Chemical Analysis Report

NW-DIST-2018-04-11-02

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

Event Description: **Choctawhatchee North run**
Request ID: **RQ-2018-02-19-17**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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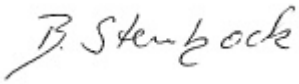
Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 01-MAY-2018 11:44



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: Choctawhatchee River upstream of Holmes Creek **Collection Date/Time: 04/10/2018 11:25**

Field ID: G3NW0129 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1983423	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P343258	
	EPA 300.0 Rev. 2.1	Chloride	4.3		mg Cl/L	P343317	
		Sulfate	1.8		mg SO4/L	P343319	
	SM 2120 B	Color (true)	76		PCU	P343210	
	SM 2320 B-97	Total Alkalinity	28		mg CaCO3/L	P343950	
	SM 2540 C-97	TDS	38		mg/L	P343620	
	SM 2540 D-97	TSS	6	I	mg/L	P343872	
	SM 4500 F-C-97	Fluoride	0.036	I	mg F/L	P343853	
1983427	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P343686	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P343268	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P343567	
	EPA 365.1 Rev. 2.0	Total-P	0.037		mg P/L	P343480	
	SM 5310 B-00	Organic Carbon	5.3		mg C/L	P343324	
1983431	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P343217	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 353.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Seven Runs end of Dead River Road **Collection Date/Time: 04/10/2018 12:20**

Field ID: G3NW0115 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1983424	EPA 180.1 Rev. 2.0	Turbidity	4.7		NTU	P343258	
	EPA 300.0 Rev. 2.1	Chloride	2.8		mg Cl/L	P343318	
		Sulfate	1.9		mg SO4/L	P343320	
	SM 2120 B	Color (true)	92		PCU	P343210	
	SM 2320 B-97	Total Alkalinity	3.2		mg CaCO3/L	P343950	
	SM 2540 C-97	TDS	28		mg/L	P343620	
	SM 2540 D-97	TSS	3	I	mg/L	P343872	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P343853	
1983428	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P343686	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28		mg N/L	P343268	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.056		mg N/L	P343567	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P343480	
	SM 5310 B-00	Organic Carbon	6.9		mg C/L	P343324	
1983432	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P343217	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 353.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Choctawhatchee River South of Carlisle Lake **Collection Date/Time: 04/10/2018 13:10**

Field ID: G3NW0130 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1983425	EPA 180.1 Rev. 2.0	Turbidity	14		NTU	P343258	
	EPA 300.0 Rev. 2.1	Chloride	4.5		mg Cl/L	P343318	
		Sulfate	2.0		mg SO4/L	P343320	
	SM 2120 B	Color (true)	62	A	PCU	P343211	
	SM 2320 B-97	Total Alkalinity	31		mg CaCO3/L	P343950	
	SM 2540 C-97	TDS	55		mg/L	P343620	
	SM 2540 D-97	TSS	14		mg/L	P343872	
	SM 4500 F-C-97	Fluoride	0.038	I	mg F/L	P343853	
1983429	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P343686	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33		mg N/L	P343269	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.46		mg N/L	P343567	
	EPA 365.1 Rev. 2.0	Total-P	0.046		mg P/L	P343480	
	SM 5310 B-00	Organic Carbon	4.1		mg C/L	P343324	
1983433	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P343217	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 353.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Choctawhatchee River upstream Hwy 90 boat ramp **Collection Date/Time: 04/10/2018 14:00**

Field ID: G3NW0052 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1983426	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P343258	
	EPA 300.0 Rev. 2.1	Chloride	4.7		mg Cl/L	P343318	
		Sulfate	2.1		mg SO4/L	P343320	
	SM 2120 B	Color (true)	57		PCU	P343211	
	SM 2320 B-97	Total Alkalinity	29		mg CaCO3/L	P343950	
	SM 2540 C-97	TDS	50		mg/L	P343620	
	SM 2540 D-97	TSS	14		mg/L	P343872	
	SM 4500 F-C-97	Fluoride	0.039	I	mg F/L	P343853	
1983430	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P343686	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28		mg N/L	P343269	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.51		mg N/L	P343567	
	EPA 365.1 Rev. 2.0	Total-P	0.046		mg P/L	P343480	
	SM 5310 B-00	Organic Carbon	3.6		mg C/L	P343324	
1983434	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P343217	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 353.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P343258

Component	Result	Code	Units

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P343258

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343317

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343318

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343319

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343320

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343686

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343268

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343269

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343567

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: P343480

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343217

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

Reference Method: SM 2120 B
Batch ID: P343210

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P343211

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P343950

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

Reference Method: SM 2540 C-97
Batch ID: P343620

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P343872

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P343853

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P343324

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: P343317

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343318

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343319

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343320

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343686

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343268

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: P343269

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343567

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: P343480

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343217

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

Reference Method: SM 2320 B-97
Batch ID: P343950

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P343853

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.1		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P343324

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343317

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983315	Chloride	97.1		P	90 - 110
1983364	Chloride	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343318

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983425	Chloride	101	100	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343319

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983315	Sulfate	95.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983425	Sulfate	99.1	98.7	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343686

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983414	Ammonia-N	98.5	95.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343268

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983365	Kjeldahl Nitrogen	105	90.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343269

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983442	Kjeldahl Nitrogen	101	94.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343480

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983415	Total-P	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343217

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983334	O-Phosphate-P	99.9	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P343853

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1983677	Fluoride	96.7	97.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P343324

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1982017	Organic Carbon	98.7	99.2	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P343258

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983441	Turbidity	5.19	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343317

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983315	Chloride	0.186	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343318

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983425	Chloride	0.355	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343319

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983315	Sulfate	0.153	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P343320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983425	Sulfate	0.356	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343686

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983414	Ammonia-N	2.03	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343268

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983365	Kjeldahl Nitrogen	11.1	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P343269

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983442	Kjeldahl Nitrogen	3.80	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P343567

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983365	NO2NO3-N	0.137	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343480

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983415	Total-P	1.80	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P343217

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983334	O-Phosphate-P	0.300	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P343210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983320	Color (true)	2.67	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P343211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983425	Color (true)	1.07	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P343950

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1984545	Total Alkalinity	0.310	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P343620

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983339	TDS	1.95	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P343853

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1983677	Fluoride	0.473	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P343324

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1982017	Organic Carbon	0.367	Spike	P	0 - 20

Quality Assurance Report
Precision

* 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

Reference Method: SM 2120 B
Run ID: A83166
Included Lab Sample IDs: 1983423, 1983424, 1983425, 1983426

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	102	P/P	90 - 115
Color (true)	102	103	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A83169
Included Lab Sample IDs: 1983431, 1983432, 1983433, 1983434

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.6	99.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A83184
Included Lab Sample IDs: 1983423, 1983424, 1983425, 1983426

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105

Reference Method: SM 5310 B-00
Run ID: A83208
Included Lab Sample IDs: 1983427, 1983428, 1983429, 1983430

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.1	102	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A83234
Included Lab Sample IDs: 1983423, 1983424, 1983425, 1983426

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.7	101	P/P	90 - 110
Chloride	99.9	102	P/P	90 - 110
Sulfate	99.6	101	P/P	90 - 110
Sulfate	99.8	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A83263
Included Lab Sample IDs: 1983427, 1983428, 1983429, 1983430

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	101	P/P	90 - 110
Kjeldahl Nitrogen	107	103	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A83287
Included Lab Sample IDs: 1983427, 1983428, 1983429, 1983430

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A83326
Included Lab Sample IDs: 1983427, 1983428, 1983429, 1983430

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A83340
Included Lab Sample IDs: 1983427, 1983428, 1983429, 1983430

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	99.0	P/P	90 - 110
Total-P	99.0	99.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A83392
Included Lab Sample IDs: 1983423, 1983424, 1983425, 1983426

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	98.6	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A83420
Included Lab Sample IDs: 1983423, 1983424, 1983425, 1983426

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.6	102	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					5.19	
EPA 300.0 Rev. 2.1	Chloride	98.6	97.1	97.6		0.186	
	Chloride	99.8	101	100			0.355
	Sulfate	97.5	95.8			0.153	
	Sulfate	97.5	99.1	98.7			0.356
EPA 350.1 Rev. 2.0	Ammonia-N	95.9	98.5	95.1			2.03
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	105	90.4			11.1
	Kjeldahl Nitrogen	102	101	94.9			3.80
EPA 353.2 Rev. 2.0	NO2NO3-N	100					0.137
EPA 365.1 Rev. 2.0	Total-P	101	101	103			1.80

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.4	99.9	100			0.300
SM 2120 B	Color (true)					2.67	
	Color (true)					1.07	
SM 2320 B-97	Total Alkalinity	101				0.310	
SM 2540 C-97	TDS					1.95	
SM 4500 F-C-97	Fluoride	95.1	96.7	97.4			0.473
SM 5310 B-00	Organic Carbon	101	98.7	99.2			0.367

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1983423, 1983424, 1983425, 1983426
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1983423, 1983424, 1983425, 1983426
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1983423, 1983424, 1983425, 1983426
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1983427, 1983428, 1983429, 1983430
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1983427, 1983428, 1983429, 1983430
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1983427, 1983428, 1983429, 1983430
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1983427, 1983428, 1983429, 1983430
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1983431, 1983432, 1983433, 1983434
SM 2120 B / E31780	True Color measured at 450 nm	1983423, 1983424, 1983425, 1983426
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1983423, 1983424, 1983425, 1983426
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1983423, 1983424, 1983425, 1983426
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1983423, 1983424, 1983425, 1983426
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1983423, 1983424, 1983425, 1983426
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1983427, 1983428, 1983429, 1983430

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	04/11/2018			04/11/2018 17:57	William L. Brown IV	1983423, 1983424, 1983425, 1983426
EPA 300.0 Rev. 2.1	04/11/2018			04/12/2018 21:56	Lipi Saha	1983423
	04/11/2018			04/13/2018 00:19	Lipi Saha	1983425
	04/11/2018			04/13/2018 00:55	Lipi Saha	1983424
	04/11/2018			04/13/2018 01:07	Lipi Saha	1983426
EPA 350.1 Rev. 2.0	04/11/2018			04/17/2018 10:29	Ping Hua	1983427
	04/11/2018			04/17/2018 10:31	Ping Hua	1983428
	04/11/2018			04/17/2018 10:32	Ping Hua	1983429
	04/11/2018			04/17/2018 10:34	Ping Hua	1983430
EPA 351.2 Rev. 2.0	04/11/2018	04/12/2018 09:00	Adrian Shelby	04/13/2018 16:01	Joseph Suarez	1983427
	04/11/2018	04/12/2018 09:00	Adrian Shelby	04/13/2018 16:02	Joseph Suarez	1983428
	04/11/2018	04/12/2018 09:00	Adrian Shelby	04/13/2018 16:10	Joseph Suarez	1983429
	04/11/2018	04/12/2018 09:00	Adrian Shelby	04/13/2018 16:12	Joseph Suarez	1983430
EPA 353.2 Rev. 2.0	04/11/2018			04/17/2018 13:08	Lauren Bottorf	1983427
	04/11/2018			04/17/2018 13:09	Lauren Bottorf	1983428
	04/11/2018			04/17/2018 13:10	Lauren Bottorf	1983429
	04/11/2018			04/17/2018 13:12	Lauren Bottorf	1983430
EPA 365.1 Rev. 2.0	04/11/2018	04/16/2018 13:16	Sima Feizi	04/19/2018 11:53	Beverly Y. Sanders	1983427, 1983428
	04/11/2018	04/16/2018 13:16	Sima Feizi	04/19/2018 11:54	Beverly Y. Sanders	1983429
	04/11/2018	04/16/2018 13:16	Sima Feizi	04/19/2018 12:02	Beverly Y. Sanders	1983430
EPA 365.1 Rev. 2.0 dissolved	04/11/2018			04/11/2018 16:19	Megan Treadwell	1983431
	04/11/2018			04/11/2018 16:20	Megan Treadwell	1983432
	04/11/2018			04/11/2018 16:21	Megan Treadwell	1983433, 1983434
SM 2120 B	04/11/2018			04/11/2018 15:57	Tanya Welborn	1983423
	04/11/2018			04/11/2018 15:58	Tanya Welborn	1983424
	04/11/2018			04/11/2018 16:02	Tanya Welborn	1983425, 1983426
SM 2320 B-97	04/11/2018			04/23/2018 23:44	Dale L. Simmons	1983423
	04/11/2018			04/23/2018 23:55	Dale L. Simmons	1983424
	04/11/2018			04/24/2018 00:05	Dale L. Simmons	1983425
	04/11/2018			04/24/2018 00:15	Dale L. Simmons	1983426
SM 2540 C-97	04/11/2018			04/13/2018 15:23	Yijie Li	1983423, 1983424, 1983425, 1983426
SM 2540 D-97	04/11/2018			04/13/2018 15:23	Yijie Li	1983423, 1983424, 1983425, 1983426
SM 4500 F-C-97	04/11/2018			04/20/2018 21:29	Lauren Bottorf	1983423
	04/11/2018			04/20/2018 21:39	Lauren Bottorf	1983424
	04/11/2018			04/20/2018 21:48	Lauren Bottorf	1983425
	04/11/2018			04/20/2018 21:58	Lauren Bottorf	1983426
SM 5310 B-00	04/11/2018			04/13/2018 06:06	Megan Treadwell	1983427
	04/11/2018			04/13/2018 06:19	Megan Treadwell	1983428
	04/11/2018			04/13/2018 06:31	Megan Treadwell	1983429
	04/11/2018			04/13/2018 06:43	Megan Treadwell	1983430