Chemical Analysis Report

NE-DIST-2017-04-28-01

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

Event Description: **LSJR Southside**
Request ID: **RQ-2017-04-24-28**
Customer: **NE-DIST**
Project ID: **SMP**

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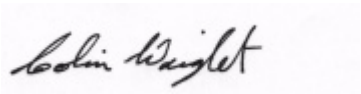
Certified by: Colin Wright, Program Administrator

Date Certified: 24-MAY-2017 14:30



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: Miramar Creek @ Gadsen Rd. **Collection Date/Time: 04/27/2017 11:35**

Field ID: G2NE0833 04272017 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1894178	EPA 180.1 Rev. 2.0	Turbidity	3.7		NTU	P324229	
	EPA 300.0 Rev. 2.1	Chloride	32		mg Cl/L	P324872	
		Sulfate	71		mg SO4/L	P324873	
	SM 2120 B	Color (true)	18		PCU	P324224	
	SM 2320 B-97	Total Alkalinity	91		mg CaCO3/L	P325143	
	SM 2540 C-97	TDS	249		mg/L	P324875	
	SM 2540 D-97	TSS	3	I	mg/L	P324924	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P325147	
1894181	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P324264	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P324341	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.49		mg N/L	P324391	
	EPA 365.1 Rev. 2.0	Total-P	0.047		mg P/L	P324349	
	SM 5310 B-00	Organic Carbon	4.6		mg C/L	P324766	
1894184	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.010		mg P/L	P324236	

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: Craig Creek @ Lorimer Rd. **Collection Date/Time: 04/27/2017 10:25**

Field ID: 20030800 04272017 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1894179	EPA 180.1 Rev. 2.0	Turbidity	7.3		NTU	P324229	
	EPA 300.0 Rev. 2.1	Chloride	20		mg Cl/L	P324872	
		Sulfate	46		mg SO4/L	P324873	
	SM 2120 B	Color (true)	54	A	PCU	P324224	
	SM 2320 B-97	Total Alkalinity	150		mg CaCO3/L	P325144	
	SM 2540 C-97	TDS	254		mg/L	P324875	
	SM 2540 D-97	TSS	4	I	mg/L	P324924	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P325148	
1894182	EPA 350.1 Rev. 2.0	Ammonia-N	0.054		mg N/L	P324264	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.46		mg N/L	P324341	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.35		mg N/L	P324391	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P324349	
	SM 5310 B-00	Organic Carbon	8.0		mg C/L	P324766	
1894185	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P324236	

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: Miller Creek @ Beach Blvd. **Collection Date/Time: 04/27/2017 09:10**

Field ID: G2NE0836 04272017 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1894180	EPA 180.1 Rev. 2.0	Turbidity	5.9		NTU	P324229	
	EPA 300.0 Rev. 2.1	Chloride	27		mg Cl/L	P324872	
		Sulfate	52		mg SO4/L	P324873	

Field ID: G2NE0836 04272017 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1894180	SM 2120 B	Color (true)	31		PCU	P324224	
	SM 2320 B-97	Total Alkalinity	82	A	mg CaCO3/L	P325144	
	SM 2540 C-97	TDS	207		mg/L	P324875	
	SM 2540 D-97	TSS	2	I	mg/L	P324924	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P325148	
1894183	EPA 350.1 Rev. 2.0	Ammonia-N	0.27		mg N/L	P324264	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.55		mg N/L	P324341	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.41		mg N/L	P324391	
	EPA 365.1 Rev. 2.0	Total-P	0.065		mg P/L	P324349	
	SM 5310 B-00	Organic Carbon	4.1		mg C/L	P324766	
1894186	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.027		mg P/L	P324236	

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: P324229

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324872

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324873

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324264

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324341

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324391

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: P324349

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324236

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

Reference Method: SM 2120 B
Batch ID: P324224

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P325143

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

Reference Method: SM 2320 B-97
Batch ID: P325144

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

Reference Method: SM 2540 C-97
Batch ID: P324875

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P324924

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P325147

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P325148

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P324766

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: P324872

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324873

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324264

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324341

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.3		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324391

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: P324349

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: P324236

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

Reference Method: SM 2320 B-97
Batch ID: P325143

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P325143

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

Reference Method: SM 2320 B-97
Batch ID: P325144

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

Reference Method: SM 4500 F-C-97
Batch ID: P325147

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

Reference Method: SM 4500 F-C-97
Batch ID: P325148

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.7		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P324766

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324872

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1893837	Chloride	99.3		P	90 - 110
1894230	Chloride	98.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324873

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1893837	Sulfate	95.4		P	90 - 110
1894230	Sulfate	93.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324264

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1894235	Ammonia-N	107	107	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324341

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1894136	Kjeldahl Nitrogen	98.9	99.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324391

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1894182	NO2NO3-N	100		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324349

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1894183	Total-P	96.6	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324236

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1894184	O-Phosphate-P	98.1	99.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P325147

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895213	Fluoride	98.7	99.4	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P325148

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1894180	Fluoride	99.4	98.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P324766

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1896398	Organic Carbon	97.8	97.3	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P324229

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894135	Turbidity	8.23	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324872

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894230	Chloride	0.118	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324873

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894230	Sulfate	0.173	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324264

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894235	Ammonia-N	0.158	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324341

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894136	Kjeldahl Nitrogen	0.203	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324391

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894182	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324349

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894183	Total-P	4.34	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324236

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894184	O-Phosphate-P	0.826	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P324224

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894179	Color (true)	0.770	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-97
Batch ID: P325143

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895213	Total Alkalinity	0.271	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P325144

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894180	Total Alkalinity	0.132	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P324875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894135	TDS	0.990	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P325147

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895213	Fluoride	0.483	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P325148

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1894180	Fluoride	0.483	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P324766

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1896398	Organic Carbon	0.391	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

Reference Method: SM 2120 B
Run ID: A76065
Included Lab Sample IDs: 1894178, 1894179, 1894180

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.3	102	P/P	85 - 115

Quality Assurance Report
Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A76066
Included Lab Sample IDs: 1894178, 1894179, 1894180

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A76069
Included Lab Sample IDs: 1894184, 1894185, 1894186

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.3	P/P	90 - 110
O-Phosphate-P	99.4	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A76071
Included Lab Sample IDs: 1894181, 1894182, 1894183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	101	P/P	90 - 110
Ammonia-N	102	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A76117
Included Lab Sample IDs: 1894181, 1894182, 1894183

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A76152
Included Lab Sample IDs: 1894181, 1894182, 1894183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	107	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A76164
Included Lab Sample IDs: 1894183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.8	97.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A76183
Included Lab Sample IDs: 1894181, 1894182

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	99.5	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A76230
Included Lab Sample IDs: 1894181, 1894182, 1894183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A76230
Included Lab Sample IDs: 1894181, 1894182, 1894183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.6	99.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A76269
Included Lab Sample IDs: 1894178, 1894179, 1894180

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Chloride	101	101	P/P	90 - 110
Sulfate	96.5	95.9	P/P	90 - 110
Sulfate	99.7	98.0	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A76363
Included Lab Sample IDs: 1894178, 1894179, 1894180

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

Reference Method: SM 4500 F-C-97
Run ID: A76363
Included Lab Sample IDs: 1894178, 1894179, 1894180

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	100	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					8.23	
EPA 300.0 Rev. 2.1	Chloride	98.8	98.1	99.3		0.118	
	Sulfate	95.2	93.7	95.4		0.173	
EPA 350.1 Rev. 2.0	Ammonia-N	103	107	107			0.158
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.3	98.9	99.3			0.203
EPA 353.2 Rev. 2.0	NO2NO3-N	102	100				0.0
EPA 365.1 Rev. 2.0	Total-P	102	96.6	102			4.34
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.2	98.1	99.0			0.826
SM 2120 B	Color (true)					0.770	
SM 2320 B-97	Total Alkalinity	103				0.271	
	Total Alkalinity	104				0.132	
SM 2540 C-97	TDS					0.990	
SM 4500 F-C-97	Fluoride	96.7	98.7	99.4			0.483
	Fluoride	98.7	99.4	98.8			0.483
SM 5310 B-00	Organic Carbon	98.4	97.8	97.3			0.391

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1894178, 1894179, 1894180
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1894178, 1894179, 1894180
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1894178, 1894179, 1894180
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1894181, 1894182, 1894183
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1894181, 1894182, 1894183
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1894181, 1894182, 1894183
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1894181, 1894182, 1894183
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1894184, 1894185, 1894186
SM 2120 B / E31780	True Color measured at 450 nm	1894178, 1894179, 1894180
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1894178, 1894179, 1894180
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1894178, 1894179, 1894180
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1894178, 1894179, 1894180
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1894178, 1894179, 1894180
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1894181, 1894182, 1894183

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	04/28/2017			04/28/2017 16:01	Sima Feizi	1894178, 1894179, 1894180
EPA 300.0 Rev. 2.1	04/28/2017			05/09/2017	Ping Hua	1894178, 1894179, 1894180
EPA 350.1 Rev. 2.0	04/28/2017			04/28/2017	Julie Michelle Frank	1894181, 1894182, 1894183
EPA 351.2 Rev. 2.0	04/28/2017	05/02/2017	Adrian Shelby	05/03/2017	Joseph Suarez	1894181, 1894182, 1894183
EPA 353.2 Rev. 2.0	04/28/2017			05/02/2017	Beverly Y. Sanders	1894181, 1894182, 1894183
EPA 365.1 Rev. 2.0	04/28/2017	05/02/2017	Adrian Shelby	05/03/2017	Lipi Saha	1894183
	04/28/2017	05/02/2017	Adrian Shelby	05/04/2017	Lipi Saha	1894181, 1894182
EPA 365.1 Rev. 2.0 dissolved	04/28/2017			04/28/2017 15:29	Anthony C. Onicha	1894184
	04/28/2017			04/28/2017 15:44	Anthony C. Onicha	1894185
	04/28/2017			04/28/2017 15:45	Anthony C. Onicha	1894186
SM 2120 B	04/28/2017			04/28/2017 15:21	Julia Storbeck	1894179
	04/28/2017			04/28/2017 15:23	Julia Storbeck	1894178, 1894180
SM 2320 B-97	04/28/2017			05/10/2017	Dale L. Simmons	1894178, 1894179, 1894180
SM 2540 C-97	04/28/2017			05/03/2017	Yijie Li	1894178, 1894179, 1894180
SM 2540 D-97	04/28/2017			05/03/2017	Yijie Li	1894178, 1894179, 1894180
SM 4500 F-C-97	04/28/2017			05/10/2017	Dale L. Simmons	1894178, 1894179, 1894180
SM 5310 B-00	04/28/2017			05/05/2017	Julie Michelle Frank	1894181, 1894182, 1894183