

Chemical Analysis Report

NE-DIST-2017-08-16-01

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

Event Description: **SUW 1-8/15/17**
Request ID: **RQ-2017-08-14-17**
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-SEP-2017 14:56

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: Jerry Branch @ SE CR 25A

Collection Date/Time: 08/15/2017 11:40

Field ID: G1NE0455 08142017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1921878	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P330339	
	EPA 300.0 Rev. 2.1	Chloride	5.4		mg Cl/L	P330470	
		Sulfate	2.3		mg SO4/L	P330468	
	SM 2120 B	Color (true)	320		PCU	P330350	
	SM 2320 B-97	Total Alkalinity	12		mg CaCO3/L	P330606	
	SM 2540 C-97	TDS	87		mg/L	P330693	
	SM 2540 D-97	TSS	2	U	mg/L	P330921	
	SM 4500 F-C-97	Fluoride	0.47		mg F/L	P330609	
1921882	EPA 350.1 Rev. 2.0	Ammonia-N	0.042		mg N/L	P330515	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.88		mg N/L	P330451	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.052		mg N/L	P330564	
	EPA 365.1 Rev. 2.0	Total-P	0.35		mg P/L	P330420	
	SM 5310 B-00	Organic Carbon	25		mg C/L	P330659	
1921886	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.30		mg P/L	P330347	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Peacock Lake Center

Collection Date/Time: 08/15/2017 13:30

Field ID: G1NE0417 08142017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1921879	EPA 180.1 Rev. 2.0	Turbidity	7.0		NTU	P330339	
	EPA 300.0 Rev. 2.1	Chloride	7.2		mg Cl/L	P330470	
		Sulfate	3.8		mg SO4/L	P330468	
	SM 2120 B	Color (true)	86	A	PCU	P330351	
	SM 2320 B-97	Total Alkalinity	9.2		mg CaCO3/L	P330606	
	SM 2540 C-97	TDS	57		mg/L	P330694	
	SM 2540 D-97	TSS	11		mg/L	P330922	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P330609	
1921883	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P330515	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P330451	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P330564	
	EPA 365.1 Rev. 2.0	Total-P	0.22		mg P/L	P330420	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P330659	
1921887	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.086		mg P/L	P330347	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Rocky Creek @ CR 136

Collection Date/Time: 08/15/2017 12:30

Field ID: G1NE0234 08142017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G1NE0234 08142017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1921880	EPA 180.1 Rev. 2.0	Turbidity	7.8		NTU	P330339	
	EPA 300.0 Rev. 2.1	Chloride	7.6		mg Cl/L	P330470	
		Sulfate	0.98		mg SO4/L	P330468	
	SM 2120 B	Color (true)	550		PCU	P330351	
	SM 2320 B-97	Total Alkalinity	5.4		mg CaCO3/L	P330606	
	SM 2540 C-97	TDS	123		mg/L	P330694	
	SM 2540 D-97	TSS	11		mg/L	P330922	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P330609	
1921884	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P330515	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P330647	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.029		mg N/L	P330564	
	EPA 365.1 Rev. 2.0	Total-P	0.52		mg P/L	P330420	
	SM 5310 B-00	Organic Carbon	39		mg C/L	P330659	
1921888	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.38		mg P/L	P330347	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Rocky Creek @ Woodpecker Rd

Collection Date/Time: 08/15/2017 10:50

Field ID: G1NE0250 08142017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1921881	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P330339	
	EPA 300.0 Rev. 2.1	Chloride	6.5		mg Cl/L	P330470	
		Sulfate	0.43	I	mg SO4/L	P330468	
	SM 2120 B	Color (true)	880		PCU	P330351	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P330606	
	SM 2540 C-97	TDS	208		mg/L	P330694	
	SM 2540 D-97	TSS	2	I	mg/L	P330922	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P330609	
1921885	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P330517	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.0		mg N/L	P330830	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P330564	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P330420	
	SM 5310 B-00	Organic Carbon	87		mg C/L	P330659	
1921889	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.093		mg P/L	P330347	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0: Total-P: 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: P330339

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P330339

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330468

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330470

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330515

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330517

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330451

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330647

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330830

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330564

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: P330420

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330347

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

Reference Method: SM 2120 B
Batch ID: P330350

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P330351

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P330606

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

Reference Method: SM 2540 C-97
Batch ID: P330693

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P330694

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P330921

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P330922

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P330609

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P330659

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: P330468

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330470

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330515

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330517

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: P330451

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330647

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330830

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330830

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330564

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: P330420

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330347

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

Reference Method: SM 2320 B-97
Batch ID: P330606

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

Reference Method: SM 4500 F-C-97
Batch ID: P330609

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P330659

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330468

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921834	Sulfate	95.4		P	90 - 110
1921879	Sulfate	97.5		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330470

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921834	Chloride	96.4		P	90 - 110
1921879	Chloride	98.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330517

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921997	Ammonia-N	101	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330451

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921883	Kjeldahl Nitrogen	94.4	91.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330647

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1922800	Kjeldahl Nitrogen	92.3	94.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330830

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1922926	Kjeldahl Nitrogen	104	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330564

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921882	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330347

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921887	O-Phosphate-P	96.9	98.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P330609

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921686	Fluoride	98.0	98.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P330659

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1921787	Organic Carbon	101		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P330339

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921833	Turbidity	1.10	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330468

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921834	Sulfate	1.79	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P330470

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921834	Chloride	0.0423	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330515

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921717	Ammonia-N	0.00179	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P330517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921997	Ammonia-N	0.309	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330451

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921883	Kjeldahl Nitrogen	1.39	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330647

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922800	Kjeldahl Nitrogen	1.57	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P330830

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1922926	Kjeldahl Nitrogen	2.92	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P330564

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921882	NO2NO3-N	0.393	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P330420

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921997	Total-P	3.16	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P330347

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921887	O-Phosphate-P	0.762	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P330350

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921716	Color (true)	1.70	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P330351

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921879	Color (true)	1.70	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P330606

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921686	Total Alkalinity	0.213	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P330693

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921702	TDS	6.11	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P330694

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921904	TDS	3.51	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P330609

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921686	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P330659

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1921787	Organic Carbon	1.09	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: A78421
Included Lab Sample IDs: 1921878, 1921879, 1921880, 1921881

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.8	99.9	P/P	90 - 110
Chloride	99.9	99.7	P/P	90 - 110
Sulfate	102	101	P/P	90 - 110
Sulfate	99.1	102	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A78439
Included Lab Sample IDs: 1921878, 1921879, 1921880, 1921881

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A78443
Included Lab Sample IDs: 1921886, 1921887, 1921888, 1921889

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.6	100	P/P	90 - 110
O-Phosphate-P	99.8	99.1	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A78444
Included Lab Sample IDs: 1921878, 1921879, 1921880, 1921881

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A78513

Included Lab Sample IDs: 1921882, 1921883, 1921884, 1921885

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A78528

Included Lab Sample IDs: 1921882, 1921883, 1921884, 1921885

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A78550

Included Lab Sample IDs: 1921882, 1921883

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.5	97.6	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A78552

Included Lab Sample IDs: 1921878, 1921879, 1921880, 1921881

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A78552

Included Lab Sample IDs: 1921878, 1921879, 1921880, 1921881

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A78562

Included Lab Sample IDs: 1921882, 1921883, 1921884, 1921885

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

Reference Method: SM 5310 B-00

Run ID: A78572

Included Lab Sample IDs: 1921882, 1921883, 1921884, 1921885

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A78599

Included Lab Sample IDs: 1921884

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A78599

Included Lab Sample IDs: 1921884

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A78648

Included Lab Sample IDs: 1921885

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.9	105	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				1.10	
EPA 300.0 Rev. 2.1	Chloride	97.5	96.4 98.2		0.0423	
	Sulfate	96.6	95.4 97.5		1.79	
EPA 350.1 Rev. 2.0	Ammonia-N	99.4				0.0017
	Ammonia-N	100	101 100			0.309
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	94.4 91.8			1.39
	Kjeldahl Nitrogen	99.1	92.3 94.6			1.57
	Kjeldahl Nitrogen	104	104 108			2.92
EPA 353.2 Rev. 2.0	NO2NO3-N	104	102 101			0.393
EPA 365.1 Rev. 2.0	Total-P	97.7				3.16
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	96.9 98.3			0.762
SM 2120 B	Color (true)				1.70	
	Color (true)				1.70	
SM 2320 B-97	Total Alkalinity	102			0.213	
SM 2540 C-97	TDS				6.11	
	TDS				3.51	
SM 4500 F-C-97	Fluoride	95.3	98.0 98.0			0.0
SM 5310 B-00	Organic Carbon	96.0	101			1.09

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1921878, 1921879, 1921880, 1921881
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1921878, 1921879, 1921880, 1921881
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1921878, 1921879, 1921880, 1921881
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1921882, 1921883, 1921884, 1921885
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1921882, 1921883, 1921884, 1921885

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1921882, 1921883, 1921884, 1921885
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1921882, 1921883, 1921884, 1921885
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1921886, 1921887, 1921888, 1921889
SM 2120 B / E31780	True Color measured at 450 nm	1921878, 1921879, 1921880, 1921881
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1921878, 1921879, 1921880, 1921881
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1921878, 1921879, 1921880, 1921881
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1921878, 1921879, 1921880, 1921881
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1921878, 1921879, 1921880, 1921881
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1921882, 1921883, 1921884, 1921885

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	08/16/2017			08/16/2017 15:34	DeAsia Armster	1921878, 1921879, 1921880, 1921881
EPA 300.0 Rev. 2.1	08/16/2017			08/17/2017	Julia Storbeck	1921878, 1921879, 1921880, 1921881
EPA 350.1 Rev. 2.0	08/16/2017			08/17/2017	Sofia Elnemr	1921882, 1921883, 1921884, 1921885
EPA 351.2 Rev. 2.0	08/16/2017	08/18/2017	Adrian Shelby	08/21/2017	Joseph Suarez	1921882, 1921883
	08/16/2017	08/23/2017	Adrian Shelby	08/24/2017	Joseph Suarez	1921884
	08/16/2017	08/25/2017	Adrian Shelby	08/28/2017	Joseph Suarez	1921885
EPA 353.2 Rev. 2.0	08/16/2017			08/21/2017	Beverly Y. Sanders	1921882, 1921883, 1921884, 1921885
EPA 365.1 Rev. 2.0	08/16/2017	08/17/2017	Sima Feizi	08/18/2017	Lipi Saha	1921882, 1921883, 1921884, 1921885
EPA 365.1 Rev. 2.0 dissolved	08/16/2017			08/16/2017 14:44	Megan Treadwell	1921887
	08/16/2017			08/16/2017 15:22	Megan Treadwell	1921886
	08/16/2017			08/16/2017 15:23	Megan Treadwell	1921888
	08/16/2017			08/16/2017 15:24	Megan Treadwell	1921889
SM 2120 B	08/16/2017			08/16/2017 16:46	Tanya Welborn	1921879
	08/16/2017			08/16/2017 17:00	Tanya Welborn	1921878
	08/16/2017			08/16/2017 17:01	Tanya Welborn	1921880
	08/16/2017			08/16/2017 17:02	Tanya Welborn	1921881
SM 2320 B-97	08/16/2017			08/18/2017	Dale L. Simmons	1921878, 1921879, 1921880, 1921881
SM 2540 C-97	08/16/2017			08/18/2017	Yijie Li	1921878, 1921879, 1921880, 1921881
SM 2540 D-97	08/16/2017			08/18/2017	Yijie Li	1921878, 1921879, 1921880, 1921881
SM 4500 F-C-97	08/16/2017			08/18/2017	Dale L. Simmons	1921878, 1921879, 1921880, 1921881
SM 5310 B-00	08/16/2017			08/22/2017	Ping Hua	1921882, 1921883, 1921884, 1921885