

Chemical Analysis Report

NE-DIST-2017-07-21-01

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

Event Description: **Suw 3- 6/26/16**
Request ID: **RQ-2017-06-26-10**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
NE ROC
8800 Baymeadows Way W
Suite 100
Jacksonville, FL 32256-7577
Attn: Nicole Frederick

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 07-AUG-2017 12:08

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

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: FIVE MILE CREEK @ SR 239A

Collection Date/Time: 07/20/2017 10:20

Field ID: G1NE0643 07202017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1915595	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P328946	
	EPA 300.0 Rev. 2.1	Chloride	6.0		mg Cl/L	P329011	
		Sulfate	0.70		mg SO4/L	P329013	
	SM 2120 B	Color (true)	500		PCU	P328938	
	SM 2320 B-97	Total Alkalinity	2.3	I	mg CaCO3/L	P329038	
	SM 2540 C-97	TDS	104		mg/L	P329361	
	SM 2540 D-97	TSS	2	I	mg/L	P329366	
	SM 4500 F-C-97	Fluoride	0.045	I	mg F/L	P329040	
1915599	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P329099	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P329111	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P329129	
	EPA 365.1 Rev. 2.0	Total-P	0.047		mg P/L	P329044	
	SM 5310 B-00	Organic Carbon	46		mg C/L	P329079	
1915603	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.020		mg P/L	P328963	

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: RHUDA BRANCH @ 192 AVE (NW 8TH TERR)

Collection Date/Time: 07/20/2017 11:10

Field ID: G1NE0625 07202017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1915596	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P328946	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P329119	
		Sulfate	2.1		mg SO4/L	P329122	
	SM 2120 B	Color (true)	690		PCU	P328938	
	SM 2320 B-97	Total Alkalinity	3.3		mg CaCO3/L	P329038	
	SM 2540 C-97	TDS	142		mg/L	P329361	
	SM 2540 D-97	TSS	2	I	mg/L	P329366	
	SM 4500 F-C-97	Fluoride	0.094	I	mg F/L	P329040	
1915600	EPA 350.1 Rev. 2.0	Ammonia-N	0.042		mg N/L	P329099	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P329112	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022		mg N/L	P329129	
	EPA 365.1 Rev. 2.0	Total-P	0.36		mg P/L	P329044	
	SM 5310 B-00	Organic Carbon	59		mg C/L	P329079	
1915604	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.30		mg P/L	P328950	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: ROCKY CREEK @ SR 235

Collection Date/Time: 07/20/2017 11:00

Field ID: G1NE0644 07202017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1915597	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P328946	
	EPA 300.0 Rev. 2.1	Chloride	12	A	mg Cl/L	P329011	

Field ID: G1NE0644 07202017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1915597	EPA 300.0 Rev. 2.1	Sulfate	1.9	A	mg SO4/L	P329013	
	SM 2120 B	Color (true)	660		PCU	P328938	
	SM 2320 B-97	Total Alkalinity	13		mg CaCO3/L	P329038	
	SM 2540 C-97	TDS	155		mg/L	P329361	
	SM 2540 D-97	TSS	2	I	mg/L	P329366	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P329040	
1915601	EPA 350.1 Rev. 2.0	Ammonia-N	0.04		mg N/L	P329103	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P329112	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.061		mg N/L	P329129	
	EPA 365.1 Rev. 2.0	Total-P	0.29		mg P/L	P329044	
	SM 5310 B-00	Organic Carbon	52		mg C/L	P329079	
1915605	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.22		mg P/L	P328950	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: SUNSHINE LAKE CENTER

Collection Date/Time: 07/20/2017 11:45

Field ID: G1NE0857 07202017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1915598	EPA 180.1 Rev. 2.0	Turbidity	14		NTU	P328946	
	EPA 300.0 Rev. 2.1	Chloride	11	A	mg Cl/L	P329119	
		Sulfate	2.2	A	mg SO4/L	P329122	
	SM 2120 B	Color (true)	150	A	PCU	P328938	
	SM 2320 B-97	Total Alkalinity	13		mg CaCO3/L	P329038	
	SM 2540 C-97	TDS	82		mg/L	P329361	
	SM 2540 D-97	TSS	11		mg/L	P329366	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P329040	
1915602	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P329103	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.0		mg N/L	P329112	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P329129	
	EPA 365.1 Rev. 2.0	Total-P	0.21		mg P/L	P329044	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P329079	
1915606	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.059		mg P/L	P328950	

Ref. Method and Comment:

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

EPA 351.2 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: P328946

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: P329011

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329013

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329119

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329122

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329099

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329103

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329111

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329112

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329129

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: P329044

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328950

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328963

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

Reference Method: SM 2120 B
Batch ID: P328938

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P329038

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

Reference Method: SM 2540 C-97
Batch ID: P329361

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P329366

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P329040

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P329079

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: P329011

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329013

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329119

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329122

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329099

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329103

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329111

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329112

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329129

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329044

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328950

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328963

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

Reference Method: SM 2320 B-97
Batch ID: P329038

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P329040

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P329079

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329011

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915595	Chloride	98.4		P	90 - 110
1915597	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329013

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915595	Sulfate	99.6		P	90 - 110
1915597	Sulfate	102		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329119

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915598	Chloride	96.4		P	90 - 110
1915794	Chloride	92.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329122

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915598	Sulfate	94.0		P	90 - 110
1915794	Sulfate	92.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329099

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915525	Ammonia-N	104	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329103

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915507	Ammonia-N	98.2	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329111

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914616	Kjeldahl Nitrogen	96.5	98.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329129

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915599	NO2NO3-N	97.5	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329044

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915533	Total-P	100	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328950

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915606	O-Phosphate-P	97.4	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328963

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915535	O-Phosphate-P	94.9	97.0	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P329040

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915531	Fluoride	99.9	101	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P329079

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915372	Organic Carbon	103		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P328946

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915531	Turbidity	0.506	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329011

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915597	Chloride	1.23	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329013

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915597	Sulfate	0.920	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329119

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915598	Chloride	2.25	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P329122

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915598	Sulfate	3.51	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329099

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
--------------------------	-----------	-----------	-------------------	-----------	----------------

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329099

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915525	Ammonia-N	1.34	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P329103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915507	Ammonia-N	2.28	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329111

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914616	Kjeldahl Nitrogen	1.52	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P329112

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915602	Kjeldahl Nitrogen	1.88	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329129

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915599	NO2NO3-N	0.514	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P329044

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915533	Total-P	3.10	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328950

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915606	O-Phosphate-P	0.765	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328963

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915535	O-Phosphate-P	2.19	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P328938

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915598	Color (true)	0.955	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P329038

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915531	Total Alkalinity	0.372	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P329361

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915532	TDS	1.52	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P329040

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915531	Fluoride	0.502	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P329079

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915372	Organic Carbon	2.14	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 300.0 Rev. 2.1
Run ID: A77800
Included Lab Sample IDs: 1915595, 1915597

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	104	P/P	90 - 110
Sulfate	103	104	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A77871
Included Lab Sample IDs: 1915595, 1915596, 1915597, 1915598

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	103	P/P	85 - 115

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A77871

Included Lab Sample IDs: 1915595, 1915596, 1915597, 1915598

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A77872

Included Lab Sample IDs: 1915595, 1915596, 1915597, 1915598

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A77873

Included Lab Sample IDs: 1915603, 1915604, 1915605, 1915606

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.6	98.3	P/P	90 - 110
O-Phosphate-P	98.0	97.6	P/P	90 - 110
O-Phosphate-P	98.2	98.8	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A77919

Included Lab Sample IDs: 1915595, 1915596, 1915597, 1915598

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

Reference Method: SM 4500 F-C-97

Run ID: A77919

Included Lab Sample IDs: 1915595, 1915596, 1915597, 1915598

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	98.2	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A77939

Included Lab Sample IDs: 1915599, 1915600, 1915601, 1915602

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	103	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A77945

Included Lab Sample IDs: 1915599, 1915600

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A77946

Included Lab Sample IDs: 1915601, 1915602

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A77946
Included Lab Sample IDs: 1915601, 1915602

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.9	97.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A77948
Included Lab Sample IDs: 1915596, 1915598

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A77954
Included Lab Sample IDs: 1915599, 1915600, 1915601, 1915602

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A77971
Included Lab Sample IDs: 1915600, 1915601, 1915602

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A77995
Included Lab Sample IDs: 1915599, 1915600, 1915601, 1915602

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	98.9	P/P	90 - 110
Kjeldahl Nitrogen	98.9	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A78013
Included Lab Sample IDs: 1915599

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	97.5	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				0.506	
EPA 300.0 Rev. 2.1	Chloride	97.1	102 98.4		1.23	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 300.0 Rev. 2.1	Chloride	97.5	96.4	92.3		2.25	
	Sulfate	98.1	102	99.6		0.920	
	Sulfate	95.3	94.0	92.2		3.51	
EPA 350.1 Rev. 2.0	Ammonia-N	101	104	101			1.34
	Ammonia-N	98.5	98.2	101			2.28
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.1	96.5	98.6			1.52
	Kjeldahl Nitrogen	98.6					1.88
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	97.5	97.0			0.514
EPA 365.1 Rev. 2.0	Total-P	98.3	100	97.0			3.10
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.5	97.4	98.6			0.765
	O-Phosphate-P	103	94.9	97.0			2.19
SM 2120 B	Color (true)					0.955	
SM 2320 B-97	Total Alkalinity	102				0.372	
SM 2540 C-97	TDS					1.52	
SM 4500 F-C-97	Fluoride	96.5	99.9	101			0.502
SM 5310 B-00	Organic Carbon	103	103				2.14

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1915595, 1915596, 1915597, 1915598
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1915595, 1915596, 1915597, 1915598
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1915595, 1915596, 1915597, 1915598
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1915599, 1915600, 1915601, 1915602
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1915599, 1915600, 1915601, 1915602
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1915599, 1915600, 1915601, 1915602
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1915599, 1915600, 1915601, 1915602
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1915603, 1915604, 1915605, 1915606
SM 2120 B / E31780	True Color measured at 450 nm	1915595, 1915596, 1915597, 1915598
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1915595, 1915596, 1915597, 1915598
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1915595, 1915596, 1915597, 1915598
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1915595, 1915596, 1915597, 1915598
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1915595, 1915596, 1915597, 1915598
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1915599, 1915600, 1915601, 1915602

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	07/21/2017			07/21/2017 15:46	DeAsia Armster	1915595, 1915596, 1915597, 1915598
EPA 300.0 Rev. 2.1	07/21/2017			07/21/2017	Julia Storbeck	1915595, 1915597
	07/21/2017			07/25/2017	Julia Storbeck	1915596, 1915598
EPA 350.1 Rev. 2.0	07/21/2017			07/25/2017	Sofia Elnemr	1915599, 1915600, 1915601, 1915602
EPA 351.2 Rev. 2.0	07/21/2017	07/26/2017	Adrian Shelby	07/27/2017	Joseph Suarez	1915599, 1915600, 1915601, 1915602
EPA 353.2 Rev. 2.0	07/21/2017			07/26/2017	Beverly Y. Sanders	1915599, 1915600, 1915601, 1915602
EPA 365.1 Rev. 2.0	07/21/2017	07/25/2017	Vijayalakshmi Reddy	07/26/2017	Lipi Saha	1915600, 1915601, 1915602
	07/21/2017	07/25/2017	Vijayalakshmi Reddy	07/28/2017	Lipi Saha	1915599
EPA 365.1 Rev. 2.0 dissolved	07/21/2017			07/21/2017 14:59	Ping Hua	1915606
	07/21/2017			07/21/2017 15:49	Ping Hua	1915603
	07/21/2017			07/21/2017 15:50	Ping Hua	1915604
	07/21/2017			07/21/2017 16:04	Ping Hua	1915605
SM 2120 B	07/21/2017			07/21/2017 15:25	Tanya Welborn	1915598
	07/21/2017			07/21/2017 15:29	Tanya Welborn	1915595
	07/21/2017			07/21/2017 15:30	Tanya Welborn	1915596
	07/21/2017			07/21/2017 15:33	Tanya Welborn	1915597
SM 2320 B-97	07/21/2017			07/25/2017	Dale L. Simmons	1915595, 1915596, 1915597, 1915598
SM 2540 C-97	07/21/2017			07/26/2017	Yijie Li	1915595, 1915596, 1915597, 1915598
SM 2540 D-97	07/21/2017			07/26/2017	Yijie Li	1915595, 1915596, 1915597, 1915598
SM 4500 F-C-97	07/21/2017			07/25/2017	Dale L. Simmons	1915595, 1915596, 1915597, 1915598
SM 5310 B-00	07/21/2017			07/25/2017	Sofia Elnemr	1915599, 1915600, 1915601, 1915602