

Chemical Analysis Report

NE-DIST-2019-04-11-05

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

Event Description: **Suwannee South**
Request ID: **RQ-2019-04-08-14**
Customer: **NE-DIST**
Project ID: **SMP**

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Date Certified: 30-APR-2019 19:07



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 by the Florida Department of Health Environmental Laboratory Certification Program 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: Turtle Spring

Collection Date/Time: 04/10/2019 10:20

Field ID: 22051013

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2077580	EPA 180.1 Rev. 2.0	Turbidity	0.60		NTU	P362004	
	EPA 300.0 Rev. 2.1	Chloride	6.9		mg Cl/L	P362299	
		Sulfate	7.3		mg SO4/L	P362302	
	SM 2120 B	Color (true)	4.1	I	PCU	P362031	
	SM 2320 B-97	Total Alkalinity	205		mg CaCO3/L	P362275	
	SM 2540 C-97	TDS	233		mg/L	P362630	
	SM 2540 D-97	TSS	7	I	mg/L	P362204	
	SM 4500 F-C-97	Fluoride	0.053	I	mg F/L	P362278	
2077582	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P362562	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27		mg N/L	P362480	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.1		mg N/L	P362493	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P362351	
	SM 5310 B-00	Organic Carbon	0.94	I	mg C/L	P362313	
2077584	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P362018	

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: LITTLE WACCASASSA RIVER 0.5 MILE DOWN FROM BLUE SPRINGS **Collection Date/Time: 04/10/2019 11:45**

Field ID: 23020032

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2077574	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P362004	
	EPA 300.0 Rev. 2.1	Chloride	5.5	A	mg Cl/L	P362299	
		Sulfate	1.2	A	mg SO4/L	P362302	
		Color (true)	43		PCU	P362030	
	SM 2320 B-97	Total Alkalinity	100		mg CaCO3/L	P362275	
	SM 2540 C-97	TDS	128		mg/L	P362630	
	SM 2540 D-97	TSS	2	U	mg/L	P362204	
	SM 4500 F-C-97	Fluoride	0.067	I	mg F/L	P362278	
2077576	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P362561	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.24		mg N/L	P362839	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.64		mg N/L	P362493	
	EPA 365.1 Rev. 2.0	Total-P	0.037		mg P/L	P362351	
	SM 5310 B-00	Organic Carbon	4.0		mg C/L	P362313	
2077578	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.028		mg P/L	P362018	

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: LITTLE WACCASASSA RIVER 0.5 MILE DOWN FROM BLUE SPRINGS **Collection Date/Time: 04/10/2019 11:50**

Field ID: 23020032DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2077575	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P362004	
	EPA 300.0 Rev. 2.1	Chloride	5.4		mg Cl/L	P362299	
		Sulfate	1.2		mg SO4/L	P362302	
		Color (true)	48	A	PCU	P362031	
	SM 2320 B-97	Total Alkalinity	101		mg CaCO3/L	P362275	
	SM 2540 C-97	TDS	130		mg/L	P362630	
	SM 2540 D-97	TSS	2	I	mg/L	P362204	
	SM 4500 F-C-97	Fluoride	0.065	I	mg F/L	P362278	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P362561	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22		mg N/L	P362839	
2077577	EPA 353.2 Rev. 2.0	NO2NO3-N	0.65		mg N/L	P362493	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P362351	
	SM 5310 B-00	Organic Carbon	4.1		mg C/L	P362313	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.027		mg P/L	P362018	
	dissolved						

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: LITTLE WACCASASSA RIVER 0.5 MILES DOWN FROM BLUE SPRINGS **Collection Date/Time: 04/10/2019 11:55**

Field ID: FB 04102019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2077586	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P362004	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P362299	
		Sulfate	0.20	U	mg SO4/L	P362302	
	SM 2120 B	Color (true)	2.5	U	PCU	P362031	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P362572	
	SM 2540 C-97	TDS	15	U	mg/L	P362630	
	SM 2540 D-97	TSS	2	U	mg/L	P362204	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P362577	
2077587	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P362562	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P362480	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362494	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P362430	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P362313	
2077588	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362018	

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: LAKE KANAPAH~300M N OF 56TH

Collection Date/Time: 04/10/2019 12:45

Field ID: 20030925

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2077581	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P362004	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P362299	
		Sulfate	5.1		mg SO4/L	P362302	
	SM 2120 B	Color (true)	42		PCU	P362031	
	SM 2320 B-97	Total Alkalinity	176		mg CaCO3/L	P362273	
	SM 2540 C-97	TDS	229		mg/L	P362630	
	SM 2540 D-97	TSS	4	I	mg/L	P362204	
	SM 4500 F-C-97	Fluoride	0.15		mg F/L	P362276	
2077583	EPA 350.1 Rev. 2.0	Ammonia-N	0.28		mg N/L	P362562	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.85		mg N/L	P362480	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362493	
	EPA 365.1 Rev. 2.0	Total-P	0.35		mg P/L	P362351	
	SM 5310 B-00	Organic Carbon	6.4		mg C/L	P362313	
2077585	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.31		mg P/L	P362018	

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: P362004

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362299

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362302

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362561

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362562

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362480

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362839

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362493

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362494

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: P362351

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362430

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362018

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

Reference Method: SM 2120 B
Batch ID: P362030

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P362031

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P362273

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

Reference Method: SM 2320 B-97
Batch ID: P362275

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

Reference Method: SM 2320 B-97
Batch ID: P362572

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

Reference Method: SM 2540 C-97
Batch ID: P362630

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P362204

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P362276

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P362278

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P362577

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P362313

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: P362299

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362302

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362561

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362562

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362480

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362839

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362493

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362494

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362351

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.8		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362430

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362018

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

Reference Method: SM 2120 B
Batch ID: P362030

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2120 B
Batch ID: P362031

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P362273

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 106

Reference Method: SM 2320 B-97
Batch ID: P362275

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 106

Reference Method: SM 2320 B-97
Batch ID: P362572

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.7		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P362276

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.6		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P362278

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.6		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P362577

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P362313

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362299

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077574	Chloride	101		P	90 - 110
2077580	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362302

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077574	Sulfate	103		P	90 - 110
2077580	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362561

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077454	Ammonia-N	98.2	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362562

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077582	Ammonia-N	101	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362480

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077577	Kjeldahl Nitrogen	102	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2078981	Kjeldahl Nitrogen	95.1	97.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362493

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077477	NO2NO3-N	96.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362494

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077627	NO2NO3-N	99.9	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362351

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077582	Total-P	98.0	98.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362430

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077703	Total-P	98.6	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362018

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077578	O-Phosphate-P	96.9	99.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P362276

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077229	Fluoride	99.6	98.9	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P362278

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077450	Fluoride	99.0	99.6	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P362577

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077663	Fluoride	101	100	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P362313

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2077582	Organic Carbon	99.9	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362004

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077639	Turbidity	1.23	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362299

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077574	Chloride	0.0275	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362302

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077574	Sulfate	0.196	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362561

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077454	Ammonia-N	1.48	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362562

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077582	Ammonia-N	0.788	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362480

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077577	Kjeldahl Nitrogen	1.40	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362839

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2078981	Kjeldahl Nitrogen	2.22	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362493

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077477	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362494

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077627	NO2NO3-N	0.489	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362351

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077582	Total-P	0.839	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362430

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077703	Total-P	4.16	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362018

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077578	O-Phosphate-P	1.75	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P362030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077453	Color (true)	0.748	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P362031

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077575	Color (true)	0.175	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P362273

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077229	Total Alkalinity	0.291	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P362275

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077450	Total Alkalinity	0.356	Sample	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
 Batch ID: P362572

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077663	Total Alkalinity	0.559	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
 Batch ID: P362630

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077491	TDS	0.675	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P362276

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077229	Fluoride	0.477	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
 Batch ID: P362278

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077450	Fluoride	0.527	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
 Batch ID: P362577

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077663	Fluoride	0.470	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
 Batch ID: P362313

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2077582	Organic Carbon	0.286	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 180.1 Rev. 2.0

Run ID: A90636

Included Lab Sample IDs: 2077574, 2077575, 2077580, 2077581, 2077586

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: A90643

Included Lab Sample IDs: 2077578, 2077579, 2077584, 2077585, 2077588

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.3	96.8	P/P	90 - 110
O-Phosphate-P	98.9	97.7	P/P	90 - 110
O-Phosphate-P	99.9	98.9	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A90648

Included Lab Sample IDs: 2077574, 2077575, 2077580, 2077581, 2077586

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	103	P/P	90 - 115
Color (true)	103	102	P/P	90 - 115

Reference Method: SM 2320 B-97

Run ID: A90759

Included Lab Sample IDs: 2077574, 2077575, 2077580, 2077581

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110
Total Alkalinity	101	99.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A90759

Included Lab Sample IDs: 2077574, 2077575, 2077580, 2077581

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	100	P/P	90 - 110
Fluoride	99.5	99.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A90760

Included Lab Sample IDs: 2077574, 2077575, 2077580, 2077581, 2077586

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	103	104	P/P	90 - 110
Chloride	104	104	P/P	90 - 110
Sulfate	104	104	P/P	90 - 110
Sulfate	104	105	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A90771

Included Lab Sample IDs: 2077576, 2077577, 2077582, 2077583, 2077587

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A90771

Included Lab Sample IDs: 2077576, 2077577, 2077582, 2077583, 2077587

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90819

Included Lab Sample IDs: 2077583

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90837

Included Lab Sample IDs: 2077576, 2077577, 2077582

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A90845

Included Lab Sample IDs: 2077576, 2077577, 2077582, 2077583, 2077587

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.0	P/P	90 - 110
NO2NO3-N	99.5	99.0	P/P	90 - 110
NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90858

Included Lab Sample IDs: 2077587

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	95.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A90870

Included Lab Sample IDs: 2077576, 2077577, 2077582, 2077583, 2077587

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	102	P/P	90 - 110
Ammonia-N	102	103	P/P	90 - 110
Ammonia-N	103	102	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A90871

Included Lab Sample IDs: 2077586

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	98.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A90871

Included Lab Sample IDs: 2077586

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90897

Included Lab Sample IDs: 2077582, 2077583, 2077587

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.7	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91020

Included Lab Sample IDs: 2077576, 2077577

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	97.2	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				1.23	
EPA 300.0 Rev. 2.1	Chloride	105	101	102	0.0275	
	Sulfate	106	103	103	0.196	
EPA 350.1 Rev. 2.0	Ammonia-N	99.6	98.2	101		1.48
	Ammonia-N	99.9	101	100		0.788
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.2	102	100		1.40
	Kjeldahl Nitrogen	101	95.1	97.9		2.22
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	96.2			0.0
	NO2NO3-N	99.5	99.9	99.4		0.489
EPA 365.1 Rev. 2.0	Total-P	99.8	98.0	98.8		0.839
	Total-P	103	98.6	104		4.16
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	96.9	99.1		1.75
SM 2120 B	Color (true)	101			0.748	
	Color (true)	101			0.175	
SM 2320 B-97	Total Alkalinity	102			0.291	
	Total Alkalinity	101			0.356	
	Total Alkalinity	99.7			0.559	
SM 2540 C-97	TDS				0.675	
SM 4500 F-C-97	Fluoride	96.6	99.6	98.9		0.477
	Fluoride	97.6	99.0	99.6		0.527
	Fluoride	99.3	101	100		0.470
SM 5310 B-00	Organic Carbon	98.5	99.9	100		0.286

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2077574, 2077575, 2077580, 2077581, 2077586
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2077574, 2077575, 2077580, 2077581, 2077586
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2077574, 2077575, 2077580, 2077581, 2077586
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2077576, 2077577, 2077582, 2077583, 2077587
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2077576, 2077577, 2077582, 2077583, 2077587
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2077576, 2077577, 2077582, 2077583, 2077587
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2077576, 2077577, 2077582, 2077583, 2077587
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2077578, 2077579, 2077584, 2077585, 2077588
SM 2120 B / E31780	True Color measured at 450 nm	2077574, 2077575, 2077580, 2077581, 2077586
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2077574, 2077575, 2077580, 2077581, 2077586
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2077574, 2077575, 2077580, 2077581, 2077586
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2077574, 2077575, 2077580, 2077581, 2077586
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2077574, 2077575, 2077580, 2077581, 2077586
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2077576, 2077577, 2077582, 2077583, 2077587

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	04/11/2019			04/11/2019 16:15	Adrian Shelby	2077574, 2077575, 2077580, 2077581, 2077586
EPA 300.0 Rev. 2.1	04/11/2019			04/17/2019 04:01	Lipi Saha	2077574
	04/11/2019			04/17/2019 04:26	Lipi Saha	2077580
	04/11/2019			04/17/2019 06:51	Lipi Saha	2077575
	04/11/2019			04/17/2019 07:03	Lipi Saha	2077581
	04/11/2019			04/17/2019 07:15	Lipi Saha	2077586
EPA 350.1 Rev. 2.0	04/11/2019			04/18/2019 10:56	Ping Hua	2077576
	04/11/2019			04/18/2019 10:58	Ping Hua	2077577
	04/11/2019			04/18/2019 11:10	Ping Hua	2077582
	04/11/2019			04/18/2019 11:16	Ping Hua	2077583
	04/11/2019			04/18/2019 11:32	Ping Hua	2077587
EPA 351.2 Rev. 2.0	04/11/2019	04/19/2019 11:00	Adrian Shelby	04/22/2019 15:29	Joseph Suarez	2077582
	04/11/2019	04/19/2019 11:00	Adrian Shelby	04/22/2019 15:30	Joseph Suarez	2077583
	04/11/2019	04/19/2019 11:00	Adrian Shelby	04/22/2019 15:32	Joseph Suarez	2077587
	04/11/2019	04/25/2019 12:20	Adrian Shelby	04/26/2019 09:03	Joseph Suarez	2077576
	04/11/2019	04/25/2019 12:20	Adrian Shelby	04/26/2019 09:08	Joseph Suarez	2077577
EPA 353.2 Rev. 2.0	04/11/2019			04/19/2019 10:05	Beverly Y. Sanders	2077576
	04/11/2019			04/19/2019 10:06	Beverly Y. Sanders	2077577
	04/11/2019			04/19/2019 10:22	Beverly Y. Sanders	2077587
	04/11/2019			04/19/2019 12:08	Beverly Y. Sanders	2077582
	04/11/2019			04/19/2019 12:09	Beverly Y. Sanders	2077583
EPA 365.1 Rev. 2.0	04/11/2019	04/17/2019 12:40	Sima Feizi	04/18/2019 11:55	Rosalyn Ballman	2077583
	04/11/2019	04/17/2019 12:40	Sima Feizi	04/18/2019 17:21	Rosalyn Ballman	2077576
	04/11/2019	04/17/2019 12:40	Sima Feizi	04/18/2019 17:22	Rosalyn Ballman	2077577
	04/11/2019	04/17/2019 12:40	Sima Feizi	04/18/2019 17:23	Rosalyn Ballman	2077582
	04/11/2019	04/18/2019 13:40	Sima Feizi	04/19/2019 15:48	Rosalyn Ballman	2077587
EPA 365.1 Rev. 2.0 dissolved	04/11/2019			04/11/2019 14:44	Jhamieka S. Greenwood	2077578
	04/11/2019			04/11/2019 14:56	Jhamieka S. Greenwood	2077588
	04/11/2019			04/11/2019 15:03	Jhamieka S. Greenwood	2077585
	04/11/2019			04/11/2019 15:35	Jhamieka S. Greenwood	2077579
	04/11/2019			04/11/2019 15:37	Jhamieka S. Greenwood	2077584
SM 2120 B	04/11/2019			04/11/2019 15:53	Mariam Hanna	2077574
	04/11/2019			04/11/2019 15:57	Mariam Hanna	2077575
	04/11/2019			04/11/2019 15:58	Mariam Hanna	2077580
	04/11/2019			04/11/2019 15:59	Mariam Hanna	2077581
	04/11/2019			04/11/2019 16:00	Mariam Hanna	2077586
SM 2320 B-97	04/11/2019			04/16/2019 01:47	Samantha Davila	2077581
	04/11/2019			04/16/2019 13:43	Samantha Davila	2077574
	04/11/2019			04/16/2019 13:56	Samantha Davila	2077575

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-97	04/11/2019			04/16/2019 14:10	Samantha Davila	2077580
	04/11/2019			04/19/2019 10:22	Samantha Davila	2077586
SM 2540 C-97	04/11/2019			04/12/2019 18:11	Mariam Hanna	2077574, 2077575, 2077580, 2077581, 2077586
SM 2540 D-97	04/11/2019			04/12/2019 18:23	Mariam Hanna	2077574, 2077575, 2077580, 2077581, 2077586
SM 4500 F-C-97	04/11/2019			04/16/2019 01:47	Samantha Davila	2077581
	04/11/2019			04/16/2019 13:43	Samantha Davila	2077574
	04/11/2019			04/16/2019 13:56	Samantha Davila	2077575
	04/11/2019			04/16/2019 14:10	Samantha Davila	2077580
	04/11/2019			04/19/2019 10:22	Samantha Davila	2077586
SM 5310 B-00	04/11/2019			04/16/2019 13:51	Julia Storbeck	2077582
	04/11/2019			04/16/2019 18:44	Julia Storbeck	2077576
	04/11/2019			04/16/2019 18:56	Julia Storbeck	2077577
	04/11/2019			04/16/2019 19:08	Julia Storbeck	2077583
	04/11/2019			04/16/2019 19:20	Julia Storbeck	2077587