Chemical Analysis Report

SO-DIST-2021-07-23-02

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

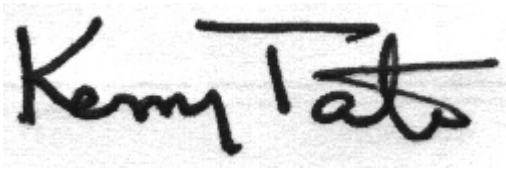
Event Description: **2021 SMP : Sebring Lakes**
Request ID: **RQ-2021-07-19-49**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: William Mullen

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: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 20-AUG-2021 08:42



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: Lake Glenada **Collection Date/Time: 07/22/2021 10:40**

Field ID: G4SD0179 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2264769	EPA 180.1 Rev. 2.0	Turbidity	8.4		NTU	P401500	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P401813	
		Sulfate	13		mg SO4/L	P402079	
	SM 2120 B-2011	Color (true)	40		PCU	P401497	
	SM 2320 B-2011	Total Alkalinity	38		mg CaCO3/L	P401614	
	SM 2540 C-2011	TDS	126	A	mg/L	P401970	
	SM 2540 D-2011	TSS	9	I A	mg/L	P401963	
	SM 4500 F-C-2011	Fluoride	0.092	I	mg F/L	P401616	
2264773	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P401896	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P402350	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P401626	
	EPA 365.1 Rev. 2.0	Total-P	0.040		mg P/L	P402010	
	SM 5310 B-2011	Organic Carbon	13		mg C/L	P402026	
2264777	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P401483	

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: Little Red Water Lake @ Middle **Collection Date/Time: 07/22/2021 11:40**

Field ID: G4SD0171 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2264770	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P401500	
	EPA 300.0 Rev. 2.1	Chloride	19		mg Cl/L	P401813	
		Sulfate	9.6		mg SO4/L	P402079	
	SM 2120 B-2011	Color (true)	47	A	PCU	P401498	
	SM 2320 B-2011	Total Alkalinity	8.9		mg CaCO3/L	P401614	
	SM 2540 C-2011	TDS	78		mg/L	P401970	
	SM 2540 D-2011	TSS	3	I	mg/L	P401963	
	SM 4500 F-C-2011	Fluoride	0.061	I	mg F/L	P401616	
2264774	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P402061	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P402350	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P401627	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P402010	
	SM 5310 B-2011	Organic Carbon	9.7		mg C/L	P402026	
2264778	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P401483	

Ref. Method and Comment:
SM 2540 C-2011: The reported result is consistent with the conductivity measured in the laboratory, 116 umhos/cm.
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Bonnet Lake @ Middle **Collection Date/Time: 07/22/2021 12:20**

Field ID: G4SD0170 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2264771	EPA 180.1 Rev. 2.0	Turbidity	18		NTU	P401500	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P401813	
		Sulfate	35		mg SO4/L	P402079	
	SM 2120 B-2011	Color (true)	28	J	PCU	P401498	
	SM 2320 B-2011	Total Alkalinity	36		mg CaCO3/L	P401614	
	SM 2540 C-2011	TDS	138	A	mg/L	P401971	
	SM 2540 D-2011	TSS	12		mg/L	P401964	
	SM 4500 F-C-2011	Fluoride	0.090	I	mg F/L	P401616	
2264775	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P402061	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P402546	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P401627	
	EPA 365.1 Rev. 2.0	Total-P	0.034		mg P/L	P402010	
	SM 5310 B-2011	Organic Carbon	8.6		mg C/L	P402026	
2264779	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P401483	

Ref. Method and Comment:
SM 2120 B-2011: The result may be biased high because of matrix interference.
SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Little Lake Jackson **Collection Date/Time: 07/22/2021 13:25**

Field ID: G4SD0183 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2264772	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P401500	
	EPA 300.0 Rev. 2.1	Chloride	16		mg Cl/L	P401813	
		Sulfate	15		mg SO4/L	P402079	
	SM 2120 B-2011	Color (true)	16		PCU	P401498	
	SM 2320 B-2011	Total Alkalinity	12		mg CaCO3/L	P401614	
	SM 2540 C-2011	TDS	76		mg/L	P401970	
	SM 2540 D-2011	TSS	2	I	mg/L	P401963	
	SM 4500 F-C-2011	Fluoride	0.086	I	mg F/L	P401616	
2264776	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P402061	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.53		mg N/L	P402392	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P401627	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P402010	
	SM 5310 B-2011	Organic Carbon	5.8		mg C/L	P402026	
2264780	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P401483	

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: P401500

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401813

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402079

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401896

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402061

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402350

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402392

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402546

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401626

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401627

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402010

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401483

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

Reference Method: SM 2120 B-2011
Batch ID: P401497

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B-2011
Batch ID: P401498

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P401614

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

Reference Method: SM 2540 C-2011
Batch ID: P401970

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-2011
Batch ID: P401971

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P401963

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P401964

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P401616

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P402026

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: P401813

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402079

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401896

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	92.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402061

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402350

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402392

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: P402546

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401626

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401627

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402010

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401483

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.1		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P401497

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.3		P	85 - 115

Reference Method: SM 2120 B-2011
Batch ID: P401498

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.4		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P401614

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

Reference Method: SM 4500 F-C-2011
Batch ID: P401616

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.4		P	93 - 104

Reference Method: SM 5310 B-2011
Batch ID: P402026

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.7		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401813

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264570	Chloride	99.6		P	90 - 110
2264691	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402079

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2265015	Sulfate	94.1		P	90 - 110
2265753	Sulfate	97.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401896

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264773	Ammonia-N	95.6	95.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402061

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264776	Ammonia-N	98.6	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402350

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264571	Kjeldahl Nitrogen	113	111	F/F	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402392

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264693	Kjeldahl Nitrogen	101	111	P/F	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402546

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2266319	Kjeldahl Nitrogen	106	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264682	NO2NO3-N	99.6	99.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401627

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264774	NO2NO3-N	102	101	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402010

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2267233	Total-P	104	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401483

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264779	O-Phosphate-P	92.2	92.0	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P401616

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264754	Fluoride	98.6	99.1	P/P	92 - 107

Reference Method: SM 5310 B-2011
Batch ID: P402026

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2264683	Organic Carbon	95.9	97.2	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P401500

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264753	Turbidity	0.409	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P401813

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264691	Chloride	0.392	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P402079

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2265753	Sulfate	1.19	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P401896

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264773	Ammonia-N	0.567	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P402061

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264776	Ammonia-N	0.184	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402350

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264571	Kjeldahl Nitrogen	1.21	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402392

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264693	Kjeldahl Nitrogen	5.60	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P402546

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2266319	Kjeldahl Nitrogen	0.426	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401626

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264682	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P401627

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264774	NO2NO3-N	0.494	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P402010

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2267233	Total-P	0.955	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P401483

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264779	O-Phosphate-P	0.217	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P401497

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264601	Color (true)	3.43	Sample	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P401498

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264770	Color (true)	0.574	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P401614

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264754	Total Alkalinity	3.65	Sample	P	0 - 5.2

Reference Method: SM 2540 C-2011
Batch ID: P401970

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264769	TDS	0.797	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 2540 C-2011
Batch ID: P401971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264771	TDS	6.55	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P401616

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264754	Fluoride	0.472	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P402026

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2264683	Organic Carbon	0.900	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: A106800
Included Lab Sample IDs: 2264777, 2264778, 2264779, 2264780

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.7	97.8	P/P	90 - 110
O-Phosphate-P	98.8	97.7	P/P	90 - 110

Reference Method: SM 2120 B-2011
Run ID: A106804
Included Lab Sample IDs: 2264769, 2264770, 2264771, 2264772

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	100	P/P	90 - 115
Color (true)	99.4	101	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A106805
Included Lab Sample IDs: 2264769, 2264770, 2264771, 2264772

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

Reference Method: SM 2320 B-2011
Run ID: A106865
Included Lab Sample IDs: 2264769, 2264770, 2264771, 2264772

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	100	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Run ID: A106865
Included Lab Sample IDs: 2264769, 2264770, 2264771, 2264772

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A106874
Included Lab Sample IDs: 2264773, 2264774, 2264775, 2264776

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A106905
Included Lab Sample IDs: 2264769, 2264770, 2264771, 2264772

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A107003
Included Lab Sample IDs: 2264773

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	95.0	93.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A107025
Included Lab Sample IDs: 2264769, 2264770, 2264771, 2264772

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	98.9	99.2	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A107056
Included Lab Sample IDs: 2264773, 2264774, 2264775, 2264776

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.6	97.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A107064
Included Lab Sample IDs: 2264774, 2264775, 2264776

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.3	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A107092
Included Lab Sample IDs: 2264773, 2264774, 2264775, 2264776

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A107223
Included Lab Sample IDs: 2264773, 2264774

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.4	97.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A107325
Included Lab Sample IDs: 2264775

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	104	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	MS
EPA 180.1 Rev. 2.0	Turbidity					0.409	
EPA 300.0 Rev. 2.1	Chloride	96.6	100	99.6		0.392	
	Sulfate	96.8	97.6	94.1		1.19	
EPA 350.1 Rev. 2.0	Ammonia-N	92.4	95.6	95.0			0.567
	Ammonia-N	101	98.6	98.8			0.184
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	113	111			1.21
	Kjeldahl Nitrogen	106	111	101			5.60
	Kjeldahl Nitrogen	105	106	105			0.426
EPA 353.2 Rev. 2.0	NO2NO3-N	102	99.6	99.6			0.0
	NO2NO3-N	101	102	101			0.494
EPA 365.1 Rev. 2.0	Total-P	104	104	105			0.955
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.1	92.2	92.0			0.217
SM 2120 B-2011	Color (true)	99.3				3.43	
	Color (true)	99.4				0.574	
SM 2320 B-2011	Total Alkalinity	103				3.65	
SM 2540 C-2011	TDS					0.797	
	TDS					6.55	
SM 4500 F-C-2011	Fluoride	98.4	98.6	99.1			0.472
SM 5310 B-2011	Organic Carbon	95.7	95.9	97.2			0.900

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2264769, 2264770, 2264771, 2264772
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2264769, 2264770, 2264771, 2264772
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2264769, 2264770, 2264771, 2264772
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2264773, 2264774, 2264775, 2264776
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2264773, 2264774, 2264775, 2264776
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2264773, 2264774, 2264775, 2264776
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2264773, 2264774, 2264775, 2264776
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2264777, 2264778, 2264779, 2264780
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2264769, 2264770, 2264771, 2264772
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2264769, 2264770, 2264771, 2264772
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2264769, 2264770, 2264771, 2264772
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2264769, 2264770, 2264771, 2264772
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2264769, 2264770, 2264771, 2264772
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2264773, 2264774, 2264775, 2264776

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	07/23/2021			07/23/2021 16:14	Sarah A Nixon	2264769, 2264770, 2264771, 2264772
EPA 300.0 Rev. 2.1	07/23/2021			07/31/2021 00:10	Lipi Saha	2264769
	07/23/2021			07/31/2021 00:22	Lipi Saha	2264770
	07/23/2021			07/31/2021 00:34	Lipi Saha	2264771
	07/23/2021			07/31/2021 00:46	Lipi Saha	2264772
	07/23/2021			08/05/2021 19:05	Lipi Saha	2264769
	07/23/2021			08/05/2021 19:17	Lipi Saha	2264770
	07/23/2021			08/05/2021 19:29	Lipi Saha	2264771
	07/23/2021			08/05/2021 19:41	Lipi Saha	2264772
EPA 350.1 Rev. 2.0	07/23/2021			08/03/2021 14:42	Roberta Tatti	2264773
	07/23/2021			08/05/2021 13:29	Ping Hua	2264776
	07/23/2021			08/05/2021 13:38	Ping Hua	2264774
	07/23/2021			08/05/2021 13:39	Ping Hua	2264775
EPA 351.2 Rev. 2.0	07/23/2021	08/11/2021 18:38	Madeline Gruver	08/12/2021 12:54	Virginia P. Brown	2264773
	07/23/2021	08/11/2021 18:38	Madeline Gruver	08/12/2021 12:56	Virginia P. Brown	2264774
	07/23/2021	08/12/2021 14:27	Benjamin T. Nordmann	08/13/2021 11:16	Virginia P. Brown	2264776
	07/23/2021	08/17/2021 17:46	Madeline Gruver	08/18/2021 12:24	Virginia P. Brown	2264775
EPA 353.2 Rev. 2.0	07/23/2021			07/28/2021 09:53	Beverly Y. Sanders	2264773
	07/23/2021			07/28/2021 10:01	Beverly Y. Sanders	2264774
	07/23/2021			07/28/2021 10:07	Beverly Y. Sanders	2264775
	07/23/2021			07/28/2021 10:08	Beverly Y. Sanders	2264776
EPA 365.1 Rev. 2.0	07/23/2021	08/05/2021 15:45	Simonne.V. Calhoun	08/06/2021 12:21	Shengyu Ding	2264773
	07/23/2021	08/05/2021 15:45	Simonne.V. Calhoun	08/06/2021 12:22	Shengyu Ding	2264774
	07/23/2021	08/05/2021 15:45	Simonne.V. Calhoun	08/06/2021 12:23	Shengyu Ding	2264775
	07/23/2021	08/05/2021 15:45	Simonne.V. Calhoun	08/06/2021 12:24	Shengyu Ding	2264776
EPA 365.1 Rev. 2.0 dissolved	07/23/2021			07/23/2021 13:45	Lipi Saha	2264779
	07/23/2021			07/23/2021 13:57	Lipi Saha	2264777
	07/23/2021			07/23/2021 13:58	Lipi Saha	2264778
	07/23/2021			07/23/2021 13:59	Lipi Saha	2264780
SM 2120 B-2011	07/23/2021			07/23/2021 17:05	Sarah A Nixon	2264769
	07/23/2021			07/23/2021 17:09	Sarah A Nixon	2264770
	07/23/2021			07/23/2021 17:10	Sarah A Nixon	2264771
	07/23/2021			07/23/2021 17:11	Sarah A Nixon	2264772
SM 2320 B-2011	07/23/2021			07/27/2021 18:08	Dale L. Simmons	2264769
	07/23/2021			07/27/2021 18:19	Dale L. Simmons	2264770
	07/23/2021			07/27/2021 18:33	Dale L. Simmons	2264771
	07/23/2021			07/27/2021 18:44	Dale L. Simmons	2264772
SM 2540 C-2011	07/23/2021			07/27/2021 14:56	Yijie Li	2264769, 2264770, 2264771, 2264772
SM 2540 D-2011	07/23/2021			07/27/2021 14:56	Yijie Li	2264769, 2264770, 2264771, 2264772
SM 4500 F-C-2011	07/23/2021			07/27/2021 18:08	Dale L. Simmons	2264769

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	07/23/2021			07/27/2021 18:19	Dale L. Simmons	2264770
	07/23/2021			07/27/2021 18:33	Dale L. Simmons	2264771
	07/23/2021			07/27/2021 18:44	Dale L. Simmons	2264772
SM 5310 B-2011	07/23/2021			08/05/2021 06:15	Madeline Gruver	2264773
	07/23/2021			08/05/2021 06:31	Madeline Gruver	2264774
	07/23/2021			08/05/2021 06:40	Madeline Gruver	2264775
	07/23/2021			08/05/2021 06:52	Madeline Gruver	2264776