

Chemical Analysis Report

NE-DIST-2016-04-28-01

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

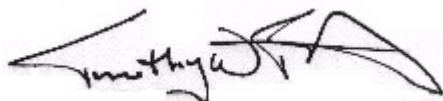
Event Description: **Suwannee springs**
Request ID: **RQ-2016-04-11-10**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
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Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 25-MAY-2016 17:35

A handwritten signature in black ink, appearing to read "Timothy W. Fitzpatrick", with a stylized flourish at the end.

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: Guaranto Spring Vent

Collection Date/Time: 04/27/2016 11:00

Field ID: 22051012

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1793602	EPA 180.1 Rev. 2.0	Turbidity	0.55		NTU	P303202	
	EPA 300.0 Rev. 2.1	Chloride	8.2		mg Cl/L	P303647	
		Sulfate	13		mg SO4/L	P303650	
	SM 2120 B	Color (true)	7.0		PCU	P303185	
	SM 2320 B-97	Total Alkalinity	177		mg CaCO3/L	P303986	
	SM 2540 C-97	TDS	222	A	mg/L	P303908	
	SM 2540 D-97	TSS	2	U	mg/L	P303785	
	SM 4500 F-C-97	Fluoride	0.084	I	mg F/L	P303819	
1793605	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P303795	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27		mg N/L	P304041	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.5		mg N/L	P303834	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P303917	
	SM 5310 B-00	Organic Carbon	1.6		mg C/L	P304638	
1793608	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.015		mg P/L	P303176	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: Suwannee @ US 19/98

Collection Date/Time: 04/27/2016 11:45

Field ID: 21020031

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1793603	EPA 180.1 Rev. 2.0	Turbidity	4.1		NTU	P303202	
	EPA 300.0 Rev. 2.1	Chloride	7.4		mg Cl/L	P303647	
		Sulfate	12		mg SO4/L	P303650	
	SM 2120 B	Color (true)	190		PCU	P303185	
	SM 2320 B-97	Total Alkalinity	83		mg CaCO3/L	P303986	
	SM 2540 C-97	TDS	152		mg/L	P303908	
	SM 2540 D-97	TSS	4	I	mg/L	P303785	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P303819	
1793606	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P303795	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P304041	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.49		mg N/L	P303834	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P303917	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P304638	
1793609	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.069		mg P/L	P303176	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: Field Blank

Collection Date/Time: 04/27/2016 13:35

Field ID: Field Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1793604	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P303202	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P303647	
		Sulfate	0.20	U	mg SO4/L	P303650	

Field ID: Field Blank

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1793604	SM 2120 B	Color (true)	2.5	U	PCU	P303185	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P303986	
	SM 2540 C-97	TDS	15	U	mg/L	P303908	
	SM 2540 D-97	TSS	2	U	mg/L	P303785	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P303819	
1793607	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P303795	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P304323	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P303834	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P303917	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P304638	
1793610	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303176	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P303202

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P303647

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P303650

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P303795

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P304041

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P304323

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303834

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303917

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303176

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

Reference Method: SM 2120 B
Batch ID: P303185

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P303986

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

Reference Method: SM 2540 C-97
Batch ID: P303908

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P303785

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P303819

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P304638

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: P303647

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303650

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: P303795

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304041

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304323

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303834

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	101		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303917

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303176

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

Reference Method: SM 2320 B-97
Batch ID: P303986

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 105

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P303819

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.0		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P304638

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: P303647

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793603	Chloride	101		P	90 - 110
1793617	Chloride	98.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303650

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793603	Sulfate	95.7		P	90 - 110
1793617	Sulfate	96.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303795

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793548	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793550	Kjeldahl Nitrogen	96.5	95.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304323

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1794356	Kjeldahl Nitrogen	89.5	95.4	F/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303834

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793556	NO2NO3-N	99.5		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303917

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793556	Total-P	101	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303176

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793626	O-Phosphate-P	101	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P303819

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793618	Fluoride	95.6	95.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P304638

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1793776	Organic Carbon	98.1	97.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303202

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793591	Turbidity	2.06	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303647

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793617	Chloride	0.115	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303650

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793617	Sulfate	0.406	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303795

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793548	Ammonia-N	0.209	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793550	Kjeldahl Nitrogen	0.653	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304323

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794356	Kjeldahl Nitrogen	3.31	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303834

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793556	NO2NO3-N	0.587	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303917

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793556	Total-P	3.20	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303176

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793626	O-Phosphate-P	1.48	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P303185

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793544	Color (true)	1.39	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P303986

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793618	Total Alkalinity	0.134	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P303908

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793602	TDS	1.35	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P303819

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793618	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P304638

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793776	Organic Carbon	0.662	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: EPA 365.1 Rev. 2.0 dissolved
Run ID: A69156
Included Lab Sample IDs: 1793608, 1793609, 1793610

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	100	P/P	90 - 110
O-Phosphate-P	102	100	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A69157
Included Lab Sample IDs: 1793602, 1793603, 1793604

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	98.7	P/P	90 - 115
Color (true)	99.1	99.7	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A69165
Included Lab Sample IDs: 1793602, 1793603, 1793604

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	101	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A69217
Included Lab Sample IDs: 1793602, 1793603, 1793604

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Sulfate	101	98.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69333

Included Lab Sample IDs: 1793605, 1793606, 1793607

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

Reference Method: SM 4500 F-C-97

Run ID: A69345

Included Lab Sample IDs: 1793602, 1793603, 1793604

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.0	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69353

Included Lab Sample IDs: 1793605, 1793606, 1793607

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	101	P/P	90 - 110
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A69399

Included Lab Sample IDs: 1793602, 1793603, 1793604

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.1	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69420

Included Lab Sample IDs: 1793606

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	104	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69422

Included Lab Sample IDs: 1793605, 1793607

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69462

Included Lab Sample IDs: 1793605, 1793606

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.0	96.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69531

Included Lab Sample IDs: 1793607

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.9	92.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A69584

Included Lab Sample IDs: 1793605, 1793606, 1793607

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.5	98.6	P/P	90 - 110
Organic Carbon	98.6	98.2	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				2.06	
EPA 300.0 Rev. 2.1	Chloride	100	98.5 101		0.115	
	Sulfate	97.5	96.8 95.7		0.406	
EPA 350.1 Rev. 2.0	Ammonia-N	100	101 101			0.209
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	96.5 95.5			0.653
	Kjeldahl Nitrogen	106	89.5 95.4			3.31
EPA 353.2 Rev. 2.0	NO2NO3-N	101	99.5			0.587
EPA 365.1 Rev. 2.0	Total-P	101	101 97.4			3.20
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	101 102			1.48
SM 2120 B	Color (true)				1.39	
SM 2320 B-97	Total Alkalinity	101			0.134	
SM 2540 C-97	TDS				1.35	
SM 4500 F-C-97	Fluoride	95.0	95.6 95.6			0.0
SM 5310 B-00	Organic Carbon	97.6	98.1 97.2			0.662

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1793602, 1793603, 1793604
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1793602, 1793603, 1793604
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1793602, 1793603, 1793604
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1793605, 1793606, 1793607
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1793605, 1793606, 1793607
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1793605, 1793606, 1793607
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1793605, 1793606, 1793607
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1793608, 1793609, 1793610
SM 2120 B / E31780	True Color measured at 450 nm	1793602, 1793603, 1793604
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1793602, 1793603, 1793604
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1793602, 1793603, 1793604
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1793602, 1793603, 1793604
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1793602, 1793603, 1793604

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1793605, 1793606, 1793607

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	04/28/2016			04/28/2016 15:12	Sima Feizi	1793602, 1793603, 1793604
EPA 300.0 Rev. 2.1	04/28/2016			05/05/2016	Elisa J Lutz	1793602, 1793603, 1793604
EPA 350.1 Rev. 2.0	04/28/2016			05/06/2016	Diana M. Turner	1793605, 1793606, 1793607
EPA 351.2 Rev. 2.0	04/28/2016	05/11/2016	Sofia Elnemr	05/12/2016	Christopher Armour	1793605, 1793606
	04/28/2016	05/16/2016	Sofia Elnemr	05/17/2016	Virginia P. Brown	1793607
EPA 353.2 Rev. 2.0	04/28/2016			05/09/2016	Peter D. Kaus	1793605, 1793606, 1793607
EPA 365.1 Rev. 2.0	04/28/2016	05/10/2016	Vijayalakshmi Reddy	05/11/2016	Lipi Saha	1793605, 1793606, 1793607
EPA 365.1 Rev. 2.0 dissolved	04/28/2016			04/28/2016 14:47	Julia Storbeck	1793610
	04/28/2016			04/28/2016 14:49	Julia Storbeck	1793609
	04/28/2016			04/28/2016 15:28	Julia Storbeck	1793608
SM 2120 B	04/28/2016			04/28/2016 13:42	Rochelle Y Jackson	1793602
	04/28/2016			04/28/2016 13:44	Rochelle Y Jackson	1793604
	04/28/2016			04/28/2016 14:26	Rochelle Y Jackson	1793603
SM 2320 B-97	04/28/2016			05/10/2016	Dale L. Simmons	1793602, 1793603, 1793604
SM 2540 C-97	04/28/2016			05/03/2016	Yijie Li	1793602, 1793603, 1793604
SM 2540 D-97	04/28/2016			05/03/2016	Yijie Li	1793602, 1793603, 1793604
SM 4500 F-C-97	04/28/2016			05/06/2016	Dale L. Simmons	1793602, 1793603, 1793604
SM 5310 B-00	04/28/2016			05/19/2016	Diana M. Turner	1793605, 1793606, 1793607