

Chemical Analysis Report

SO-DIST-2021-07-09-01

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

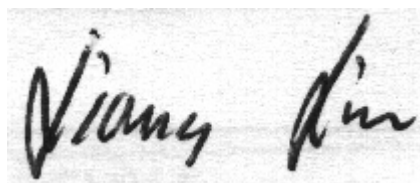
Event Description: **Caloosa Creeks**
Request ID: **RQ-2021-07-05-65**
Customer: **SO-DIST**
Project ID: **BMAP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 02-AUG-2021 15:21

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored background.

Case Narrative

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

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

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

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

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

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

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

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

Precision is reported as relative percent difference unless otherwise noted.

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

QC Codes used in this report may include:

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

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

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

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

Sample Location: Orange River @BoatRamp

Collection Date/Time: 07/08/2021 08:30

Field ID: G3SD0128

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2260929	SM 2120 B-2011	Color (true)	44		PCU	P400766	
	SM 2320 B-2011	Total Alkalinity	180		mg CaCO3/L	P401020	
	SM 2540 D-2011	TSS	3	I	mg/L	P400859	
	SM 4500 F-C-2011	Fluoride	0.19		mg F/L	P401023	
2260934	SM 5310 B-2011 dissolved	Organic Carbon	10		mg C/L	P401073	
2260939	EPA 350.1 Rev. 2.0	Ammonia-N	0.048		mg N/L	P401233	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.86		mg N/L	P401174	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P400791	
	EPA 365.1 Rev. 2.0	Total-P	0.075		mg P/L	P401091	
	SM 5310 B-2011	Organic Carbon	10		mg C/L	P401073	
2260944	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.042		mg P/L	P400753	

Ref. Method and Comment:

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

SM 4500 F-C-2011: 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: Roberts Canal @ SR 80

Collection Date/Time: 07/08/2021 09:20

Field ID: G3SD0146

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2260930	SM 2120 B-2011	Color (true)	87		PCU	P400766	
	SM 2320 B-2011	Total Alkalinity	188		mg CaCO3/L	P401020	
	SM 2540 D-2011	TSS	6	I	mg/L	P400860	
	SM 4500 F-C-2011	Fluoride	0.32		mg F/L	P401023	
2260935	SM 5310 B-2011 dissolved	Organic Carbon	18		mg C/L	P401073	
2260940	EPA 350.1 Rev. 2.0	Ammonia-N	0.065		mg N/L	P401235	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P401174	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.076		mg N/L	P400792	
	EPA 365.1 Rev. 2.0	Total-P	0.053		mg P/L	P401101	
	SM 5310 B-2011	Organic Carbon	18		mg C/L	P401073	
2260945	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.027		mg P/L	P400753	

Ref. Method and Comment:

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

SM 4500 F-C-2011: 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: Nine Mile Canal @ SR 80

Collection Date/Time: 07/08/2021 10:10

Field ID: G3SD0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2260931	SM 2120 B-2011	Color (true)	70		PCU	P400766	
	SM 2320 B-2011	Total Alkalinity	193		mg CaCO3/L	P401021	RPD
	SM 2540 D-2011	TSS	6	I	mg/L	P400860	
	SM 4500 F-C-2011	Fluoride	0.33		mg F/L	P401024	
2260936	SM 5310 B-2011 dissolved	Organic Carbon	16		mg C/L	P401073	
2260941	EPA 350.1 Rev. 2.0	Ammonia-N	0.33		mg N/L	P401540	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P401174	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.65		mg N/L	P400792	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P401101	
	SM 5310 B-2011	Organic Carbon	16		mg C/L	P401073	
2260946	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.073		mg P/L	P400753	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low 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: Bee Branch @LoblollyBay

Collection Date/Time: 07/08/2021 11:30

Field ID: G3SD0085

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2260932	SM 2120 B-2011	Color (true)	310		PCU	P400766	
	SM 2320 B-2011	Total Alkalinity	13	AJ	mg CaCO3/L	P401021	RPD
	SM 2540 D-2011	TSS	2	I	mg/L	P400860	
	SM 4500 F-C-2011	Fluoride	0.081	I	mg F/L	P401024	
2260937	SM 5310 B-2011 dissolved	Organic Carbon	38		mg C/L	P401159	
2260942	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P401234	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P401804	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.084		mg N/L	P400792	
	EPA 365.1 Rev. 2.0	Total-P	0.077		mg P/L	P401101	
	SM 5310 B-2011	Organic Carbon	38		mg C/L	P401159	
2260947	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.045		mg P/L	P400753	

Ref. Method and Comment:

SM 2320 B-2011: Refer to the Lab Analysis Report for an explanation of QC Codes.

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

Sample Location: Telegraph Creek @ USGS

Collection Date/Time: 07/08/2021 12:35

Field ID: G3SD0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2260933	SM 2120 B-2011	Color (true)	60		PCU	P400766	
	SM 2320 B-2011	Total Alkalinity	244		mg CaCO3/L	P401021	RPD
	SM 2540 D-2011	TSS	3	IA	mg/L	P400860	
	SM 4500 F-C-2011	Fluoride	0.16		mg F/L	P401024	
2260938	SM 5310 B-2011 dissolved	Organic Carbon	16		mg C/L	P401159	
2260943	EPA 350.1 Rev. 2.0	Ammonia-N	0.051		mg N/L	P401234	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.80	J	mg N/L	P401804	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P400792	
	EPA 365.1 Rev. 2.0	Total-P	0.072		mg P/L	P401101	
	SM 5310 B-2011	Organic Carbon	16		mg C/L	P401159	
2260948	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.051		mg P/L	P400754	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Refer to the Lab Analysis Report for an explanation of QC Codes.

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401233

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401234

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401235

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401540

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P401174

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P401804

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400791

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400792

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401091

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: P401101

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400753

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400754

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

Reference Method: SM 2120 B-2011
Batch ID: P400766

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P401020

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

Reference Method: SM 2320 B-2011
Batch ID: P401021

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

Reference Method: SM 2540 D-2011
Batch ID: P400859

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P400860

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P401023

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: P401024

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P401073

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

Reference Method: SM 5310 B-2011
Batch ID: P401159

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

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P401073

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

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P401159

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401233

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401234

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401235

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401540

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P401174

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P401804

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: P400791

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400792

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401091

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P401101

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P400753

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P400754

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

Reference Method: SM 2120 B-2011

Batch ID: P400766

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	96.5		P	85 - 115

Reference Method: SM 2320 B-2011

Batch ID: P401020

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	94 - 106

Reference Method: SM 2320 B-2011

Batch ID: P401021

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	94 - 106

Reference Method: SM 4500 F-C-2011

Batch ID: P401023

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

Reference Method: SM 4500 F-C-2011

Batch ID: P401024

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

Reference Method: SM 5310 B-2011

Batch ID: P401073

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.6		P	85 - 115

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-2011

Batch ID: P401159

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

Reference Method: SM 5310 B-2011 dissolved

Batch ID: P401073

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.6		P	85 - 115

Reference Method: SM 5310 B-2011 dissolved

Batch ID: P401159

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401233

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2260887	Ammonia-N	95.0	97.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401234

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261002	Ammonia-N	98.2	95.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401235

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261177	Ammonia-N	92.2	96.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401540

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2262034	Ammonia-N	99.4	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P401804

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2260943	Kjeldahl Nitrogen	109	111	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400791

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2260885	NO2NO3-N	100	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400792

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2260940	NO2NO3-N	98.3	98.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401091

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2260885	Total-P	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P401101

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261002	Total-P	106	109	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400753

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2260892	O-Phosphate-P	95.6	94.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P400754

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2260948	O-Phosphate-P	97.6	97.1	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P401024

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2260932	Fluoride	95.7	98.0	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P401073

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2260915	Organic Carbon	96.8	97.8	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P401159

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261158	Organic Carbon	98.8	99.6	P/P	85 - 115

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P401073

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2260915	Organic Carbon	96.8	97.8	P/P	85 - 115

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P401159

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2261158	Organic Carbon	98.8	99.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401233

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2260887	Ammonia-N	2.07	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261002	Ammonia-N	2.01	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401235

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261177	Ammonia-N	3.60	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401540

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2262034	Ammonia-N	0.122	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P401174

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2260908	Kjeldahl Nitrogen	6.34	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P401804

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2260943	Kjeldahl Nitrogen	0.947	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400791

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2260885	NO2NO3-N	1.24	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P400792

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2260940	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P401091

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2260885	Total-P	0.107	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P401101

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261002	Total-P	2.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P400753

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2260892	O-Phosphate-P	0.646	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P400754

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2260948	O-Phosphate-P	0.336	Spike	P	0 - 20

Reference Method: SM 2120 B-2011

Batch ID: P400766

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2260912	Color (true)	1.97	Sample	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P401020

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261391	Total Alkalinity	1.88	Sample	P	0 - 5.2

Reference Method: SM 2320 B-2011

Batch ID: P401021

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2260932	Total Alkalinity	5.51	Sample	F	0 - 5.2

Reference Method: SM 4500 F-C-2011

Batch ID: P401023

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261391	Fluoride	0.0	Spike	P	0 - 2.1

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-2011
Batch ID: P401024

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2260932	Fluoride	1.90	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P401073

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2260915	Organic Carbon	0.645	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P401159

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261158	Organic Carbon	0.569	Spike	P	0 - 20

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P401073

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2260915	Organic Carbon	0.645	Spike	P	0 - 20

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P401159

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2261158	Organic Carbon	0.569	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: A106533

Included Lab Sample IDs: 2260944, 2260945, 2260946, 2260947, 2260948

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	98.3	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A106536

Included Lab Sample IDs: 2260929, 2260930, 2260931, 2260932, 2260933

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.5	99.0	P/P	90 - 115
Color (true)	99.9	98.9	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A106549

Included Lab Sample IDs: 2260939, 2260940, 2260941, 2260942, 2260943

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	99.5	P/P	90 - 110
NO2NO3-N	99.5	99.0	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A106641

Included Lab Sample IDs: 2260929, 2260930, 2260931, 2260932, 2260933

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	105	P/P	90 - 110
Total Alkalinity	105	102	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A106641

Included Lab Sample IDs: 2260929, 2260930, 2260931, 2260932, 2260933

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	101	105	P/P	90 - 110
Fluoride	104	101	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A106660

Included Lab Sample IDs: 2260939, 2260940, 2260941

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.8	96.7	P/P	90 - 110

Reference Method: SM 5310 B-2011 dissolved

Run ID: A106660

Included Lab Sample IDs: 2260934, 2260935, 2260936

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	97.8	P/P	90 - 110
Organic Carbon	97.8	96.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A106678

Included Lab Sample IDs: 2260939

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A106681

Included Lab Sample IDs: 2260940, 2260941, 2260942, 2260943

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

Reference Method: SM 5310 B-2011

Run ID: A106687

Included Lab Sample IDs: 2260942, 2260943

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.3	97.0	P/P	90 - 110

Reference Method: SM 5310 B-2011 dissolved

Run ID: A106687

Included Lab Sample IDs: 2260937, 2260938

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.7	98.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A106712

Included Lab Sample IDs: 2260939, 2260940, 2260942, 2260943

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	98.7	P/P	90 - 110
Ammonia-N	98.1	97.6	P/P	90 - 110
Ammonia-N	98.4	98.1	P/P	90 - 110
Ammonia-N	98.7	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A106716

Included Lab Sample IDs: 2260939, 2260940, 2260941

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	95.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A106828

Included Lab Sample IDs: 2260941

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.6	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	SMP
EPA 350.1 Rev. 2.0	Ammonia-N	102	95.0	97.6		
	Ammonia-N	100	98.2	95.8		
	Ammonia-N	110	92.2	96.2		
	Ammonia-N	102	99.4	99.6		
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106				
	Kjeldahl Nitrogen	101	109	111		
EPA 353.2 Rev. 2.0	NO2NO3-N	100	100	98.5		
	NO2NO3-N	100	98.3	98.3		
EPA 365.1 Rev. 2.0	Total-P	105	104	104		
	Total-P	105	106	109		
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.7	95.6	94.8		
	O-Phosphate-P	99.1	97.6	97.1		
SM 2120 B-2011	Color (true)	96.5				1.97
SM 2320 B-2011	Total Alkalinity	104				1.88
	Total Alkalinity	103				5.51
SM 4500 F-C-2011	Fluoride	101				
	Fluoride	100	95.7	98.0		
SM 5310 B-2011	Organic Carbon	96.6	96.8	97.8		
	Organic Carbon	96.3	98.8	99.6		
SM 5310 B-2011 dissolved	Organic Carbon	96.6	96.8	97.8		
	Organic Carbon	96.3	98.8	99.6		

Reference Method Descriptions

Method	Description	Associated Samples
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2260939, 2260940, 2260941, 2260942, 2260943
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2260939, 2260940, 2260941, 2260942, 2260943
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2260939, 2260940, 2260941, 2260942, 2260943
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2260939, 2260940, 2260941, 2260942, 2260943
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2260944, 2260945, 2260946, 2260947, 2260948
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2260929, 2260930, 2260931, 2260932, 2260933
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2260929, 2260930, 2260931, 2260932, 2260933
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2260929, 2260930, 2260931, 2260932, 2260933
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2260929, 2260930, 2260931, 2260932, 2260933
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2260939, 2260940, 2260941, 2260942, 2260943
SM 5310 B-2011 dissolved	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	2260934, 2260935, 2260936, 2260937, 2260938

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 350.1 Rev. 2.0	07/09/2021			07/20/2021 12:39	Roberta Tatti	2260939
	07/09/2021			07/20/2021 12:56	Roberta Tatti	2260943
	07/09/2021			07/20/2021 13:44	Roberta Tatti	2260942
	07/09/2021			07/20/2021 14:04	Roberta Tatti	2260940
	07/09/2021			07/26/2021 14:08	Roberta Tatti	2260941
EPA 351.2 Rev. 2.0	07/09/2021	07/16/2021 15:04	Benjamin T. Nordmann	07/19/2021 12:58	Letuzia M De Oliveira	2260942
	07/09/2021	07/16/2021 15:04	Benjamin T. Nordmann	07/19/2021 13:00	Letuzia M De Oliveira	2260943
	07/09/2021	07/19/2021 15:09	Benjamin T. Nordmann	07/20/2021 17:18	Letuzia M De Oliveira	2260939
	07/09/2021	07/19/2021 15:09	Benjamin T. Nordmann	07/20/2021 17:19	Letuzia M De Oliveira	2260940
	07/09/2021	07/19/2021 15:09	Benjamin T. Nordmann	07/20/2021 17:21	Letuzia M De Oliveira	2260941
EPA 353.2 Rev. 2.0	07/09/2021			07/12/2021 09:17	Beverly Y. Sanders	2260939
	07/09/2021			07/12/2021 09:24	Beverly Y. Sanders	2260940
	07/09/2021			07/12/2021 09:30	Beverly Y. Sanders	2260941
	07/09/2021			07/12/2021 09:31	Beverly Y. Sanders	2260942
	07/09/2021			07/12/2021 09:32	Beverly Y. Sanders	2260943
EPA 365.1 Rev. 2.0	07/09/2021	07/16/2021 17:30	Simonne.V. Calhoun	07/19/2021 09:38	Shengyu Ding	2260939
	07/09/2021	07/16/2021 17:30	Simonne.V. Calhoun	07/19/2021 11:38	Shengyu Ding	2260940
	07/09/2021	07/16/2021 17:30	Simonne.V. Calhoun	07/19/2021 11:39	Shengyu Ding	2260941
	07/09/2021	07/16/2021 17:30	Simonne.V. Calhoun	07/19/2021 11:40	Shengyu Ding	2260942
	07/09/2021	07/16/2021 17:30	Simonne.V. Calhoun	07/19/2021 11:41	Shengyu Ding	2260943
EPA 365.1 Rev. 2.0 dissolved	07/09/2021			07/09/2021 13:23	Lipi Saha	2260944
	07/09/2021			07/09/2021 13:24	Lipi Saha	2260945
	07/09/2021			07/09/2021 13:25	Lipi Saha	2260946
	07/09/2021			07/09/2021 13:26	Lipi Saha	2260947
	07/09/2021			07/09/2021 13:28	Lipi Saha	2260948
SM 2120 B-2011	07/09/2021			07/09/2021 15:53	Sarah A Nixon	2260929
	07/09/2021			07/09/2021 15:54	Sarah A Nixon	2260930
	07/09/2021			07/09/2021 15:55	Sarah A Nixon	2260931
	07/09/2021			07/09/2021 15:56	Sarah A Nixon	2260933
	07/09/2021			07/09/2021 16:14	Sarah A Nixon	2260932
SM 2320 B-2011	07/09/2021			07/15/2021 02:19	Dale L. Simmons	2260929
	07/09/2021			07/15/2021 02:34	Dale L. Simmons	2260930
	07/09/2021			07/15/2021 04:20	Dale L. Simmons	2260932
	07/09/2021			07/15/2021 04:45	Dale L. Simmons	2260931
	07/09/2021			07/15/2021 05:01	Dale L. Simmons	2260933
SM 2540 D-2011	07/09/2021			07/12/2021 14:35	Yijie Li	2260929, 2260930, 2260931, 2260932, 2260933
SM 4500 F-C-2011	07/09/2021			07/15/2021 02:19	Dale L. Simmons	2260929
	07/09/2021			07/15/2021 02:34	Dale L. Simmons	2260930
	07/09/2021			07/15/2021 04:11	Dale L. Simmons	2260932

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	07/09/2021			07/15/2021 04:45	Dale L. Simmons	2260931
	07/09/2021			07/15/2021 05:01	Dale L. Simmons	2260933
SM 5310 B-2011	07/09/2021			07/15/2021 16:11	Madeline Gruver	2260939
	07/09/2021			07/15/2021 16:23	Madeline Gruver	2260940
	07/09/2021			07/15/2021 16:36	Madeline Gruver	2260941
	07/09/2021			07/16/2021 16:47	Madeline Gruver	2260942
	07/09/2021			07/16/2021 17:00	Madeline Gruver	2260943
SM 5310 B-2011 dissolved	07/09/2021			07/15/2021 15:05	Madeline Gruver	2260934
	07/09/2021			07/15/2021 15:45	Madeline Gruver	2260935
	07/09/2021			07/15/2021 15:58	Madeline Gruver	2260936
	07/09/2021			07/16/2021 15:54	Madeline Gruver	2260937
	07/09/2021			07/16/2021 16:07	Madeline Gruver	2260938