

Chemical Analysis Report

NW-DIST-2018-03-28-01

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

Event Description: **Shoal River**
Request ID: **RQ-2018-03-26-17**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 W Government St
Suite 208A
Pensacola, FL 32502-5794
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Date Certified: 18-APR-2018 16:45



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 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: SHOAL RIVER BELOW JUNIPER CREEK

Collection Date/Time: 03/27/2018 11:15

Field ID: G4NW0024

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1978313	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P342358	
	EPA 300.0 Rev. 2.1	Chloride	3.3		mg Cl/L	P342509	
		Sulfate	1.2		mg SO4/L	P342513	
	SM 2120 B	Color (true)	40		PCU	P342353	
	SM 2320 B-97	Total Alkalinity	4.5		mg CaCO3/L	P342982	
	SM 2540 C-97	TDS	20	I	mg/L	P342659	
	SM 2540 D-97	TSS	7	I	mg/L	P343096	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P342986	
1978314	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P342769	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P342401	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.26		mg N/L	P342654	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P342502	
	SM 5310 B-00	Organic Carbon	2.9		mg C/L	P342906	
1978315	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P342433	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: shoal river below titi cr

Collection Date/Time: 03/27/2018 12:00

Field ID: G4NW0410

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1978310	EPA 180.1 Rev. 2.0	Turbidity	4.4	A	NTU	P342358	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P342508	
		Sulfate	1.2		mg SO4/L	P342512	MS
	SM 2120 B	Color (true)	41	A	PCU	P342353	
	SM 2320 B-97	Total Alkalinity	3.8		mg CaCO3/L	P342982	
	SM 2540 C-97	TDS	18	I	mg/L	P342659	
	SM 2540 D-97	TSS	6	I	mg/L	P343096	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P342986	
1978311	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P342769	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21		mg N/L	P342389	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.27		mg N/L	P342654	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P342502	
	SM 5310 B-00	Organic Carbon	2.9		mg C/L	P342906	
1978312	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P342433	

Ref. Method and Comment:

SM 2540 D-97: 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: P342358

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342508

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342509

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342512

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342513

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342769

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342389

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342401

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342654

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342502

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 dissolved
Batch ID: P342433

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

Reference Method: SM 2120 B
Batch ID: P342353

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P342982

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

Reference Method: SM 2540 C-97
Batch ID: P342659

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P343096

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P342986

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P342906

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: P342508

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342509

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342509

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342512

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342513

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342769

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342389

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.5		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342401

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342654

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342502

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342433

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.5		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P342982

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P342986

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.5		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P342906

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342508

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978002	Chloride	100	98.2	P/P	90 - 110
1978208	Chloride	97.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342509

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978313	Chloride	101	99.4	P/P	90 - 110
1978779	Chloride	97.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978002	Sulfate	101	99.9	P/P	90 - 110
1978208	Sulfate	88.7		F	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342513

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978313	Sulfate	102	99.3	P/P	90 - 110
1978779	Sulfate	99.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342769

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978215	Ammonia-N	96.8	93.9	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342389

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978102	Kjeldahl Nitrogen	95.5	93.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342401

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978553	Kjeldahl Nitrogen	96.6	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342654

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978213	NO2NO3-N	106	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342502

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978293	Total-P	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342433

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978312	O-Phosphate-P	100	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P342986

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978292	Fluoride	95.8	95.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P342906

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978807	Organic Carbon	100	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P342358

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978310	Turbidity	1.15	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342508

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978002	Chloride	1.79	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342509

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978313	Chloride	1.75	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978002	Sulfate	1.24	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342513

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978313	Sulfate	2.74	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P342769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978215	Ammonia-N	2.39	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342389

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978102	Kjeldahl Nitrogen	1.29	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342401

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978553	Kjeldahl Nitrogen	2.91	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342654

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978213	NO2NO3-N	1.27	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342502

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978293	Total-P	0.744	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342433

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978312	O-Phosphate-P	0.298	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P342353

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978310	Color (true)	0.561	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P342982

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978292	Total Alkalinity	0.365	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P342659

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978292	TDS	4.10	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P342986

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978292	Fluoride	0.479	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P342906

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978807	Organic Carbon	1.98	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A82892

Included Lab Sample IDs: 1978310, 1978313

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Chloride	98.9	100	P/P	90 - 110
Sulfate	99.5	99.9	P/P	90 - 110
Sulfate	99.9	99.8	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A82910

Included Lab Sample IDs: 1978310, 1978313

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.9	100	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A82911

Included Lab Sample IDs: 1978310, 1978313

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.0	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A82939

Included Lab Sample IDs: 1978312, 1978315

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	101	P/P	90 - 110
O-Phosphate-P	98.8	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82965

Included Lab Sample IDs: 1978314

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A82979

Included Lab Sample IDs: 1978311

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83000

Included Lab Sample IDs: 1978311, 1978314

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.2	98.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A83012
Included Lab Sample IDs: 1978311, 1978314

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110
NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A83041
Included Lab Sample IDs: 1978311, 1978314

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.5	98.1	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A83079
Included Lab Sample IDs: 1978311, 1978314

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.8	97.2	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A83098
Included Lab Sample IDs: 1978310, 1978313

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	97.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A83098
Included Lab Sample IDs: 1978310, 1978313

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	98.6	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		LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						1.15	
EPA 300.0 Rev. 2.1	Chloride	98.7		100	98.2	97.2		1.79
	Chloride	98.5		101	99.4	97.7		1.75
	Sulfate	98.9		101	99.9	88.7		1.24
	Sulfate	101		102	99.3	99.0		2.74
EPA 350.1 Rev. 2.0	Ammonia-N	94.1		96.8	93.9			2.39
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.5		95.5	93.4			1.29
	Kjeldahl Nitrogen	98.5		96.6	102			2.91
EPA 353.2 Rev. 2.0	NO2NO3-N	102		106	104			1.27
EPA 365.1 Rev. 2.0	Total-P	102		102	101			0.744

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 365.1 Rev. 2.0 dissolved SM 2120 B	O-Phosphate-P Color (true)	98.5	100 101		0.561	0.298
SM 2320 B-97	Total Alkalinity	100			0.365	
SM 2540 C-97	TDS				4.10	
SM 4500 F-C-97	Fluoride	97.5	95.8 95.2			0.479
SM 5310 B-00	Organic Carbon	97.6	100 102			1.98

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1978310, 1978313
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1978310, 1978313
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1978310, 1978313
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1978311, 1978314
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1978311, 1978314
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1978311, 1978314
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1978311, 1978314
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1978312, 1978315
SM 2120 B / E31780	True Color measured at 450 nm	1978310, 1978313
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1978310, 1978313
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1978310, 1978313
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1978310, 1978313
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1978310, 1978313
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1978311, 1978314

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	03/28/2018			03/28/2018 15:43	DeAsia Armster	1978310, 1978313
EPA 300.0 Rev. 2.1	03/28/2018			03/30/2018 05:24	Lipi Saha	1978310
	03/28/2018			03/30/2018 06:36	Lipi Saha	1978313
EPA 350.1 Rev. 2.0	03/28/2018			04/04/2018 13:43	Ping Hua	1978311
	03/28/2018			04/04/2018 13:45	Ping Hua	1978314
EPA 351.2 Rev. 2.0	03/28/2018	03/29/2018 11:18	Adrian Shelby	04/02/2018 10:26	Joseph Suarez	1978311
	03/28/2018	03/29/2018 15:30	Adrian Shelby	03/30/2018 14:34	Joseph Suarez	1978314
EPA 353.2 Rev. 2.0	03/28/2018			04/03/2018 13:00	Lauren Bottorf	1978314
	03/28/2018			04/03/2018 14:30	Lauren Bottorf	1978311
EPA 365.1 Rev. 2.0	03/28/2018	03/30/2018 13:51	Sima Feizi	04/02/2018 14:03	Beverly Y. Sanders	1978311
	03/28/2018	03/30/2018 13:51	Sima Feizi	04/02/2018 14:04	Beverly Y. Sanders	1978314
EPA 365.1 Rev. 2.0 dissolved	03/28/2018			03/28/2018 15:57	Megan Treadwell	1978312
	03/28/2018			03/28/2018 16:12	Megan Treadwell	1978315
SM 2120 B	03/28/2018			03/28/2018 15:21	Tanya Welborn	1978310
	03/28/2018			03/28/2018 15:22	Tanya Welborn	1978313
SM 2320 B-97	03/28/2018			04/05/2018 20:48	Dale L. Simmons	1978310
	03/28/2018			04/05/2018 20:59	Dale L. Simmons	1978313
SM 2540 C-97	03/28/2018			03/30/2018 16:30	Yijie Li	1978310, 1978313
SM 2540 D-97	03/28/2018			03/30/2018 16:30	Yijie Li	1978310, 1978313
SM 4500 F-C-97	03/28/2018			04/05/2018 20:48	Dale L. Simmons	1978310
	03/28/2018			04/05/2018 20:59	Dale L. Simmons	1978313
SM 5310 B-00	03/28/2018			04/05/2018 17:26	Julia Storbeck	1978311
	03/28/2018			04/05/2018 17:39	Julia Storbeck	1978314