

Chemical Analysis Report

SO-DIST-2018-06-05-01

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

Event Description: **Caloosa Creeks**
Request ID: **RQ-2018-06-04-64**
Customer: **SO-DIST**
Project ID: **BMAP**

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FLDEP South District Office
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Date Certified: 26-JUN-2018 13:18



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: Hancock Creek

Collection Date/Time: 06/04/2018 09:35

Field ID: G3SD0130

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1997326	SM 2120 B	Color (true)	80	A	PCU	P346415	
	SM 2320 B-97	Total Alkalinity	168		mg CaCO3/L	P346670	
	SM 2540 D-97	TSS	10	I	mg/L	P346735	
	SM 4500 F-C-97	Fluoride	0.24		mg F/L	P346673	
1997329	SM 5310 B-00 dissolved	Organic Carbon	13		mg C/L	P347091	
1997332	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P346802	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P346743	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P346510	
	EPA 365.1 Rev. 2.0	Total-P	0.26		mg P/L	P346659	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P346902	
1997335	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.16		mg P/L	P346406	

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: Telegraph Creek

Collection Date/Time: 06/04/2018 10:30

Field ID: G3SD0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1997327	SM 2120 B	Color (true)	46		PCU	P346415	
	SM 2320 B-97	Total Alkalinity	269		mg CaCO3/L	P346670	
	SM 2540 D-97	TSS	8	I	mg/L	P346735	
	SM 4500 F-C-97	Fluoride	0.19		mg F/L	P346673	
1997330	SM 5310 B-00 dissolved	Organic Carbon	13		mg C/L	P347091	
1997333	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P346802	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.89		mg N/L	P346745	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P346510	
	EPA 365.1 Rev. 2.0	Total-P	0.098		mg P/L	P346659	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P346902	
1997336	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.042		mg P/L	P346407	

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: Orange River

Collection Date/Time: 06/04/2018 11:25

Field ID: G3SD0128

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1997328	SM 2120 B	Color (true)	48	A	PCU	P346416	
	SM 2320 B-97	Total Alkalinity	194		mg CaCO3/L	P346670	
	SM 2540 D-97	TSS	6	I	mg/L	P346735	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P346673	
1997331	SM 5310 B-00 dissolved	Organic Carbon	9.9		mg C/L	P347091	
1997334	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P346803	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.67		mg N/L	P346856	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.033		mg N/L	P346510	
	EPA 365.1 Rev. 2.0	Total-P	0.042		mg P/L	P346761	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P347091	
1997337	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P346407	

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 350.1 Rev. 2.0
Batch ID: P346802

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346803

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346743

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346745

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346856

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346510

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346659

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346761

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346406

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346407

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

Reference Method: SM 2120 B
Batch ID: P346415

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P346416

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P346670

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

Reference Method: SM 2540 D-97
Batch ID: P346735

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P346673

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P346902

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Reference Method: SM 5310 B-00
Batch ID: P347091

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Reference Method: SM 5310 B-00 dissolved
Batch ID: P347091

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346802

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346803

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346743

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346745

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346856

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346510

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	100		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346659

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346761

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346406

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346407

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

Reference Method: SM 2320 B-97
Batch ID: P346670

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P346673

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.9		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P346902

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.6		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P347091

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P347091

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346802

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997148	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346803

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997334	Ammonia-N	100	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346743

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997203	Kjeldahl Nitrogen	95.8	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346745

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997333	Kjeldahl Nitrogen	93.8	95.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346856

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997334	Kjeldahl Nitrogen	103	95.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346510

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997332	NO2NO3-N	99.0	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346659

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997203	Total-P	104	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346761

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997097	Total-P	97.3	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346406

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997102	O-Phosphate-P	97.3	98.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346407

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997336	O-Phosphate-P	96.1	97.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P346673

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997945	Fluoride	98.5	97.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P346902

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997251	Organic Carbon	100		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P347091

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997329	Organic Carbon	98.4	98.8	P/P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P347091

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997329	Organic Carbon	98.4	98.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346802

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997148	Ammonia-N	0.932	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346803

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997334	Ammonia-N	0.0297	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346743

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997203	Kjeldahl Nitrogen	2.73	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346745

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997333	Kjeldahl Nitrogen	0.859	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346856

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997334	Kjeldahl Nitrogen	5.34	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346510

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997332	NO2NO3-N	2.00	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346659

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997203	Total-P	1.17	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346761

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997097	Total-P	1.22	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346406

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997102	O-Phosphate-P	1.31	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346407

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997336	O-Phosphate-P	1.01	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P346415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997326	Color (true)	0.276	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P346416

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997328	Color (true)	1.42	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P346670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997945	Total Alkalinity	0.723	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P346673

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997945	Fluoride	0.513	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P346902

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997251	Organic Carbon	2.23	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P347091

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997329	Organic Carbon	0.217	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00 dissolved
Batch ID: P347091

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997329	Organic Carbon	0.217	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: A84357

Included Lab Sample IDs: 1997335, 1997336, 1997337

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	98.5	P/P	90 - 110
O-Phosphate-P	97.6	98.2	P/P	90 - 110
O-Phosphate-P	98.0	98.5	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A84360

Included Lab Sample IDs: 1997326, 1997327, 1997328

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	90 - 115
Color (true)	102	101	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A84398

Included Lab Sample IDs: 1997332, 1997333, 1997334

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

Reference Method: SM 2320 B-97

Run ID: A84489

Included Lab Sample IDs: 1997326, 1997327, 1997328

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	99.6	P/P	90 - 110
Total Alkalinity	99.6	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A84489

Included Lab Sample IDs: 1997326, 1997327, 1997328

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	99.5	P/P	90 - 110
Fluoride	99.5	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A84521

Included Lab Sample IDs: 1997332, 1997333

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	99.6	P/P	90 - 110
Total-P	99.6	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A84534

Included Lab Sample IDs: 1997332, 1997333, 1997334

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A84585

Included Lab Sample IDs: 1997332, 1997333

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.4	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A84598

Included Lab Sample IDs: 1997334

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A84611

Included Lab Sample IDs: 1997332

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A84626

Included Lab Sample IDs: 1997334

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.2	96.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A84634

Included Lab Sample IDs: 1997333

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	104	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A84672

Included Lab Sample IDs: 1997334

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	97.2	P/P	90 - 110

Reference Method: SM 5310 B-00 dissolved

Run ID: A84672

Included Lab Sample IDs: 1997329, 1997330, 1997331

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.4	97.2	P/P	90 - 110
Organic Carbon	98.8	95.8	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	MS
						SMP	
EPA 350.1 Rev. 2.0	Ammonia-N	102	101	103			0.932
	Ammonia-N	101	100	100			0.0297
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	95.8	100			2.73
	Kjeldahl Nitrogen	104	93.8	95.3			0.859
	Kjeldahl Nitrogen	97.9	103	95.0			5.34
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	99.0	101			2.00
EPA 365.1 Rev. 2.0	Total-P	110	104	106			1.17
	Total-P	98.2	97.3	98.6			1.22
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.0	97.3	98.8			1.31
	O-Phosphate-P	101	96.1	97.5			1.01
SM 2120 B	Color (true)					0.276	
	Color (true)					1.42	
SM 2320 B-97	Total Alkalinity	104				0.723	
SM 4500 F-C-97	Fluoride	95.9	98.5	97.7			0.513
SM 5310 B-00	Organic Carbon	96.6	100				2.23
	Organic Carbon	98.6	98.4	98.8			0.217
SM 5310 B-00 dissolved	Organic Carbon	98.6	98.4	98.8			0.217

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1997332, 1997333, 1997334
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1997332, 1997333, 1997334
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1997332, 1997333, 1997334
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1997332, 1997333, 1997334
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1997335, 1997336, 1997337
SM 2120 B / E31780	True Color measured at 450 nm	1997326, 1997327, 1997328
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1997326, 1997327, 1997328
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	1997326, 1997327, 1997328
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1997326, 1997327, 1997328
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1997332, 1997333, 1997334
SM 5310 B-00 dissolved / E31780	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	1997329, 1997330, 1997331

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 350.1 Rev. 2.0	06/05/2018			06/12/2018 10:28	Ping Hua	1997332
	06/05/2018			06/12/2018 10:29	Ping Hua	1997333
	06/05/2018			06/12/2018 10:40	Ping Hua	1997334
EPA 351.2 Rev. 2.0	06/05/2018	06/12/2018 12:00	Adrian Shelby	06/15/2018 11:08	Joseph Suarez	1997332
	06/05/2018	06/12/2018 12:00	Adrian Shelby	06/15/2018 17:18	Joseph Suarez	1997333
	06/05/2018	06/13/2018 10:30	Adrian Shelby	06/15/2018 13:21	Joseph Suarez	1997334
EPA 353.2 Rev. 2.0	06/05/2018			06/06/2018 16:32	Lauren Bottorf	1997332
	06/05/2018			06/06/2018 16:42	Lauren Bottorf	1997333
	06/05/2018			06/06/2018 16:44	Lauren Bottorf	1997334
EPA 365.1 Rev. 2.0	06/05/2018	06/11/2018 12:30	Adrian Shelby	06/12/2018 12:22	Beverly Y. Sanders	1997332
	06/05/2018	06/11/2018 12:30	Adrian Shelby	06/12/2018 12:25	Beverly Y. Sanders	1997333
	06/05/2018	06/12/2018 12:15	Lipi Saha	06/14/2018 14:24	Beverly Y. Sanders	1997334
EPA 365.1 Rev. 2.0 dissolved	06/05/2018			06/05/2018 14:36	Megan Treadwell	1997336
	06/05/2018			06/05/2018 15:03	Megan Treadwell	1997337
	06/05/2018			06/05/2018 15:23	Megan Treadwell	1997335
SM 2120 B	06/05/2018			06/05/2018 15:07	Tanya Welborn	1997326
	06/05/2018			06/05/2018 15:08	Tanya Welborn	1997327
	06/05/2018			06/05/2018 15:17	Tanya Welborn	1997328
SM 2320 B-97	06/05/2018			06/08/2018 01:44	Dale L. Simmons	1997327
	06/05/2018			06/08/2018 01:55	Dale L. Simmons	1997328
	06/05/2018			06/08/2018 03:38	Dale L. Simmons	1997326
SM 2540 D-97	06/05/2018			06/06/2018 15:03	Yijie Li	1997326, 1997327, 1997328
SM 4500 F-C-97	06/05/2018			06/08/2018 01:44	Dale L. Simmons	1997327
	06/05/2018			06/08/2018 01:55	Dale L. Simmons	1997328
	06/05/2018			06/08/2018 03:38	Dale L. Simmons	1997326
SM 5310 B-00	06/05/2018			06/13/2018 22:02	Megan Treadwell	1997332
	06/05/2018			06/13/2018 22:22	Megan Treadwell	1997333
	06/05/2018			06/18/2018 19:47	Megan Treadwell	1997334
SM 5310 B-00 dissolved	06/05/2018			06/18/2018 15:04	Megan Treadwell	1997329
	06/05/2018			06/18/2018 15:53	Megan Treadwell	1997330
	06/05/2018			06/18/2018 19:35	Megan Treadwell	1997331