Total-P	107	103	101		1.31
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.6	99.0	99.3		0.291
	O-Phosphate-P	98.9	94.3	101		4.67
SM 2120 B-2011	Color (true)	99.1			2.61	
SM 2320 B-2011	Total Alkalinity	99.9			0.275	
	Total Alkalinity	100			2.63	
SM 2540 C-2011	TDS				3.61	
SM 2540 D-2011	TSS				7.06	
SM 4500 F-C-2011	Fluoride	98.7	99.5	98.3		0.990
	Fluoride	99.6	99.7	100		0.483
SM 5310 B-2011	Organic Carbon	96.8	97.2	95.5		1.54
	Organic Carbon	95.2	97.4	98.8		0.838
	Organic Carbon	97.0	95.4	96.8		1.20

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2297661, 2297664, 2297667, 2297670, 2297671
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2297664, 2297667
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2297664, 2297667
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2297662, 2297665, 2297668, 2297672, 2297673
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2297662, 2297665, 2297668, 2297672, 2297673
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2297662, 2297665, 2297668, 2297672, 2297673
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2297662, 2297665, 2297668, 2297672, 2297673
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2297663, 2297666, 2297669, 2297674, 2297675
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2297664, 2297667
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2297661, 2297664, 2297667, 2297670, 2297671
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2297664, 2297667
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2297661, 2297664, 2297667, 2297670, 2297671
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2297661, 2297664, 2297667, 2297670, 2297671
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2297662, 2297665, 2297668, 2297672, 2297673

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	01/05/2022			01/06/2022 16:50	Khloe J Berg	2297661, 2297664, 2297667, 2297670, 2297671
EPA 300.0 Rev. 2.1	01/05/2022			01/25/2022 18:26	Roberta Tatti	2297664
	01/05/2022			01/25/2022 18:38	Roberta Tatti	2297667
EPA 350.1 Rev. 2.0	01/05/2022			01/12/2022 11:12	Ping Hua	2297665
	01/05/2022			01/12/2022 11:27	Ping Hua	2297662
	01/05/2022			01/12/2022 11:31	Ping Hua	2297672
	01/05/2022			01/12/2022 11:32	Ping Hua	2297673
	01/05/2022			01/12/2022 11:53	Ping Hua	2297668
EPA 351.2 Rev. 2.0	01/05/2022	01/12/2022 10:53	Samantha L Bates	01/13/2022 09:25	Alexandra J Mattheus	2297665
	01/05/2022	01/12/2022 10:53	Samantha L Bates	01/13/2022 09:47	Alexandra J Mattheus	2297662
	01/05/2022	01/12/2022 10:53	Samantha L Bates	01/13/2022 09:49	Alexandra J Mattheus	2297672
	01/05/2022	01/12/2022 10:53	Samantha L Bates	01/13/2022 09:54	Alexandra J Mattheus	2297673
	01/05/2022	01/12/2022 10:53	Samantha L Bates	01/13/2022 10:15	Alexandra J Mattheus	2297668
EPA 353.2 Rev. 2.0	01/05/2022			01/10/2022 10:34	Beverly Y. Sanders	2297662
	01/05/2022			01/10/2022 10:35	Beverly Y. Sanders	2297672
	01/05/2022			01/10/2022 10:36	Beverly Y. Sanders	2297673
	01/05/2022			01/11/2022 10:12	Beverly Y. Sanders	2297665
	01/05/2022			01/11/2022 10:19	Beverly Y. Sanders	2297668
EPA 365.1 Rev. 2.0	01/05/2022	01/06/2022 16:50	Simonne.V. Calhoun	01/07/2022 15:49	Shengyu Ding	2297662
	01/05/2022	01/12/2022 15:15	Simonne.V. Calhoun	01/13/2022 15:58	Shengyu Ding	2297672
	01/05/2022	01/12/2022 15:15	Simonne.V. Calhoun	01/13/2022 15:59	Shengyu Ding	2297673
	01/05/2022	01/12/2022 15:15	Simonne.V. Calhoun	01/14/2022 12:23	Shengyu Ding	2297665
	01/05/2022	01/12/2022 15:15	Simonne.V. Calhoun	01/14/2022 12:24	Shengyu Ding	2297668
EPA 365.1 Rev. 2.0 dissolved	01/05/2022			01/06/2022 11:40	James L Waggeberby	2297663
	01/05/2022			01/06/2022 11:41	James L Waggeberby	2297674
	01/05/2022			01/06/2022 11:42	James L Waggeberby	2297675
	01/05/2022			01/06/2022 11:59	James L Waggeberby	2297666
	01/05/2022			01/06/2022 12:00	James L Waggeberby	2297669
SM 2120 B-2011	01/05/2022			01/06/2022 15:31	Sarah A Nixon	2297667
	01/05/2022			01/06/2022 15:34	Sarah A Nixon	2297664
SM 2320 B-2011	01/05/2022			01/06/2022 20:21	Dale L. Simmons	2297664
	01/05/2022			01/06/2022 20:33	Dale L. Simmons	2297667
	01/05/2022			01/08/2022 05:22	Dale L. Simmons	2297661
	01/05/2022			01/08/2022 05:34	Dale L. Simmons	2297670
	01/05/2022			01/08/2022 05:46	Dale L. Simmons	2297671
SM 2540 C-2011	01/05/2022			01/07/2022 14:36	Yijie Li	2297664, 2297667
SM 2540 D-2011	01/05/2022			01/07/2022 14:36	Yijie Li	2297661, 2297664, 2297667, 2297670, 2297671
SM 4500 F-C-2011	01/05/2022			01/06/2022 20:21	Dale L. Simmons	2297664

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	01/05/2022			01/06/2022 20:33	Dale L. Simmons	2297667
	01/05/2022			01/08/2022 04:33	Dale L. Simmons	2297661
	01/05/2022			01/08/2022 04:38	Dale L. Simmons	2297670
	01/05/2022			01/08/2022 04:44	Dale L. Simmons	2297671
SM 5310 B-2011	01/05/2022			01/09/2022 21:09	Touraj Touran	2297665
	01/05/2022			01/10/2022 01:29	Touraj Touran	2297668
	01/05/2022			01/11/2022 02:18	Khloe J Berg	2297673
	01/05/2022			01/11/2022 04:55	Khloe J Berg	2297672
	01/05/2022			01/15/2022 02:03	Khloe J Berg	2297662