

Chemical Analysis Report

SO-DIST-2018-11-29-02

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

Event Description: **SMP : Runoff to Peace River**
Request ID: **RQ-2018-11-26-76**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 19-DEC-2018 13:24



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: RunoffPeace River Site3

Collection Date/Time: 11/28/2018 10:45

Field ID: G3SD0132

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044731	EPA 180.1 Rev. 2.0	Turbidity	15		NTU	P355354	
	EPA 300.0 Rev. 2.1	Chloride	32		mg Cl/L	P355697	
		Sulfate	21		mg SO4/L	P355699	
	SM 2120 B	Color (true)	96		PCU	P355395	
	SM 2320 B-97	Total Alkalinity	55		mg CaCO3/L	P355561	
	SM 2540 C-97	TDS	182		mg/L	P355728	
	SM 2540 D-97	TSS	10		mg/L	P355822	
	SM 4500 F-C-97	Fluoride	0.41		mg F/L	P355564	
2044732	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P355592	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P355403	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P355382	
	EPA 365.1 Rev. 2.0	Total-P	0.79		mg P/L	P355411	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P355515	
2044733	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.32		mg P/L	P355341	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: RunoffPeace River Site3

Collection Date/Time: 11/28/2018 10:50

Field ID: BLANK_11282018

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2044777	EPA 180.1 Rev. 2.0	Turbidity	0.30		NTU	P355355	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P355698	
		Sulfate	0.20	U	mg SO4/L	P355700	
	SM 2120 B	Color (true)	2.5	U	PCU	P355394	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P355561	
	SM 2540 C-97	TDS	15	U	mg/L	P355725	
	SM 2540 D-97	TSS	2	U	mg/L	P355819	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P355564	
2044778	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P355543	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P355492	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P355382	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P355411	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P355515	
2044779	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P355341	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The result was confirmed on 11/29/2018.

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 353.2 Rev. 2.0: NO2NO3-N: The result was confirmed on 12/04/2018.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P355354

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P355355

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355697

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355698

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355699

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355700

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355543

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355592

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355403

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355492

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355382

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355411

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P355341

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

Reference Method: SM 2120 B
Batch ID: P355394

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P355395

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P355561

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

Reference Method: SM 2540 C-97
Batch ID: P355725

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P355728

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P355819

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P355822

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P355564

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P355515

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: P355697

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355698

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355699

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355700

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355543

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355592

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355403

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355492

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355382

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355411

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P355341

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

Reference Method: SM 2120 B
Batch ID: P355394

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	105		P	85 - 115

Reference Method: SM 2120 B
Batch ID: P355395

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	105		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P355561

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P355564

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

Reference Method: SM 5310 B-00
Batch ID: P355515

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355697

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044613	Chloride	96.1		P	90 - 110
2044657	Chloride	96.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355698

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2045067	Chloride	98.5		P	90 - 110
2045119	Chloride	95.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355699

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044613	Sulfate	99.4		P	90 - 110
2044657	Sulfate	98.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355700

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2045067	Sulfate	97.1		P	90 - 110
2045119	Sulfate	96.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355543

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2045072	Ammonia-N	97.7	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355592

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044619	Ammonia-N	98.2	99.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355403

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044614	Kjeldahl Nitrogen	102	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355492

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044763	Kjeldahl Nitrogen	106	109	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355382

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355382

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044658	NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355411

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044760	Total-P	97.2	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P355341

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044615	O-Phosphate-P	93.6	94.9	P/P	90 - 110

Reference Method: SM 5310 B-00
Batch ID: P355515

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2044577	Organic Carbon	99.1	94.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P355354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044756	Turbidity	0.512	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P355355

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2045067	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355697

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044613	Chloride	0.103	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355698

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2045067	Chloride	0.483	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355699

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044613	Sulfate	0.893	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P355700

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2045067	Sulfate	1.54	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355543

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2045072	Ammonia-N	2.42	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355592

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044619	Ammonia-N	0.636	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355403

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044614	Kjeldahl Nitrogen	0.386	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P355492

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044763	Kjeldahl Nitrogen	1.64	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355382

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044658	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044760	Total-P	5.68	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P355341

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044615	O-Phosphate-P	1.07	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P355394

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044759	Color (true)	0.973	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P355395

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044756	Color (true)	2.79	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P355561

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044801	Total Alkalinity	0.733	Sample	P	0 - 1.6

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P355725

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2043892	TDS	2.18	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P355728

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044618	TDS	3.92	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P355564

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044801	Fluoride	0.469	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P355515

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2044577	Organic Carbon	2.63	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 365.1 Rev. 2.0 dissolved

Run ID: A88047

Included Lab Sample IDs: 2044733, 2044779

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.3	98.8	P/P	90 - 110
O-Phosphate-P	99.6	99.3	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A88051

Included Lab Sample IDs: 2044731, 2044777

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: EPA 353.2 Rev. 2.0

Run ID: A88055

Included Lab Sample IDs: 2044732, 2044778

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

Reference Method: SM 2120 B

Run ID: A88059

Included Lab Sample IDs: 2044731, 2044777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	102	P/P	90 - 115
Color (true)	103	104	P/P	90 - 115

Reference Method: SM 5310 B-00

Run ID: A88116

Included Lab Sample IDs: 2044732, 2044778

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.0	95.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A88120

Included Lab Sample IDs: 2044732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.2	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88125

Included Lab Sample IDs: 2044732

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88126

Included Lab Sample IDs: 2044778

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88130

Included Lab Sample IDs: 2044778

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

Reference Method: SM 2320 B-97

Run ID: A88134

Included Lab Sample IDs: 2044731, 2044777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.7	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A88134

Included Lab Sample IDs: 2044731, 2044777

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A88137

Included Lab Sample IDs: 2044778

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.4	99.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88149

Included Lab Sample IDs: 2044732

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A88194

Included Lab Sample IDs: 2044731, 2044777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.6	P/P	90 - 110
Chloride	101	100	P/P	90 - 110
Sulfate	101	100	P/P	90 - 110
Sulfate	102	101	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				0.512	
	Turbidity				0.0	
EPA 300.0 Rev. 2.1	Chloride	99.4	96.1	96.9	0.103	
	Chloride	97.7	98.5	95.9	0.483	
	Sulfate	99.8	99.4	98.1	0.893	
	Sulfate	99.2	97.1	96.4	1.54	
EPA 350.1 Rev. 2.0	Ammonia-N	99.1	97.7	100		2.42
	Ammonia-N	96.9	98.2	99.1		0.636
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	102	102		0.386
	Kjeldahl Nitrogen	103	106	109		1.64
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	99.5	99.5		0.0
EPA 365.1 Rev. 2.0	Total-P	104	97.2	104		5.68
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.5	93.6	94.9		1.07
SM 2120 B	Color (true)	105			0.973	
	Color (true)	105			2.79	
SM 2320 B-97	Total Alkalinity	100			0.733	
SM 2540 C-97	TDS				2.18	
	TDS				3.92	
SM 4500 F-C-97	Fluoride	101				0.469
SM 5310 B-00	Organic Carbon	96.2	99.1	94.2		2.63

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2044731, 2044777
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2044731, 2044777
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2044731, 2044777
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2044732, 2044778
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2044732, 2044778
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2044732, 2044778
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2044732, 2044778
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2044733, 2044779
SM 2120 B / E31780	True Color measured at 450 nm	2044731, 2044777
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2044731, 2044777
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2044731, 2044777
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2044731, 2044777
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2044731, 2044777
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2044732, 2044778

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	11/29/2018			11/29/2018 17:05	Megan Treadwell	2044731, 2044777
EPA 300.0 Rev. 2.1	11/29/2018			12/06/2018 00:22	Lipi Saha	2044731
	11/29/2018			12/06/2018 04:23	Lipi Saha	2044777
EPA 350.1 Rev. 2.0	11/29/2018			12/04/2018 11:50	Adrian Shelby	2044778
	11/29/2018			12/04/2018 14:16	Ping Hua	2044732
EPA 351.2 Rev. 2.0	11/29/2018	11/30/2018 12:15	Adrian Shelby	12/04/2018 10:32	Joseph Suarez	2044732
	11/29/2018	12/03/2018 12:15	Adrian Shelby	12/04/2018 14:19	Joseph Suarez	2044778
EPA 353.2 Rev. 2.0	11/29/2018			11/30/2018 11:18	Beverly Y. Sanders	2044778
	11/29/2018			11/30/2018 11:23	Beverly Y. Sanders	2044732
EPA 365.1 Rev. 2.0	11/29/2018	11/30/2018 13:35	Sima Feizi	12/03/2018 13:54	Beverly Y. Sanders	2044732
	11/29/2018	11/30/2018 13:35	Sima Feizi	12/03/2018 16:44	Beverly Y. Sanders	2044778
EPA 365.1 Rev. 2.0 dissolved	11/29/2018			11/29/2018 17:37	Jhamieka S. Greenwood	2044779
	11/29/2018			11/29/2018 17:50	Jhamieka S. Greenwood	2044733
SM 2120 B	11/29/2018			11/29/2018 16:10	Chelsea Hernandez	2044777
	11/29/2018			11/29/2018 16:39	Chelsea Hernandez	2044731
SM 2320 B-97	11/29/2018			12/04/2018 11:54	Dale L. Simmons	2044731
	11/29/2018			12/04/2018 12:18	Dale L. Simmons	2044777
SM 2540 C-97	11/29/2018			11/30/2018 16:02	Yijie Li	2044731, 2044777
SM 2540 D-97	11/29/2018			11/30/2018 16:02	Yijie Li	2044731, 2044777
SM 4500 F-C-97	11/29/2018			12/04/2018 11:54	Dale L. Simmons	2044731
	11/29/2018			12/04/2018 12:18	Dale L. Simmons	2044777
SM 5310 B-00	11/29/2018			12/04/2018 01:26	Megan Treadwell	2044778
	11/29/2018			12/04/2018 12:37	Megan Treadwell	2044732