

Chemical Analysis Report

NE-DIST-2017-03-23-01

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

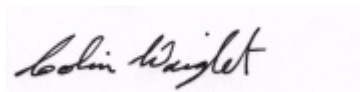
Event Description: **Suwannee Spring boat**
Request ID: **RQ-2017-02-27-48**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
Attn: Jeremy Parrish

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Certified by: Colin Wright, Program Administrator

Date Certified: 17-APR-2017 09:44

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light-colored rectangular 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: Rock Bluff Spring Head

Collection Date/Time: 03/22/2017 11:35

Field ID: G1NE0813 03222017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1882492	EPA 180.1 Rev. 2.0	Turbidity	0.50		NTU	P322102	
	EPA 300.0 Rev. 2.1	Chloride	7.3		mg Cl/L	P322487	
		Sulfate	20		mg SO4/L	P322662	
	SM 2120 B	Color (true)	4.4	I	PCU	P322062	
	SM 2320 B-97	Total Alkalinity	157		mg CaCO3/L	P322480	
	SM 2540 C-97	TDS	208		mg/L	P322729	
	SM 2540 D-97	TSS	2	I	mg/L	P322713	
	SM 4500 F-C-97	Fluoride	0.065	I	mg F/L	P322483	
1882496	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P322190	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P322078	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.6		mg N/L	P322235	
	EPA 365.1 Rev. 2.0	Total-P	0.058		mg P/L	P322132	
	SM 5310 B-00	Organic Carbon	1.2		mg C/L	P322165	
1882500	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.052		mg P/L	P322091	

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: Turtle Spring Head

Collection Date/Time: 03/22/2017 13:10

Field ID: G1NE0821 03222017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1882493	EPA 180.1 Rev. 2.0	Turbidity	0.45		NTU	P322103	
	EPA 300.0 Rev. 2.1	Chloride	6.9		mg Cl/L	P322487	
		Sulfate	6.5		mg SO4/L	P322662	
	SM 2120 B	Color (true)	2.5	U	PCU	P322062	
	SM 2320 B-97	Total Alkalinity	206		mg CaCO3/L	P322480	
	SM 2540 C-97	TDS	232		mg/L	P322729	
	SM 2540 D-97	TSS	3	I	mg/L	P322713	
	SM 4500 F-C-97	Fluoride	0.057	I	mg F/L	P322483	
1882497	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P322190	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.086	I	mg N/L	P322083	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.85		mg N/L	P322235	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P322133	
	SM 5310 B-00	Organic Carbon	0.94	I	mg C/L	P322165	
1882501	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.018		mg P/L	P322091	

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: Trail Spring (spring vent)

Collection Date/Time: 03/22/2017 14:00

Field ID: G1NE0815 03222017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1882494	EPA 180.1 Rev. 2.0	Turbidity	0.15		NTU	P322103	
	EPA 300.0 Rev. 2.1	Chloride	9.8		mg Cl/L	P322487	
		Sulfate	32		mg SO4/L	P322662	

Field ID: G1NE0815 03222017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1882494	SM 2120 B	Color (true)	2.5	U	PCU	P322062	
	SM 2320 B-97	Total Alkalinity	176		mg CaCO3/L	P322480	
	SM 2540 C-97	TDS	240		mg/L	P322729	
	SM 2540 D-97	TSS	2	I	mg/L	P322714	
	SM 4500 F-C-97	Fluoride	0.077	I	mg F/L	P322483	
1882498	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P322190	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P322083	
	EPA 353.2 Rev. 2.0	NO2NO3-N	8.6		mg N/L	P322235	
	EPA 365.1 Rev. 2.0	Total-P	0.060		mg P/L	P322133	
	SM 5310 B-00	Organic Carbon	0.91	I	mg C/L	P322165	
1882502	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.050		mg P/L	P322091	

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: Guaranto Spring Vent

Collection Date/Time: 03/22/2017 12:30

Field ID: G1NE0820 03222017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1882495	EPA 180.1 Rev. 2.0	Turbidity	1.9	A	NTU	P322103	
	EPA 300.0 Rev. 2.1	Chloride	8.1		mg Cl/L	P322488	
		Sulfate	13		mg SO4/L	P322491	
	SM 2120 B	Color (true)	2.5	U	PCU	P322063	
	SM 2320 B-97	Total Alkalinity	191		mg CaCO3/L	P322481	
	SM 2540 C-97	TDS	225		mg/L	P322729	
	SM 2540 D-97	TSS	3	I	mg/L	P322714	
	SM 4500 F-C-97	Fluoride	0.095	I	mg F/L	P322484	
1882499	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P322190	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.095	I	mg N/L	P322083	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.5		mg N/L	P322235	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P322133	
	SM 5310 B-00	Organic Carbon	1.1		mg C/L	P322165	
1882503	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P322091	

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: P322102

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P322103

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P322103

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322487

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322488

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322491

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322662

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322190

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322078

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322083

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322235

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: P322132

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322133

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322091

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

Reference Method: SM 2120 B
Batch ID: P322062

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P322063

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P322480

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2320 B-97
Batch ID: P322481

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97
Batch ID: P322729

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P322713

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P322714

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P322483

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P322484

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P322165

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: P322487

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322488

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	105		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322491

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322662

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322190

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322190

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322078

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322083

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322235

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322132

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	108		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322133

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322091

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.6		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P322480

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P322481

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	106		P	95 - 108

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P322483

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P322484

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P322165

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322487

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1881984	Chloride	98.1		P	90 - 110
1882053	Chloride	97.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882521	Chloride	105		P	90 - 110
1882522	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322491

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882521	Sulfate	105		P	90 - 110
1882522	Sulfate	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322662

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1881984	Sulfate	94.7		P	90 - 110
1882053	Sulfate	93.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322190

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882496	Ammonia-N	100	104	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882350	Kjeldahl Nitrogen	105	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322083

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882526	Kjeldahl Nitrogen	99.9	99.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322235

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882403	NO2NO3-N	105	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322132

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882350	Total-P	102	109	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322133

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882524	Total-P	108	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322091

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882501	O-Phosphate-P	95.5	96.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P322483

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882334	Fluoride	102	105	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P322484

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882886	Fluoride	102	104	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P322165

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882342	Organic Carbon	93.5	94.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P322102

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882402	Turbidity	3.65	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P322103

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882495	Turbidity	13.0	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322487

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881984	Chloride	0.0129	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322488

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882521	Chloride	0.309	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882521	Sulfate	0.311	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P322662

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1881984	Sulfate	3.02	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322190

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882496	Ammonia-N	3.74	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882350	Kjeldahl Nitrogen	2.69	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322083

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882526	Kjeldahl Nitrogen	0.243	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322235

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882403	NO2NO3-N	1.08	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322132

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882350	Total-P	5.79	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322133

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882524	Total-P	2.19	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322091

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882501	O-Phosphate-P	1.14	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P322062

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882423	Color (true)	12.4	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P322063

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882512	Color (true)	0.243	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P322480

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882334	Total Alkalinity	0.0435	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P322481

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882886	Total Alkalinity	2.69	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P322729

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882335	TDS	3.34	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P322483

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882334	Fluoride	2.39	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P322484

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882886	Fluoride	1.41	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P322165

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1882342	Organic Carbon	0.967	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: A75307
Included Lab Sample IDs: 1882492, 1882493, 1882494, 1882495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	99.4	P/P	85 - 115
Color (true)	99.4	100	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A75315
Included Lab Sample IDs: 1882500, 1882501, 1882502, 1882503

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	98.3	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A75315

Included Lab Sample IDs: 1882500, 1882501, 1882502, 1882503

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.9	99.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A75322

Included Lab Sample IDs: 1882492, 1882493, 1882494, 1882495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105
Turbidity	100	100	P/P	95 - 105

Reference Method: SM 5310 B-00

Run ID: A75347

Included Lab Sample IDs: 1882496, 1882497, 1882498, 1882499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.0	95.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A75351

Included Lab Sample IDs: 1882496, 1882497, 1882498, 1882499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.8	P/P	90 - 110
Ammonia-N	99.8	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75366

Included Lab Sample IDs: 1882496

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.0	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75372

Included Lab Sample IDs: 1882496, 1882498

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	105	107	P/P	90 - 110
Total-P	106	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75375

Included Lab Sample IDs: 1882496, 1882497, 1882498, 1882499

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75381

Included Lab Sample IDs: 1882497, 1882499

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75386

Included Lab Sample IDs: 1882497, 1882498, 1882499

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.5	100	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A75466

Included Lab Sample IDs: 1882492, 1882493, 1882494, 1882495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	105	P/P	90 - 110
Total Alkalinity	105	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A75466

Included Lab Sample IDs: 1882492, 1882493, 1882494, 1882495

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A75467

Included Lab Sample IDs: 1882492, 1882493, 1882494, 1882495

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	104	104	P/P	90 - 110
Chloride	104	104	P/P	90 - 110
Sulfate	102	98.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A75488

Included Lab Sample IDs: 1882492, 1882493, 1882494

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	96.8	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	MS
				LCS	SMP

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				3.65	
	Turbidity				13.0	
EPA 300.0 Rev. 2.1	Chloride	101	98.1	97.2	0.0129	
	Chloride	105	105	103	0.309	
	Sulfate	104	105	103	0.311	
	Sulfate	103	94.7	93.1	3.02	
EPA 350.1 Rev. 2.0	Ammonia-N	94.8	100	104		3.74
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	105	102		2.69
	Kjeldahl Nitrogen	95.3	99.9	99.6		0.243
EPA 353.2 Rev. 2.0	NO2NO3-N	104	105	103		1.08
EPA 365.1 Rev. 2.0	Total-P	108	102	109		5.79
	Total-P	106	108	106		2.19
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.6	95.5	96.8		1.14
SM 2120 B	Color (true)				12.4	
	Color (true)				0.243	
SM 2320 B-97	Total Alkalinity	104			0.0435	
	Total Alkalinity	106			2.69	
SM 2540 C-97	TDS				3.34	
SM 4500 F-C-97	Fluoride	98.2	102	105		2.39
	Fluoride	100	102	104		1.41
SM 5310 B-00	Organic Carbon	98.6	93.5	94.6		0.967

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1882492, 1882493, 1882494, 1882495
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1882492, 1882493, 1882494, 1882495
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1882492, 1882493, 1882494, 1882495
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1882496, 1882497, 1882498, 1882499
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1882496, 1882497, 1882498, 1882499
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1882496, 1882497, 1882498, 1882499
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1882496, 1882497, 1882498, 1882499
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1882500, 1882501, 1882502, 1882503
SM 2120 B / E31780	True Color measured at 450 nm	1882492, 1882493, 1882494, 1882495
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1882492, 1882493, 1882494, 1882495
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1882492, 1882493, 1882494, 1882495
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1882492, 1882493, 1882494, 1882495
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1882492, 1882493, 1882494, 1882495
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1882496, 1882497, 1882498, 1882499

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	03/23/2017			03/23/2017 17:09	Sima Feizi	1882492, 1882493, 1882494, 1882495
EPA 300.0 Rev. 2.1	03/23/2017			03/30/2017	Ping Hua	1882495
	03/23/2017			04/01/2017	Ping Hua	1882492, 1882493, 1882494
EPA 350.1 Rev. 2.0	03/23/2017			03/24/2017	Julie Michelle Frank	1882496, 1882497, 1882498, 1882499
EPA 351.2 Rev. 2.0	03/23/2017	03/24/2017	Adrian Shelby	03/27/2017	Joseph Suarez	1882496, 1882497, 1882498, 1882499
EPA 353.2 Rev. 2.0	03/23/2017			03/27/2017	Beverly Y. Sanders	1882496, 1882497, 1882498, 1882499
EPA 365.1 Rev. 2.0	03/23/2017	03/24/2017	Vijayalakshmi Reddy	03/27/2017	Lipi Saha	1882496, 1882497, 1882498, 1882499
EPA 365.1 Rev. 2.0 dissolved	03/23/2017			03/23/2017 15:55	Anthony C. Onicha	1882501
	03/23/2017			03/23/2017 16:19	Anthony C. Onicha	1882500
	03/23/2017			03/23/2017 16:20	Anthony C. Onicha	1882502, 1882503
SM 2120 B	03/23/2017			03/23/2017 16:21	Julia Storbeck	1882492
	03/23/2017			03/23/2017 16:22	Julia Storbeck	1882493
	03/23/2017			03/23/2017 16:23	Julia Storbeck	1882494
	03/23/2017			03/23/2017 16:26	Julia Storbeck	1882495
SM 2320 B-97	03/23/2017			03/30/2017	Dale L. Simmons	1882492, 1882493, 1882494, 1882495
SM 2540 C-97	03/23/2017			03/28/2017	Yijie Li	1882492, 1882493, 1882494, 1882495
SM 2540 D-97	03/23/2017			03/28/2017	Yijie Li	1882492, 1882493, 1882494, 1882495
SM 4500 F-C-97	03/23/2017			03/30/2017	Dale L. Simmons	1882492, 1882493, 1882494, 1882495
SM 5310 B-00	03/23/2017			03/24/2017	Julie Michelle Frank	1882496, 1882497, 1882498, 1882499