

Chemical Analysis Report

TLH-ROC-2022-07-14-01

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

Event Description: **Run 7**
Request ID: **RQ-2022-07-11-60**
Customer: **TLH-ROC**
Project ID: **SMP**

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

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

Certified by: Colin Wright, Program Administrator

Date Certified: 01-AUG-2022 10:33

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

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: Alligator Harbor near clam beds

Collection Date/Time: 07/14/2022 09:50

Field ID: G2TLHR0025

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2341789	EPA 180.1 Rev. 2.0	Turbidity	7.2	A	NTU	P416747	
	SM 2320 B-2011	Total Alkalinity	113		mg CaCO3/L	P417217	
	SM 2540 D-2011	TSS	36		mg/L	P417131	
	SM 4500-F- C-2011	Fluoride	1.1		mg F/L	P417220	
2341793	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P417121	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P416894	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P416859	
	EPA 365.1 Rev. 2.0	Total-P	0.041		mg P/L	P416887	
	SM 5310 B-2011	Organic Carbon	4.2		mg C/L	P417158	

Ref. Method and Comment:

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Ochlockonee Bay @ River Mouth

Collection Date/Time: 07/14/2022 10:45

Field ID: G1TLHR0156

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2341790	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P416747	
	SM 2320 B-2011	Total Alkalinity	29		mg CaCO3/L	P417081	
	SM 2540 D-2011	TSS	3	IA	mg/L	P417128	
	SM 4500-F- C-2011	Fluoride	0.18		mg F/L	P417087	
2341794	EPA 350.1 Rev. 2.0	Ammonia-N	0.028		mg N/L	P417121	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P416894	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.080		mg N/L	P416859	
	EPA 365.1 Rev. 2.0	Total-P	0.048		mg P/L	P416887	
	SM 5310 B-2011	Organic Carbon	13		mg C/L	P417048	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Ochlockonee Bay Middle

Collection Date/Time: 07/14/2022 11:00

Field ID: G1TLHR0155

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2341791	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P416747	
	SM 2320 B-2011	Total Alkalinity	43		mg CaCO3/L	P417217	
	SM 2540 D-2011	TSS	2	I	mg/L	P417128	
	SM 4500-F- C-2011	Fluoride	0.33		mg F/L	P417220	
2341795	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P417179	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P416894	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.084		mg N/L	P416859	
	EPA 365.1 Rev. 2.0	Total-P	0.051		mg P/L	P416887	
	SM 5310 B-2011	Organic Carbon	10		mg C/L	P417048	

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: Spring Creek Spring

Collection Date/Time: 07/14/2022 12:25

Field ID: G1TLHR0131

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2341783	EPA 180.1 Rev. 2.0	Turbidity	0.45	I	NTU	P416747	
	SM 2320 B-2011	Total Alkalinity	125		mg CaCO3/L	P417080	
	SM 2540 D-2011	TSS	2	U	mg/L	P417127	
	SM 4500-F- C-2011	Fluoride	0.21		mg F/L	P417086	
2341785	EPA 350.1 Rev. 2.0	Ammonia-N	0.042		mg N/L	P417121	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21	I	mg N/L	P416990	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P417164	
	EPA 365.1 Rev. 2.0	Total-P	0.041		mg P/L	P416884	
	SM 5310 B-2011	Organic Carbon	4.7		mg C/L	P417048	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Spring Creek Springs Middle

Collection Date/Time: 07/14/2022 12:15

Field ID: G1TLHR0129

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2341784	EPA 180.1 Rev. 2.0	Turbidity	0.85	I	NTU	P416747	
	SM 2320 B-2011	Total Alkalinity	123		mg CaCO3/L	P417216	
	SM 2540 D-2011	TSS	3	I	mg/L	P417127	
	SM 4500-F- C-2011	Fluoride	0.24		mg F/L	P417218	
2341786	EPA 350.1 Rev. 2.0	Ammonia-N	0.045		mg N/L	P417121	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P416990	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P416859	
	EPA 365.1 Rev. 2.0	Total-P	0.041		mg P/L	P416887	
	SM 5310 B-2011	Organic Carbon	5.4		mg C/L	P417048	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Oyster Bay North

Collection Date/Time: 07/14/2022 12:05

Field ID: G1TLHR0134

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2341792	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P416747	
	SM 2320 B-2011	Total Alkalinity	120		mg CaCO3/L	P417217	
	SM 2540 D-2011	TSS	7	I	mg/L	P417131	
	SM 4500-F- C-2011	Fluoride	0.43		mg F/L	P417220	
2341796	EPA 350.1 Rev. 2.0	Ammonia-N	0.050		mg N/L	P417313	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33	I	mg N/L	P416990	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.084		mg N/L	P416859	
	EPA 365.1 Rev. 2.0	Total-P	0.043		mg P/L	P416887	
	SM 5310 B-2011	Organic Carbon	5.4		mg C/L	P417158	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P416747

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417121

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417179

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417313

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416894

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416990

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416859

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417164

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416884

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416887

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

Reference Method: SM 2320 B-2011
Batch ID: P417080

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

Reference Method: SM 2320 B-2011
Batch ID: P417081

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

Reference Method: SM 2320 B-2011
Batch ID: P417216

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

Reference Method: SM 2320 B-2011
Batch ID: P417217

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

Reference Method: SM 2540 D-2011
Batch ID: P417127

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P417128

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P417131

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P417086

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500-F- C-2011
Batch ID: P417087

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500-F- C-2011
Batch ID: P417218

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500-F- C-2011
Batch ID: P417220

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P417048

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

Reference Method: SM 5310 B-2011
Batch ID: P417158

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P416747

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Turbidity	94.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417121

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	92.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417179

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417313

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416894

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416990

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416859

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417164

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: P416884

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416887

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

Reference Method: SM 2320 B-2011
Batch ID: P417080

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P417081

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P417216

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.1		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P417217

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

Reference Method: SM 4500-F- C-2011
Batch ID: P417086

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	96 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P417087

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	96 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P417218

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.4		P	96 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P417220

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	96 - 104

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P417048

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.7		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P417158

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417179

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2341487	Ammonia-N	102	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417313

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342195	Ammonia-N	105	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416894

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2341459	Kjeldahl Nitrogen	102	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416859

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2341487	NO2NO3-N	104	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417164

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2341131	NO2NO3-N	108	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416884

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2341527	Total-P	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416887

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2341925	Total-P	102	102	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P417086

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342326	Fluoride	102	103	P/P	94 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P417087

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342086	Fluoride	101	100	P/P	94 - 104

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: SM 4500-F- C-2011
Batch ID: P417218

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2342498	Fluoride	98.1	99.3	P/P	94 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P417220

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2343211	Fluoride	99.4	98.6	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P417048

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2341785	Organic Carbon	90.1	88.4	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P417158

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2341796	Organic Carbon	91.1	90.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P416747

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2341789	Turbidity	3.07	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2341459	Ammonia-N	0.921	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417179

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2341487	Ammonia-N	1.39	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P417313

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342195	Ammonia-N	3.66	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416894

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2341459	Kjeldahl Nitrogen	1.19	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P416990

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2341526	Kjeldahl Nitrogen	5.58	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P416859

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2341487	NO2NO3-N	0.687	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P417164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2341131	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416884

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2341527	Total-P	0.111	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P416887

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2341925	Total-P	0.0490	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P417080

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342326	Total Alkalinity	0.584	Sample	P	0 - 3.8

Reference Method: SM 2320 B-2011
Batch ID: P417081

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342086	Total Alkalinity	1.82	Sample	P	0 - 3.8

Reference Method: SM 2320 B-2011
Batch ID: P417216

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342498	Total Alkalinity	1.27	Sample	P	0 - 3.8

Reference Method: SM 2320 B-2011
Batch ID: P417217

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2343211	Total Alkalinity	0.165	Sample	P	0 - 3.8

Reference Method: SM 2540 D-2011
Batch ID: P417131

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2341738	TSS	6.25	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P417086

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342326	Fluoride	0.525	Spike	P	0 - 1.6

Quality Assurance Report Precision

Reference Method: SM 4500-F- C-2011
Batch ID: P417087

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342086	Fluoride	0.476	Spike	P	0 - 1.6

Reference Method: SM 4500-F- C-2011
Batch ID: P417218

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2342498	Fluoride	0.967	Spike	P	0 - 1.6

Reference Method: SM 4500-F- C-2011
Batch ID: P417220

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2343211	Fluoride	0.483	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P417048

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2341785	Organic Carbon	1.55	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P417158

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2341796	Organic Carbon	0.767	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A113539

Included Lab Sample IDs: 2341783, 2341784, 2341789, 2341790, 2341791, 2341792

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	98.5	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A113585

Included Lab Sample IDs: 2341786, 2341793, 2341794, 2341795, 2341796

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	101	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A113669

Included Lab Sample IDs: 2341785, 2341786, 2341794, 2341795

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.7	97.4	P/P	90 - 110
Organic Carbon	98.7	95.8	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A113683

Included Lab Sample IDs: 2341783, 2341790

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	99.3	P/P	90 - 110
Total Alkalinity	97.9	100	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A113683

Included Lab Sample IDs: 2341783, 2341790

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A113693

Included Lab Sample IDs: 2341785, 2341786, 2341793, 2341794, 2341795, 2341796

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	100	P/P	90 - 110
Total-P	100	99.5	P/P	90 - 110
Total-P	99.8	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A113699

Included Lab Sample IDs: 2341793, 2341794, 2341795

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A113703

Included Lab Sample IDs: 2341793, 2341796

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	91.2	93.4	P/P	90 - 110
Organic Carbon	97.8	91.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A113707

Included Lab Sample IDs: 2341785

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A113708

Included Lab Sample IDs: 2341785, 2341786, 2341793, 2341794

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	95.6	96.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A113711

Included Lab Sample IDs: 2341795

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.8	98.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A113720

Included Lab Sample IDs: 2341785, 2341786, 2341796

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.6	96.7	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A113724

Included Lab Sample IDs: 2341784, 2341789, 2341791, 2341792

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.6	101	P/P	90 - 110
Total Alkalinity	98.1	99.4	P/P	90 - 110
Total Alkalinity	99.4	98.3	P/P	90 - 110

Reference Method: SM 4500-F- C-2011

Run ID: A113724

Included Lab Sample IDs: 2341784, 2341789, 2341791, 2341792

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

Quality Assurance Report

Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A113763

Included Lab Sample IDs: 2341796

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	98.7	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		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity	94.9				3.07	
EPA 350.1 Rev. 2.0	Ammonia-N	92.2					0.921
	Ammonia-N	96.6	102	106			1.39
	Ammonia-N	96.2	105	101			3.66
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	102	100			1.19
	Kjeldahl Nitrogen	109					5.58
EPA 353.2 Rev. 2.0	NO2NO3-N	106	104	105			0.687
	NO2NO3-N	102	108	108			0.0
EPA 365.1 Rev. 2.0	Total-P	100	102	102			0.111
	Total-P	102	102	102			0.0490
SM 2320 B-2011	Total Alkalinity	101				0.584	
	Total Alkalinity	101				1.82	
	Total Alkalinity	99.1				1.27	
	Total Alkalinity	100				0.165	
SM 2540 D-2011	TSS					6.25	
SM 4500-F- C-2011	Fluoride	101	102	103			0.525
	Fluoride	101	101	100			0.476
	Fluoride	98.4	98.1	99.3			0.967
	Fluoride	101	99.4	98.6			0.483
SM 5310 B-2011	Organic Carbon	97.7	90.1	88.4			1.55
	Organic Carbon	97.1	91.1	90.3			0.767

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2341783, 2341784, 2341789, 2341790, 2341791, 2341792
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2341785, 2341786, 2341793, 2341794, 2341795, 2341796
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2341785, 2341786, 2341793, 2341794, 2341795, 2341796
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2341785, 2341786, 2341793, 2341794, 2341795, 2341796
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2341785, 2341786, 2341793, 2341794, 2341795, 2341796
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2341783, 2341784, 2341789, 2341790, 2341791, 2341792
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2341783, 2341784, 2341789, 2341790, 2341791, 2341792
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2341783, 2341784, 2341789, 2341790, 2341791, 2341792
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2341785, 2341786, 2341793, 2341794, 2341795, 2341796

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	07/14/2022			07/15/2022 13:17	Anna M. Plaviak	2341783
	07/14/2022			07/15/2022 13:18	Anna M. Plaviak	2341784
	07/14/2022			07/15/2022 13:20	Anna M. Plaviak	2341789
	07/14/2022			07/15/2022 13:22	Anna M. Plaviak	2341790
	07/14/2022			07/15/2022 13:23	Anna M. Plaviak	2341791
	07/14/2022			07/15/2022 13:24	Anna M. Plaviak	2341792
EPA 350.1 Rev. 2.0	07/14/2022			07/25/2022 13:14	Judith K. Clark	2341785
	07/14/2022			07/25/2022 13:15	Judith K. Clark	2341786
	07/14/2022			07/25/2022 13:16	Judith K. Clark	2341793
	07/14/2022			07/25/2022 13:18	Judith K. Clark	2341794
	07/14/2022			07/26/2022 12:37	Judith K. Clark	2341795
EPA 351.2 Rev. 2.0	07/14/2022			07/28/2022 11:13	Ping Hua	2341796
	07/14/2022	07/21/2022 10:28	Samantha L Bates	07/25/2022 14:54	Samantha L Bates	2341793
	07/14/2022	07/21/2022 10:28	Samantha L Bates	07/25/2022 14:56	Samantha L Bates	2341794
	07/14/2022	07/21/2022 10:28	Samantha L Bates	07/25/2022 14:58	Samantha L Bates	2341795
	07/14/2022	07/25/2022 15:00	Simonne.V. Calhoun	07/26/2022 15:11	Samantha L Bates	2341785
	07/14/2022	07/25/2022 15:00	Simonne.V. Calhoun	07/26/2022 15:13	Samantha L Bates	2341786
EPA 353.2 Rev. 2.0	07/14/2022	07/25/2022 15:00	Simonne.V. Calhoun	07/26/2022 15:14	Samantha L Bates	2341796
	07/14/2022			07/19/2022 15:15	Judith K. Clark	2341786
	07/14/2022			07/19/2022 15:16	Judith K. Clark	2341793
	07/14/2022			07/19/2022 15:17	Judith K. Clark	2341794
	07/14/2022			07/19/2022 15:18	Judith K. Clark	2341795
	07/14/2022			07/19/2022 15:19	Judith K. Clark	2341796
EPA 365.1 Rev. 2.0	07/14/2022			07/26/2022 10:25	Beverly Y. Sanders	2341785
	07/14/2022	07/21/2022 15:53	Adam P Silver	07/25/2022 13:49	James L Waggeberby	2341785
	07/14/2022	07/21/2022 15:53	Adam P Silver	07/25/2022 14:23	James L Waggeberby	2341786
	07/14/2022	07/21/2022 15:53	Adam P Silver	07/25/2022 14:24	James L Waggeberby	2341793
	07/14/2022	07/21/2022 15:53	Adam P Silver	07/25/2022 14:31	James L Waggeberby	2341794
	07/14/2022	07/21/2022 15:53	Adam P Silver	07/25/2022 14:32	James L Waggeberby	2341795
SM 2320 B-2011	07/14/2022	07/21/2022 15:53	Adam P Silver	07/25/2022 14:33	James L Waggeberby	2341796
	07/14/2022			07/23/2022 04:58	Dale L. Simmons	2341783
	07/14/2022			07/23/2022 10:52	Dale L. Simmons	2341790
	07/14/2022			07/26/2022 21:49	Dale L. Simmons	2341784
	07/14/2022			07/27/2022 02:32	Dale L. Simmons	2341791
	07/14/2022			07/27/2022 02:46	Dale L. Simmons	2341792
SM 2540 D-2011	07/14/2022			07/27/2022 05:34	Dale L. Simmons	2341789
	07/14/2022			07/19/2022 15:12	Yijie Li	2341783, 2341784, 2341789, 2341790, 2341791, 2341792
SM 4500-F- C-2011	07/14/2022			07/23/2022 04:58	Dale L. Simmons	2341783
	07/14/2022			07/23/2022 10:52	Dale L. Simmons	2341790

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	07/14/2022			07/26/2022 21:49	Dale L. Simmons	2341784
	07/14/2022			07/26/2022 23:36	Dale L. Simmons	2341791
	07/14/2022			07/26/2022 23:41	Dale L. Simmons	2341792
	07/14/2022			07/27/2022 00:28	Dale L. Simmons	2341789
SM 5310 B-2011	07/14/2022			07/21/2022 20:17	Touraj Touran	2341785
	07/14/2022			07/21/2022 21:31	Touraj Touran	2341786
	07/14/2022			07/22/2022 02:24	Touraj Touran	2341794
	07/14/2022			07/22/2022 02:38	Touraj Touran	2341795
	07/14/2022			07/23/2022 04:28	Touraj Touran	2341796
	07/14/2022			07/23/2022 07:56	Touraj Touran	2341793