

Chemical Analysis Report

SO-DIST-2019-05-17-01

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-2019-05-13-63**
Customer: **SO-DIST**
Project ID: **BMAP**

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FLDEP South District Office
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Date Certified: 03-JUN-2019 18:49



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: Telegraph Creek

Collection Date/Time: 05/16/2019 13:30

Field ID: G3SD0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2087148	SM 2120 B	Color (true)	170		PCU	P364163	
	SM 2320 B-97	Total Alkalinity	139		mg CaCO3/L	P364425	
	SM 2540 D-97	TSS	3	I	mg/L	P364711	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P364428	
2087151	SM 5310 B-00 dissolved	Organic Carbon	21		mg C/L	P364290	
2087154	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P364328	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P364683	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.066		mg N/L	P364449	
	EPA 365.1 Rev. 2.0	Total-P	0.067		mg P/L	P364595	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P364290	
2087157	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.026		mg P/L	P364177	

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: 05/16/2019 14:15

Field ID: G3SD0128

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2087149	SM 2120 B	Color (true)	34	A	PCU	P364163	
	SM 2320 B-97	Total Alkalinity	180		mg CaCO3/L	P364425	
	SM 2540 D-97	TSS	3	I	mg/L	P364711	
	SM 4500 F-C-97	Fluoride	0.15		mg F/L	P364428	
2087152	SM 5310 B-00 dissolved	Organic Carbon	8.7		mg C/L	P364290	
2087155	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P364549	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.56		mg N/L	P364683	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.020		mg N/L	P364449	
	EPA 365.1 Rev. 2.0	Total-P	0.042		mg P/L	P364596	
	SM 5310 B-00	Organic Carbon	8.9		mg C/L	P364290	
2087158	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.010		mg P/L	P364177	

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: Hancock Creek

Collection Date/Time: 05/16/2019 15:00

Field ID: G3SD0130

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2087150	SM 2120 B	Color (true)	50		PCU	P364163	
	SM 2320 B-97	Total Alkalinity	135		mg CaCO3/L	P364425	
	SM 2540 D-97	TSS	3	U	mg/L	P364711	
	SM 4500 F-C-97	Fluoride	0.33		mg F/L	P364428	
2087153	SM 5310 B-00 dissolved	Organic Carbon	11		mg C/L	P364290	
2087156	EPA 350.1 Rev. 2.0	Ammonia-N	0.035		mg N/L	P364329	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.79		mg N/L	P364705	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.025		mg N/L	P364369	
	EPA 365.1 Rev. 2.0	Total-P	0.24		mg P/L	P364579	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P364290	
2087159	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.18		mg P/L	P364178	

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: P364328

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364329

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364549

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364683

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364705

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364369

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364449

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364579

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364595

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364596

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364177

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364178

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

Reference Method: SM 2120 B
Batch ID: P364163

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P364425

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 D-97
Batch ID: P364711

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P364428

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P364290

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P364290

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: P364328

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364329

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: P364549

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364683

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364705

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364369

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364449

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364579

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	94.1		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364595

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364596

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364177

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364178

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

Reference Method: SM 2120 B
Batch ID: P364163

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.9		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P364425

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P364428

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P364290

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.2		P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P364290

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364328

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087107	Ammonia-N	101	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364329

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087192	Ammonia-N	105	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364549

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087260	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364683

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087144	Kjeldahl Nitrogen	96.9	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364705

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087414	Kjeldahl Nitrogen	102	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364369

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086894	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364449

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087107	NO2NO3-N	99.6	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364579

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086894	Total-P	95.7	93.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364595

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086972	Total-P	96.9	99.2	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364596

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087155	Total-P	97.5	97.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364177

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087264	O-Phosphate-P	98.4	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364178

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087465	O-Phosphate-P	94.3	96.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P364428

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086920	Fluoride	97.9	99.0	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P364290

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087247	Organic Carbon	95.2	96.5	P/P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P364290

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087247	Organic Carbon	95.2	96.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087107	Ammonia-N	4.16	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364329

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087192	Ammonia-N	0.988	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364549

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087260	Ammonia-N	0.0905	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364683

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087144	Kjeldahl Nitrogen	6.91	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364705

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087414	Kjeldahl Nitrogen	3.11	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364369

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086894	NO2NO3-N	0.487	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364449

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087107	NO2NO3-N	0.489	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364579

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086894	Total-P	1.93	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364595

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086972	Total-P	1.76	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364596

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087155	Total-P	0.163	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364177

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087264	O-Phosphate-P	1.23	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364178

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087465	O-Phosphate-P	1.64	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P364163

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087149	Color (true)	6.13	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P364425

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086920	Total Alkalinity	0.272	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-97
Batch ID: P364428

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086920	Fluoride	0.998	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P364290

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087247	Organic Carbon	0.799	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00 dissolved
Batch ID: P364290

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087247	Organic Carbon	0.799	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: SM 2120 B

Run ID: A91512

Included Lab Sample IDs: 2087148, 2087149, 2087150

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A91514

Included Lab Sample IDs: 2087157, 2087158, 2087159

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.6	96.8	P/P	90 - 110
O-Phosphate-P	98.1	97.6	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A91559

Included Lab Sample IDs: 2087154, 2087155, 2087156

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	96.0	P/P	90 - 110

Reference Method: SM 5310 B-00 dissolved

Run ID: A91559

Included Lab Sample IDs: 2087151, 2087152, 2087153

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.9	96.0	P/P	90 - 110
Organic Carbon	96.0	95.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91568

Included Lab Sample IDs: 2087154, 2087156

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91592

Included Lab Sample IDs: 2087156

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	97.0	97.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A91614

Included Lab Sample IDs: 2087148, 2087149, 2087150

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A91614

Included Lab Sample IDs: 2087148, 2087149, 2087150

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91626

Included Lab Sample IDs: 2087154, 2087155

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO ₂ NO ₃ -N	99.0	98.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91667

Included Lab Sample IDs: 2087155

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91713

Included Lab Sample IDs: 2087154, 2087156

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	101	P/P	90 - 110
Total-P	103	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91726

Included Lab Sample IDs: 2087155

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91745

Included Lab Sample IDs: 2087154, 2087155

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.2	96.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91777

Included Lab Sample IDs: 2087156

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.1	100	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	105	101	106			4.16
	Ammonia-N	104	105	106			0.988
	Ammonia-N	99.8	101	101			0.0905
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.3	96.9	107			6.91
	Kjeldahl Nitrogen	107	102	106			3.11
EPA 353.2 Rev. 2.0	NO2NO3-N	100	103	102			0.487
	NO2NO3-N	99.0	99.6	99.1			0.489
EPA 365.1 Rev. 2.0	Total-P	94.1	95.7	93.7			1.93
	Total-P	97.2	96.9	99.2			1.76
	Total-P	101	97.5	97.7			0.163
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.5	98.4	97.2			1.23
	O-Phosphate-P	99.2	94.3	96.0			1.64
SM 2120 B	Color (true)	98.9				6.13	
SM 2320 B-97	Total Alkalinity	103				0.272	
SM 4500 F-C-97	Fluoride	100	97.9	99.0			0.998
SM 5310 B-00	Organic Carbon	95.2	95.2	96.5			0.799
SM 5310 B-00 dissolved	Organic Carbon	95.2	95.2	96.5			0.799

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2087154, 2087155, 2087156
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2087154, 2087155, 2087156
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2087154, 2087155, 2087156
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2087154, 2087155, 2087156
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2087157, 2087158, 2087159
SM 2120 B / E31780	True Color measured at 450 nm	2087148, 2087149, 2087150
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2087148, 2087149, 2087150
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2087148, 2087149, 2087150
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2087148, 2087149, 2087150
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2087154, 2087155, 2087156
SM 5310 B-00 dissolved / E31780	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	2087151, 2087152, 2087153

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	05/17/2019			05/20/2019 13:22	Ping Hua	2087154
	05/17/2019			05/20/2019 13:46	Ping Hua	2087156
	05/17/2019			05/23/2019 12:04	Ping Hua	2087155
EPA 351.2 Rev. 2.0	05/17/2019	05/29/2019 14:15	Adrian Shelby	05/30/2019 10:42	Joseph Suarez	2087154
	05/17/2019	05/29/2019 14:15	Adrian Shelby	05/30/2019 10:44	Joseph Suarez	2087155
	05/17/2019	05/30/2019 13:00	Adrian Shelby	05/31/2019 09:06	Joseph Suarez	2087156
EPA 353.2 Rev. 2.0	05/17/2019			05/22/2019 10:27	Beverly Y. Sanders	2087156
	05/17/2019			05/23/2019 11:14	Beverly Y. Sanders	2087154
	05/17/2019			05/23/2019 11:15	Beverly Y. Sanders	2087155
EPA 365.1 Rev. 2.0	05/17/2019	05/28/2019 16:20	Adrian Shelby	05/29/2019 10:05	Rosalyn Ballman	2087156
	05/17/2019	05/28/2019 16:20	Adrian Shelby	05/29/2019 10:47	Rosalyn Ballman	2087154
	05/17/2019	05/28/2019 16:20	Adrian Shelby	05/29/2019 13:34	Rosalyn Ballman	2087155
EPA 365.1 Rev. 2.0 dissolved	05/17/2019			05/17/2019 16:11	Jhamieka S. Greenwood	2087157
	05/17/2019			05/17/2019 16:12	Jhamieka S. Greenwood	2087158
	05/17/2019			05/17/2019 16:20	Jhamieka S. Greenwood	2087159
SM 2120 B	05/17/2019			05/17/2019 15:17	Madeline Funaro	2087149
	05/17/2019			05/17/2019 15:18	Madeline Funaro	2087150
	05/17/2019			05/17/2019 15:42	Madeline Funaro	2087148
SM 2320 B-97	05/17/2019			05/23/2019 04:04	Dale L. Simmons	2087148
	05/17/2019			05/23/2019 04:19	Dale L. Simmons	2087149
	05/17/2019			05/23/2019 06:09	Dale L. Simmons	2087150
SM 2540 D-97	05/17/2019			05/21/2019 15:26	Yijie Li	2087148, 2087149, 2087150
SM 4500 F-C-97	05/17/2019			05/23/2019 04:04	Dale L. Simmons	2087148
	05/17/2019			05/23/2019 04:19	Dale L. Simmons	2087149
	05/17/2019			05/23/2019 06:09	Dale L. Simmons	2087150
SM 5310 B-00	05/17/2019			05/21/2019 01:04	Julia Storbeck	2087155
	05/17/2019			05/21/2019 01:17	Julia Storbeck	2087156
	05/17/2019			05/21/2019 12:51	Julia Storbeck	2087154
SM 5310 B-00 dissolved	05/17/2019			05/21/2019 03:57	Julia Storbeck	2087151
	05/17/2019			05/21/2019 04:10	Julia Storbeck	2087152
	05/17/2019			05/21/2019 04:50	Julia Storbeck	2087153