

Chemical Analysis Report

TLH-ROC-2021-10-04-01

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

Event Description: **Run 13**
Request ID: **RQ-2021-09-06-60**
Customer: **TLH-ROC**
Project ID: **SMP**

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

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Certified by: Colin Wright, Program Administrator

Date Certified: 28-OCT-2021 11:33

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: Bayou George Creek @ US231

Collection Date/Time: 10/04/2021 11:45

Field ID: G3TLHR0030

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2280130	EPA 180.1 Rev. 2.0	Turbidity	8.5		NTU	P404633	
	EPA 300.0 Rev. 2.1	Chloride	5.0		mg Cl/L	P404719	
		Sulfate	1.8		mg SO4/L	P404721	
	SM 2120 B-2011	Color (true)	340		PCU	P404608	
	SM 2320 B-2011	Total Alkalinity	17		mg CaCO3/L	P404825	
	SM 2540 C-2011	TDS	71		mg/L	P405002	
	SM 2540 D-2011	TSS	6	I	mg/L	P404995	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P404696	
2280131	EPA 350.1 Rev. 2.0	Ammonia-N	0.34		mg N/L	P404903	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P404801	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.066		mg N/L	P404779	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P404673	
	SM 5310 B-2011	Organic Carbon	19		mg C/L	P404845	
2280132	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P404595	

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: N Bay1

Collection Date/Time: 10/04/2021 12:40

Field ID: G3TLHR0021

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2280133	EPA 180.1 Rev. 2.0	Turbidity	1.5	A	NTU	P404633	
	SM 2320 B-2011	Total Alkalinity	52		mg CaCO3/L	P405136	
	SM 2540 D-2011	TSS	4	I	mg/L	P404998	
	SM 4500 F-C-2011	Fluoride	0.42		mg F/L	P405137	
2280134	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P404886	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38	I	mg N/L	P404785	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.058		mg N/L	P404641	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P404740	
	SM 5310 B-2011	Organic Carbon	8.3		mg C/L	P405150	
2280135	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P404597	

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: 10/04/2021 12:05

Field ID: FB_10042021

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2280136	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P404633	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P404719	
		Sulfate	0.20	U	mg SO4/L	P404721	
		Color (true)	2.5	U	PCU	P404608	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P404825	
	SM 2540 C-2011	TDS	15	U	mg/L	P405002	
	SM 2540 D-2011	TSS	2	U	mg/L	P404995	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P404696	
2280137	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P404903	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P404801	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P404779	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P404673	
	SM 5310 B-2011	Organic Carbon	0.50	U	mg C/L	P404845	
2280138	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P404595	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P404633

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404719

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404721

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404886

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404903

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404785

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404801

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404641

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404779

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404673

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404740

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404595

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404597

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

Reference Method: SM 2120 B-2011
Batch ID: P404608

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P404825

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

Reference Method: SM 2320 B-2011
Batch ID: P405136

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

Reference Method: SM 2540 C-2011
Batch ID: P405002

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P404995

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P404998

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P404696

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P405137

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P404845

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

Reference Method: SM 5310 B-2011
Batch ID: P405150

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: P404719

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404721

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404886

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404903

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404785

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404801

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404641

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404779

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404673

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404740

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: P404595

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404597

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

Reference Method: SM 2120 B-2011
Batch ID: P404608

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.1		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P404825

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.5		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P405136

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.3		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P404696

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P405137

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

Reference Method: SM 5310 B-2011
Batch ID: P404845

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.2		P	85 - 115

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011
Batch ID: P405150

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404719

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279941	Chloride	100		P	90 - 110
2280130	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404721

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279941	Sulfate	101		P	90 - 110
2280130	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404886

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2278813	Ammonia-N	98.4	98.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404903

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279962	Ammonia-N	98.4	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404785

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279259	Kjeldahl Nitrogen	102	97.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404801

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2280274	Kjeldahl Nitrogen	102	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404641

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2280221	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404779

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279962	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404673

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2280027	Total-P	109	105	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P404740

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279900	Total-P	105	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404595

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2280281	O-Phosphate-P	96.9	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P404597

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2280278	O-Phosphate-P	98.0	99.4	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P404696

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279840	Fluoride	101	101	P/P	92 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P405137

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2281619	Fluoride	99.8	99.8	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P404845

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2279942	Organic Carbon	95.8	96.3	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P405150

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2280222	Organic Carbon	93.3	93.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P404633

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2280133	Turbidity	6.19	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404719

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279941	Chloride	0.421	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P404721

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279941	Sulfate	0.909	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2278813	Ammonia-N	0.124	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P404903

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279962	Ammonia-N	1.08	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404785

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279259	Kjeldahl Nitrogen	3.84	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P404801

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2280274	Kjeldahl Nitrogen	1.10	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P404641

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2280221	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P404779

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279962	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P404673

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2280027	Total-P	3.51	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P404740

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279900	Total-P	1.97	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P404595

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2280281	O-Phosphate-P	0.701	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P404597

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2280278	O-Phosphate-P	0.974	Spike	P	0 - 20

Reference Method: SM 2120 B-2011

Batch ID: P404608

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2280338	Color (true)	0.820	Sample	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P404825

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279840	Total Alkalinity	0.132	Sample	P	0 - 5.2

Reference Method: SM 2320 B-2011

Batch ID: P405136

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2281619	Total Alkalinity	1.69	Sample	P	0 - 5.2

Quality Assurance Report Precision

Reference Method: SM 2540 C-2011
Batch ID: P405002

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2280568	TDS	2.76	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P404696

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279840	Fluoride	0.0	Spike	P	0 - 2.1

Reference Method: SM 4500 F-C-2011
Batch ID: P405137

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2281619	Fluoride	0.0	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P404845

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2279942	Organic Carbon	0.355	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P405150

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2280222	Organic Carbon	0.251	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: A108152

Included Lab Sample IDs: 2280132, 2280135, 2280138

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.5	97.8	P/P	90 - 110
O-Phosphate-P	98.6	97.5	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A108155

Included Lab Sample IDs: 2280130, 2280136

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	102	P/P	85 - 115
Color (true)	103	104	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A108168

Included Lab Sample IDs: 2280130, 2280133, 2280136

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A108171

Included Lab Sample IDs: 2280134

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A108179

Included Lab Sample IDs: 2280130, 2280136

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.5	99.8	P/P	90 - 110
Chloride	99.8	100	P/P	90 - 110
Sulfate	100	101	P/P	90 - 110
Sulfate	101	100	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A108185

Included Lab Sample IDs: 2280130, 2280136

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	104	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A108229

Included Lab Sample IDs: 2280131, 2280137

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A108230

Included Lab Sample IDs: 2280131, 2280137

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.0	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A108234

Included Lab Sample IDs: 2280134

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

Reference Method: SM 2320 B-2011

Run ID: A108253

Included Lab Sample IDs: 2280130, 2280136

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	99.6	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A108262

Included Lab Sample IDs: 2280131, 2280137

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.2	96.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A108263

Included Lab Sample IDs: 2280131, 2280134, 2280137

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	106	P/P	90 - 110
Kjeldahl Nitrogen	107	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A108272

Included Lab Sample IDs: 2280134

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.1	98.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A108277

Included Lab Sample IDs: 2280131, 2280137

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.6	99.1	P/P	90 - 110
Ammonia-N	99.0	98.2	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A108367

Included Lab Sample IDs: 2280133

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A108367

Included Lab Sample IDs: 2280133

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.4	97.8	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A108367

Included Lab Sample IDs: 2280133

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

Reference Method: SM 5310 B-2011

Run ID: A108370

Included Lab Sample IDs: 2280134

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	92.9	94.4	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					6.19	
EPA 300.0 Rev. 2.1	Chloride	99.8	100	101		0.421	
	Sulfate	101	101	102		0.909	
EPA 350.1 Rev. 2.0	Ammonia-N	97.4	98.4	98.2			0.124
	Ammonia-N	99.4	98.4	99.6			1.08
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	102	97.3			3.84
	Kjeldahl Nitrogen	99.9	102	104			1.10
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	101	101			0.0
	NO2NO3-N	101	102	102			0.0
EPA 365.1 Rev. 2.0	Total-P	103	109	105			3.51
	Total-P	106	105	107			1.97
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.2	96.9	97.8			0.701
	O-Phosphate-P	97.6	98.0	99.4			0.974
SM 2120 B-2011	Color (true)	98.1				0.820	
SM 2320 B-2011	Total Alkalinity	99.5				0.132	
	Total Alkalinity	98.3				1.69	
SM 2540 C-2011	TDS					2.76	
SM 4500 F-C-2011	Fluoride	100	101	101			0.0
	Fluoride	101	99.8	99.8			0.0
SM 5310 B-2011	Organic Carbon	96.2	95.8	96.3			0.355
	Organic Carbon	97.4	93.3	93.0			0.251

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2280130, 2280133, 2280136
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2280130, 2280136
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2280130, 2280136
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2280131, 2280134, 2280137
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2280131, 2280134, 2280137
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2280131, 2280134, 2280137
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2280131, 2280134, 2280137
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2280132, 2280135, 2280138
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2280130, 2280136
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2280130, 2280133, 2280136
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2280130, 2280136
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2280130, 2280133, 2280136
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2280130, 2280133, 2280136
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2280131, 2280134, 2280137

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	10/04/2021			10/05/2021 20:49	Sarah A Nixon	2280130, 2280133, 2280136
EPA 300.0 Rev. 2.1	10/04/2021			10/06/2021 18:20	Roberta Tatti	2280130
	10/04/2021			10/06/2021 20:45	Roberta Tatti	2280136
EPA 350.1 Rev. 2.0	10/04/2021			10/08/2021 12:06	Ping Hua	2280134
	10/04/2021			10/11/2021 13:06	Ping Hua	2280137
	10/04/2021			10/11/2021 14:38	Ping Hua	2280131
EPA 351.2 Rev. 2.0	10/04/2021	10/08/2021 13:05	Benjamin T. Nordmann	10/11/2021 11:02	Alexandra J Mattheus	2280131
	10/04/2021	10/08/2021 13:05	Benjamin T. Nordmann	10/11/2021 11:04	Alexandra J Mattheus	2280137
	10/04/2021	10/08/2021 16:34	Benjamin T. Nordmann	10/11/2021 10:12	Alexandra J Mattheus	2280134
EPA 353.2 Rev. 2.0	10/04/2021			10/06/2021 09:35	Beverly Y. Sanders	2280134
	10/04/2021			10/08/2021 10:09	Beverly Y. Sanders	2280131
	10/04/2021			10/08/2021 10:10	Beverly Y. Sanders	2280137
EPA 365.1 Rev. 2.0	10/04/2021	10/06/2021 12:50	Simonne.V. Calhoun	10/07/2021 14:33	Lipi Saha	2280131
	10/04/2021	10/06/2021 12:50	Simonne.V. Calhoun	10/07/2021 14:34	Lipi Saha	2280137
	10/04/2021	10/07/2021 15:09	Simonne.V. Calhoun	10/08/2021 12:42	Lipi Saha	2280134
EPA 365.1 Rev. 2.0 dissolved	10/04/2021			10/05/2021 14:18	James L Waggeberby	2280132
	10/04/2021			10/05/2021 14:19	James L Waggeberby	2280138
	10/04/2021			10/05/2021 14:54	James L Waggeberby	2280135
SM 2120 B-2011	10/04/2021			10/05/2021 16:47	Benjamin T. Nordmann	2280136
	10/04/2021			10/05/2021 17:37	Benjamin T. Nordmann	2280130
SM 2320 B-2011	10/04/2021			10/09/2021 04:02	Dale L. Simmons	2280130
	10/04/2021			10/09/2021 04:07	Dale L. Simmons	2280136
	10/04/2021			10/14/2021 16:36	Dale L. Simmons	2280133
SM 2540 C-2011	10/04/2021			10/07/2021 14:19	Yijie Li	2280130, 2280136
SM 2540 D-2011	10/04/2021			10/07/2021 14:19	Yijie Li	2280130, 2280133, 2280136
SM 4500 F-C-2011	10/04/2021			10/06/2021 21:58	Dale L. Simmons	2280130
	10/04/2021			10/06/2021 22:05	Dale L. Simmons	2280136
	10/04/2021			10/14/2021 15:36	Dale L. Simmons	2280133
SM 5310 B-2011	10/04/2021			10/08/2021 23:14	Khloe J Berg	2280131
	10/04/2021			10/08/2021 23:24	Khloe J Berg	2280137
	10/04/2021			10/14/2021 07:06	Khloe J Berg	2280134