Chemical Analysis Report

NE-DIST-2017-09-07-02

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

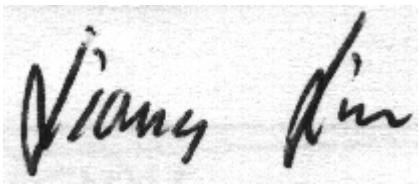
Event Description: **SUW 3-9/6/17**
Request ID: **RQ-2017-09-04-34**
Customer: **NE-DIST**
Project ID: **SMP**

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: 02-OCT-2017 11:20



NON-CONFORMANCE REPORT INCLUDED

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: Rhuda Branch @ 192 Ave **Collection Date/Time: 09/06/2017 10:45**

Field ID: G1NE0625 09062017 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1928600	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P331441	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P331762	
		Sulfate	2.1		mg SO4/L	P331759	
	SM 2120 B	Color (true)	490		PCU	P331429	
	SM 2320 B-97	Total Alkalinity		O	mg CaCO3/L	P331733	
	SM 2540 C-97	TDS	104	Q	mg/L	P331976	
	SM 2540 D-97	TSS	2	UAQ	mg/L	P331715	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P331737	
1928604	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P331770	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P331786	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.090		mg N/L	P331619	
	EPA 365.1 Rev. 2.0	Total-P	0.44		mg P/L	P331628	MS
	SM 5310 B-00	Organic Carbon	43		mg C/L	P331963	
1928608	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.37		mg P/L	P331437	

Ref. Method and Comment:
SM 2320 B-97: Insufficent sample volume to perform the analysis.
SM 2540 C-97: Sample analyzed after expiration date because of laboratory closure for Hurricane Irma.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample analyzed after expiration date because of laboratory closure for Hurricane Irma.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Five Mile Creek @ CR 239A **Collection Date/Time: 09/06/2017 12:20**

Field ID: G1NE0643 09062017 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1928601	EPA 180.1 Rev. 2.0	Turbidity	4.4		NTU	P331441	
	EPA 300.0 Rev. 2.1	Chloride	8.1		mg Cl/L	P331762	
		Sulfate	0.29	I	mg SO4/L	P331759	
	SM 2120 B	Color (true)	780		PCU	P331430	
	SM 2320 B-97	Total Alkalinity	6.8		mg CaCO3/L	P331733	
	SM 2540 C-97	TDS	119	Q	mg/L	P331977	
	SM 2540 D-97	TSS	4	I	mg/L	P331716	
	SM 4500 F-C-97	Fluoride	0.069	I	mg F/L	P331737	
1928605	EPA 350.1 Rev. 2.0	Ammonia-N	0.054		mg N/L	P331770	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.9		mg N/L	P331786	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.037		mg N/L	P331619	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P331628	MS
	SM 5310 B-00	Organic Carbon	64		mg C/L	P331963	
1928609	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.092		mg P/L	P331437	

Ref. Method and Comment:
SM 2540 C-97: Sample analyzed after expiration date because of laboratory closure for Hurricane Irma.
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 @ CR235 **Collection Date/Time: 09/06/2017 09:50**

Field ID: G1NE0644 09062017 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1928602	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P331441	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P331762	
		Sulfate	1.3		mg SO4/L	P331759	
	SM 2120 B	Color (true)	650		PCU	P331430	
	SM 2320 B-97	Total Alkalinity	15		mg CaCO3/L	P331733	
	SM 2540 C-97	TDS	119	Q	mg/L	P331977	
	SM 2540 D-97	TSS	4	IQ	mg/L	P331716	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P331737	
1928606	EPA 350.1 Rev. 2.0	Ammonia-N	0.064		mg N/L	P331771	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P331786	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.084		mg N/L	P331619	
	EPA 365.1 Rev. 2.0	Total-P	0.36		mg P/L	P331628	MS
	SM 5310 B-00	Organic Carbon	50		mg C/L	P331963	
1928610	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.27		mg P/L	P331437	

Ref. Method and Comment:
SM 2540 C-97: Sample analyzed after expiration date because of laboratory closure for Hurricane Irma.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample analyzed after expiration date because of laboratory closure for Hurricane Irma.
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: 09/06/2017 10:20**

Field ID: G1NE0857 09062017 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1928603	EPA 180.1 Rev. 2.0	Turbidity	8.0		NTU	P331441	
	EPA 300.0 Rev. 2.1	Chloride	9.7		mg Cl/L	P331762	
		Sulfate	1.4		mg SO4/L	P331759	
	SM 2120 B	Color (true)	250		PCU	P331430	
	SM 2320 B-97	Total Alkalinity	20		mg CaCO3/L	P331733	
	SM 2540 C-97	TDS	90	Q	mg/L	P331977	
	SM 2540 D-97	TSS	4	IQ	mg/L	P331716	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P331737	
1928607	EPA 350.1 Rev. 2.0	Ammonia-N	0.074		mg N/L	P331771	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P331786	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P331619	
	EPA 365.1 Rev. 2.0	Total-P	0.27		mg P/L	P331628	MS
	SM 5310 B-00	Organic Carbon	25		mg C/L	P331963	
1928611	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.15		mg P/L	P331437	

Ref. Method and Comment:
SM 2540 C-97: Sample analyzed after expiration date because of laboratory closure for Hurricane Irma.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample analyzed after expiration date because of laboratory closure for Hurricane Irma.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Non-Conformance Report

Non-Conformance Report

NCR ID: 6640

Event(s)	Job(s)	Sample(s)	Test(s)
NE-DIST-2017-09-07-02	TLH-2017-09-07-43	1928600	

NCR Type: ANALYSIS **NCR Category: Sample Aliquot**

Observation: Insufficient volume left in the sample bottle to perform analysis for Total Alkalinity.

Resolution: The result for Total Alkalinity will be reported as O qualifier because of insufficient sample volume. The customer (Patrick OConner and Nicole Fredrick) was notified.

Authorized by/Date: Irina Carbone 9/25/2017

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P331441

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331759

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331762

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331770

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331771

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331786

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: P331619

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331628

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331437

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

Reference Method: SM 2120 B
Batch ID: P331429

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P331430

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P331733

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

Reference Method: SM 2540 C-97
Batch ID: P331976

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P331977

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P331715

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P331716

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P331737

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P331963

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: P331759

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331762

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331770

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331771

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331786

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: P331619

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331619

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	108		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331628

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	94.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331437

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

Reference Method: SM 2320 B-97
Batch ID: P331733

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

Reference Method: SM 4500 F-C-97
Batch ID: P331737

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P331963

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.0		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331759

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928552	Sulfate	97.0		P	90 - 110
1928649	Sulfate	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331762

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928552	Chloride	93.5		P	90 - 110
1928649	Chloride	99.0		P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331770

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928451	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331771

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928655	Ammonia-N	106	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331619

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928556	NO2NO3-N	102	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331628

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928617	Total-P	89.3	93.2	F/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331437

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928522	O-Phosphate-P	99.9	99.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P331737

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928462	Fluoride	97.1	98.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P331963

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1928616	Organic Carbon	101	98.0	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P331441

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928552	Turbidity	0.627	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331759

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928552	Sulfate	2.52	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P331762

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928552	Chloride	2.10	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331770

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928451	Ammonia-N	0.111	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P331771

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928655	Ammonia-N	0.790	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P331786

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928618	Kjeldahl Nitrogen	3.34	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P331619

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928556	NO2NO3-N	1.93	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P331628

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928617	Total-P	4.18	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P331437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928522	O-Phosphate-P	0.0	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B
Batch ID: P331429

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928553	Color (true)	0.101	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P331430

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928612	Color (true)	5.47	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P331733

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928462	Total Alkalinity	0.205	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P331976

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928551	TDS	1.89	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P331977

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928614	TDS	4.77	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P331737

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928462	Fluoride	1.04	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P331963

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1928616	Organic Carbon	2.11	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

Quality Assurance Report
Calibration Verification

Reference Method: SM 2120 B
Run ID: A78847
Included Lab Sample IDs: 1928600, 1928601, 1928602, 1928603

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	104	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A78851
Included Lab Sample IDs: 1928608, 1928609, 1928610, 1928611

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	100	98.7	P/P	90 - 110
O-Phosphate-P	98.7	98.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A78853
Included Lab Sample IDs: 1928600, 1928601, 1928602, 1928603

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A78906
Included Lab Sample IDs: 1928604, 1928605, 1928606, 1928607

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	105	105	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A78940
Included Lab Sample IDs: 1928600, 1928601, 1928602, 1928603

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: SM 2320 B-97
Run ID: A78958
Included Lab Sample IDs: 1928600, 1928601, 1928602, 1928603

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

Reference Method: SM 4500 F-C-97
Run ID: A78958
Included Lab Sample IDs: 1928600, 1928601, 1928602, 1928603

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.0	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A78960
Included Lab Sample IDs: 1928604, 1928605, 1928606, 1928607

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A78970
Included Lab Sample IDs: 1928604, 1928605, 1928606, 1928607

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	103	P/P	90 - 110
Ammonia-N	106	107	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A79049
Included Lab Sample IDs: 1928604, 1928605, 1928606, 1928607

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A79050
Included Lab Sample IDs: 1928604, 1928605, 1928606, 1928607

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

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					0.627	
EPA 300.0 Rev. 2.1	Chloride	98.5	93.5	99.0		2.10	
	Sulfate	98.9	97.0	100		2.52	
EPA 350.1 Rev. 2.0	Ammonia-N	104	101	101			0.111
	Ammonia-N	104	106	108			0.790
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106					3.34
EPA 353.2 Rev. 2.0	NO2NO3-N	108	102	105			1.93
EPA 365.1 Rev. 2.0	Total-P	94.7	89.3	93.2			4.18
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	99.9	99.9			0.0
SM 2120 B	Color (true)					0.101	
	Color (true)					5.47	
SM 2320 B-97	Total Alkalinity	102				0.205	
SM 2540 C-97	TDS					1.89	
	TDS					4.77	
SM 4500 F-C-97	Fluoride	95.9	97.1	98.4			1.04
SM 5310 B-00	Organic Carbon	97.0	101	98.0			2.11

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1928600, 1928601, 1928602, 1928603
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1928600, 1928601, 1928602, 1928603
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1928600, 1928601, 1928602, 1928603
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1928604, 1928605, 1928606, 1928607
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1928604, 1928605, 1928606, 1928607
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1928604, 1928605, 1928606, 1928607
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1928604, 1928605, 1928606, 1928607
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1928608, 1928609, 1928610, 1928611
SM 2120 B / E31780	True Color measured at 450 nm	1928600, 1928601, 1928602, 1928603
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1928600, 1928601, 1928602, 1928603
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1928600, 1928601, 1928602, 1928603
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1928600, 1928601, 1928602, 1928603
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1928600, 1928601, 1928602, 1928603
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1928604, 1928605, 1928606, 1928607

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	09/07/2017			09/07/2017 14:19	DeAsia Armster	1928600, 1928601, 1928602, 1928603
EPA 300.0 Rev. 2.1	09/07/2017			09/16/2017	Julia Storbeck	1928600, 1928601, 1928602, 1928603
EPA 350.1 Rev. 2.0	09/07/2017			09/15/2017	Sofia Elnemr	1928604, 1928605, 1928606, 1928607
EPA 351.2 Rev. 2.0	09/07/2017	09/18/2017	Adrian Shelby	09/20/2017	Tanya Welborn	1928604, 1928605, 1928606, 1928607
EPA 353.2 Rev. 2.0	09/07/2017			09/14/2017	Beverly Y. Sanders	1928604, 1928605, 1928606, 1928607
EPA 365.1 Rev. 2.0	09/07/2017	09/14/2017	Sima Feizi	09/15/2017	Lipi Saha	1928604, 1928605, 1928606, 1928607
EPA 365.1 Rev. 2.0 dissolved	09/07/2017			09/07/2017 13:11	Megan Treadwell	1928610
	09/07/2017			09/07/2017 13:12	Megan Treadwell	1928611
	09/07/2017			09/07/2017 13:23	Megan Treadwell	1928609
	09/07/2017			09/07/2017 13:37	Megan Treadwell	1928608
SM 2120 B	09/07/2017			09/07/2017 13:52	Tanya Welborn	1928600
	09/07/2017			09/07/2017 13:53	Tanya Welborn	1928601, 1928602
	09/07/2017			09/07/2017 13:54	Tanya Welborn	1928603
SM 2320 B-97	09/07/2017			09/15/2017	Dale L. Simmons	1928600, 1928601, 1928602, 1928603
SM 2540 C-97	09/07/2017			09/13/2017	DeAsia Armster	1928600, 1928601, 1928602, 1928603
SM 2540 D-97	09/07/2017			09/13/2017	DeAsia Armster	1928600, 1928601, 1928602, 1928603
SM 4500 F-C-97	09/07/2017			09/15/2017	Dale L. Simmons	1928600, 1928601, 1928602, 1928603
SM 5310 B-00	09/07/2017			09/20/2017	Ping Hua	1928604, 1928605, 1928606, 1928607