

Chemical Analysis Report

SO-DIST-2022-01-11-01

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

Event Description: **2022 SMP: Lee Coastal**
Request ID: **RQ-2022-01-10-44**
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
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 02-FEB-2022 11:29

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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: Punta Rassa Cove

Collection Date/Time: 01/10/2022 08:35

Field ID: G2SD0047

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2298647	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P408357	
	SM 2320 B-2011	Total Alkalinity	123		mg CaCO3/L	P408611	
	SM 2540 D-2011	TSS	3	I	mg/L	P408779	
	SM 4500 F-C-2011	Fluoride	0.93		mg F/L	P408614	
2298648	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P408829	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P408863	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P408528	
	EPA 365.1 Rev. 2.0	Total-P	0.045		mg P/L	P408373	
	SM 5310 B-2011	Organic Carbon	6.7		mg C/L	P408585	
2298649	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.025		mg P/L	P408354	

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: HendryCreekHouse1Upstrm

Collection Date/Time: 01/10/2022 11:10

Field ID: G1SD0118

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2298650	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P408357	
	SM 2320 B-2011	Total Alkalinity	241		mg CaCO3/L	P408611	
	SM 2540 D-2011	TSS	3	U	mg/L	P408779	
	SM 4500 F-C-2011	Fluoride	0.64		mg F/L	P408614	
2298651	EPA 350.1 Rev. 2.0	Ammonia-N	0.086		mg N/L	P408829	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P408863	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.068		mg N/L	P408528	
	EPA 365.1 Rev. 2.0	Total-P	0.062		mg P/L	P408373	
	SM 5310 B-2011	Organic Carbon	13		mg C/L	P408585	
2298652	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.039		mg P/L	P408354	

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: Oak Creek at Kentucky St.

Collection Date/Time: 01/10/2022 12:20

Field ID: G1SD0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2298653	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P408357	
	EPA 300.0 Rev. 2.1	Chloride	480		mg Cl/L	P409039	
		Sulfate	84		mg SO4/L	P409042	
	SM 2120 B-2011	Color (true)**	35	A	PCU	P408371	
	SM 2320 B-2011	Total Alkalinity	298		mg CaCO3/L	P408539	
	SM 2540 C-2011	TDS	1.16E+03		mg/L	P408873	
	SM 2540 D-2011	TSS	4	I	mg/L	P408773	
	SM 4500 F-C-2011	Fluoride	0.15		mg F/L	P408542	
2298654	EPA 350.1 Rev. 2.0	Ammonia-N	0.070		mg N/L	P408827	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P408619	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.17		mg N/L	P408599	
	EPA 365.1 Rev. 2.0	Total-P	0.073		mg P/L	P408379	MS
	SM 5310 B-2011	Organic Carbon	9.6		mg C/L	P408584	
2298655	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.044		mg P/L	P408353	

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: P408357

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409039

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409042

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P408827

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P408829

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408619

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408863

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408528

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408599

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: P408373

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P408379

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P408353

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P408354

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

Reference Method: SM 2120 B-2011
Batch ID: P408371

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P408539

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

Reference Method: SM 2320 B-2011
Batch ID: P408611

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

Reference Method: SM 2540 C-2011
Batch ID: P408873

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P408773

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-2011
Batch ID: P408779

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P408542

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P408614

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P408584

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

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

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409039

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409042

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P408827

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P408829

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408619

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408863

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408528

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: P408599

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P408373

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P408379

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P408353

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P408354

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

Reference Method: SM 2120 B-2011
Batch ID: P408371

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.8		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P408539

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.7		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P408611

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.4		P	94 - 106

Reference Method: SM 4500 F-C-2011
Batch ID: P408542

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

Reference Method: SM 4500 F-C-2011
Batch ID: P408614

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

Reference Method: SM 5310 B-2011
Batch ID: P408584

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

Quality Assurance Report

Laboratory Control Sample Accuracy

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

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409039

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2298611	Chloride	105		P	90 - 110
2298783	Chloride	105		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409042

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2298611	Sulfate	100		P	90 - 110
2298783	Sulfate	99.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P408827

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2298606	Ammonia-N	97.0	98.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P408829

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2298563	Ammonia-N	104	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408619

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2298926	Kjeldahl Nitrogen	105	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408863

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2298558	Kjeldahl Nitrogen	93.5	94.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408528

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2298558	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408599

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2298593	NO2NO3-N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P408373

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2298560	Total-P	102	99.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P408379

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2298780	Total-P	111	112	F/F	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P408353

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2298616	O-Phosphate-P	98.6	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P408354

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2298649	O-Phosphate-P	98.7	99.3	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Batch ID: P408542

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2298602	Fluoride	99.0	99.7	P/P	92 - 107

Reference Method: SM 4500 F-C-2011

Batch ID: P408614

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2299601	Fluoride	97.0	98.3	P/P	92 - 107

Reference Method: SM 5310 B-2011

Batch ID: P408584

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2298654	Organic Carbon	101	103	P/P	85 - 115

Reference Method: SM 5310 B-2011

Batch ID: P408585

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

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P408357

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2298591	Turbidity	0.692	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409039

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2298611	Chloride	2.18	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P409042

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2298611	Sulfate	1.12	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P408827

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2298606	Ammonia-N	0.905	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P408829

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2298563	Ammonia-N	0.551	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408619

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2298926	Kjeldahl Nitrogen	0.482	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P408863

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2298558	Kjeldahl Nitrogen	0.489	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P408528

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2298558	NO2NO3-N	0.473	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P408599

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2298593	NO2NO3-N	0.232	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P408373

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2298560	Total-P	2.44	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P408379

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2298780	Total-P	0.731	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P408353

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2298616	O-Phosphate-P	0.360	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P408354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2298649	O-Phosphate-P	0.485	Spike	P	0 - 20

Reference Method: SM 2120 B-2011

Batch ID: P408371

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2298653	Color (true)	1.19	Sample	P	0 - 20

Reference Method: SM 2320 B-2011

Batch ID: P408539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2298602	Total Alkalinity	1.59	Sample	P	0 - 5.2

Reference Method: SM 2320 B-2011

Batch ID: P408611

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299601	Total Alkalinity	0.0625	Sample	P	0 - 5.2

Quality Assurance Report Precision

Reference Method: SM 2540 C-2011
Batch ID: P408873

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299081	TDS	5.45	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P408542

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2298602	Fluoride	0.531	Spike	P	0 - 2.1

Reference Method: SM 4500 F-C-2011
Batch ID: P408614

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2299601	Fluoride	0.967	Spike	P	0 - 2.1

Reference Method: SM 5310 B-2011
Batch ID: P408584

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2298654	Organic Carbon	1.17	Spike	P	0 - 20

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

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2298648	Organic Carbon	1.20	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A109791

Included Lab Sample IDs: 2298649, 2298652, 2298655

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.3	99.1	P/P	90 - 110
O-Phosphate-P	99.4	99.3	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A109792

Included Lab Sample IDs: 2298647, 2298650, 2298653

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

Reference Method: SM 2120 B-2011

Run ID: A109799

Included Lab Sample IDs: 2298653

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	99.8	P/P	85 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A109868

Included Lab Sample IDs: 2298648, 2298651

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

Reference Method: SM 2320 B-2011

Run ID: A109873

Included Lab Sample IDs: 2298653

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

Reference Method: SM 4500 F-C-2011

Run ID: A109873

Included Lab Sample IDs: 2298653

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A109876

Included Lab Sample IDs: 2298654

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A109886

Included Lab Sample IDs: 2298648, 2298651

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-2011

Run ID: A109902

Included Lab Sample IDs: 2298648, 2298651, 2298654

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	95.7	P/P	90 - 110
Organic Carbon	101	101	P/P	90 - 110
Organic Carbon	95.2	95.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A109906

Included Lab Sample IDs: 2298654

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

Reference Method: SM 2320 B-2011

Run ID: A109907

Included Lab Sample IDs: 2298647, 2298650

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.7	96.4	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A109907

Included Lab Sample IDs: 2298647, 2298650

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A109942

Included Lab Sample IDs: 2298654

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.1	95.7	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A110040

Included Lab Sample IDs: 2298653

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A110047

Included Lab Sample IDs: 2298648, 2298651

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.4	95.4	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		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				0.692	
EPA 300.0 Rev. 2.1	Chloride	106	105	105	2.18	
	Sulfate	101	100	99.7	1.12	
EPA 350.1 Rev. 2.0	Ammonia-N	98.8	97.0	98.0		0.905
	Ammonia-N	98.8	104	105		0.551
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.1	105	106		0.482
	Kjeldahl Nitrogen	95.2	93.5	94.0		0.489
EPA 353.2 Rev. 2.0	NO2NO3-N	102	103	103		0.473
	NO2NO3-N	105	102			0.232
EPA 365.1 Rev. 2.0	Total-P	110	102	99.8		2.44
	Total-P	108	111	112		0.731
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.8	98.6	99.1		0.360
	O-Phosphate-P	99.6	98.7	99.3		0.485
SM 2120 B-2011	Color (true)	99.8			1.19	
SM 2320 B-2011	Total Alkalinity	97.7			1.59	
	Total Alkalinity	99.4			0.0625	
SM 2540 C-2011	TDS				5.45	
SM 4500 F-C-2011	Fluoride	100	99.0	99.7		0.531
	Fluoride	98.4	97.0	98.3		0.967
SM 5310 B-2011	Organic Carbon	95.2	101	103		1.17
	Organic Carbon	97.0	95.4	96.8		1.20

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2298647, 2298650, 2298653
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2298653
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2298653
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2298648, 2298651, 2298654
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2298648, 2298651, 2298654
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2298648, 2298651, 2298654
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2298648, 2298651, 2298654
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2298649, 2298652, 2298655
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2298653
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2298647, 2298650, 2298653
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2298653
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2298647, 2298650, 2298653
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2298647, 2298650, 2298653
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2298648, 2298651, 2298654

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	01/11/2022			01/11/2022 17:12	Khloe J Berg	2298647, 2298650, 2298653
EPA 300.0 Rev. 2.1	01/11/2022			01/27/2022 01:18	James L Waggeberby	2298653
EPA 350.1 Rev. 2.0	01/11/2022			01/21/2022 10:40	Ping Hua	2298654
	01/11/2022			01/21/2022 11:18	Ping Hua	2298648
	01/11/2022			01/21/2022 11:19	Ping Hua	2298651
EPA 351.2 Rev. 2.0	01/11/2022	01/19/2022 11:18	Samantha L Bates	01/20/2022 11:00	Alexandra J Mattheus	2298654
	01/11/2022	01/25/2022 09:51	Samantha L Bates	01/26/2022 10:59	Alexandra J Mattheus	2298648
	01/11/2022	01/25/2022 09:51	Samantha L Bates	01/26/2022 11:01	Alexandra J Mattheus	2298651
EPA 353.2 Rev. 2.0	01/11/2022			01/14/2022 09:06	Beverly Y. Sanders	2298648
	01/11/2022			01/14/2022 09:07	Beverly Y. Sanders	2298651
	01/11/2022			01/18/2022 09:43	Beverly Y. Sanders	2298654
EPA 365.1 Rev. 2.0	01/11/2022	01/13/2022 13:10	Simonne.V. Calhoun	01/14/2022 12:58	Shengyu Ding	2298654
	01/11/2022	01/13/2022 13:10	Simonne.V. Calhoun	01/14/2022 15:36	Shengyu Ding	2298648
	01/11/2022	01/13/2022 13:10	Simonne.V. Calhoun	01/14/2022 15:37	Shengyu Ding	2298651
EPA 365.1 Rev. 2.0 dissolved	01/11/2022			01/11/2022 16:08	James L Waggeberby	2298655
	01/11/2022			01/11/2022 16:22	James L Waggeberby	2298649
	01/11/2022			01/11/2022 16:25	James L Waggeberby	2298652
SM 2120 B-2011	01/11/2022			01/11/2022 15:50	Blanca Fach	2298653
SM 2320 B-2011	01/11/2022			01/14/2022 08:13	Dale L. Simmons	2298653
	01/11/2022			01/15/2022 05:20	Dale L. Simmons	2298647
	01/11/2022			01/15/2022 05:35	Dale L. Simmons	2298650
SM 2540 C-2011	01/11/2022			01/13/2022 14:02	Yijie Li	2298653
SM 2540 D-2011	01/11/2022			01/13/2022 14:02	Yijie Li	2298647, 2298650, 2298653
SM 4500 F-C-2011	01/11/2022			01/14/2022 08:13	Dale L. Simmons	2298653
	01/11/2022			01/15/2022 04:39	Dale L. Simmons	2298647
	01/11/2022			01/15/2022 04:44	Dale L. Simmons	2298650
SM 5310 B-2011	01/11/2022			01/14/2022 16:21	Khloe J Berg	2298654
	01/11/2022			01/15/2022 00:43	Khloe J Berg	2298648
	01/11/2022			01/15/2022 09:42	Khloe J Berg	2298651