

Chemical Analysis Report

SO-DIST-2019-06-04-01

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-2019-06-03-56**
Customer: **SO-DIST**
Project ID: **BMAP**

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FLDEP South District Office
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Date Certified: 18-JUN-2019 15:48



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: 06/03/2019 12:25

Field ID: G3SD0129

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2090848	SM 2120 B	Color (true)	56		PCU	P365012	
	SM 2320 B-97	Total Alkalinity	208		mg CaCO3/L	P365401	RPD
	SM 2540 D-97	TSS	5	I	mg/L	P365627	
	SM 4500 F-C-97	Fluoride	0.24		mg F/L	P365404	
2090851	SM 5310 B-00 dissolved	Organic Carbon	15		mg C/L	P365295	
2090854	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P365212	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P365182	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	I	mg N/L	P365196	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P365189	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P365295	
2090857	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.059		mg P/L	P364999	

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: 06/03/2019 13:10

Field ID: G3SD0128

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2090849	SM 2120 B	Color (true)	36		PCU	P365012	
	SM 2320 B-97	Total Alkalinity	182		mg CaCO3/L	P365401	RPD
	SM 2540 D-97	TSS	4	I	mg/L	P365628	
	SM 4500 F-C-97	Fluoride	0.19		mg F/L	P365404	
2090852	SM 5310 B-00 dissolved	Organic Carbon	9.9		mg C/L	P365295	
2090855	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P365212	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.82	J	mg N/L	P365182	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P365196	
	EPA 365.1 Rev. 2.0	Total-P	0.048		mg P/L	P365189	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P365295	
2090858	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P364999	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Refer to the narrative for an explanation of QC Codes.

Sample Location: Hancock Creek

Collection Date/Time: 06/03/2019 13:50

Field ID: G3SD0130

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2090850	SM 2120 B	Color (true)	48		PCU	P365012	
	SM 2320 B-97	Total Alkalinity	151	A	mg CaCO3/L	P365562	
	SM 2540 D-97	TSS	3	I	mg/L	P365628	
	SM 4500 F-C-97	Fluoride	0.44		mg F/L	P365568	
2090853	SM 5310 B-00 dissolved	Organic Carbon	13		mg C/L	P365295	
2090856	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P365211	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P365275	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P365285	
	EPA 365.1 Rev. 2.0	Total-P	0.22		mg P/L	P365107	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P365295	
2090859	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.19		mg P/L	P365000	

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: P365211

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365212

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365182

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365275

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365196

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365285

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365107

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365189

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364999

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: P365000

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

Reference Method: SM 2120 B
Batch ID: P365012

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P365401

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

Reference Method: SM 2320 B-97
Batch ID: P365562

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

Reference Method: SM 2540 D-97
Batch ID: P365627

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P365628

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P365404

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P365568

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P365295

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

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00 dissolved
Batch ID: P365295

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: P365211

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365212

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365182

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365275

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: P365196

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365285

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365107

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365189

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364999

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365000

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

Reference Method: SM 2120 B
Batch ID: P365012

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P365401

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Reference Method: SM 2320 B-97
Batch ID: P365562

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P365404

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P365568

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P365295

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.2		P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P365295

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365211

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091026	Ammonia-N	105	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365212

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090433	Ammonia-N	98.3	99.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365182

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090855	Kjeldahl Nitrogen	105	111	P/F	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365275

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090777	Kjeldahl Nitrogen	99.1	92.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365196

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090490	NO2NO3-N	97.0	96.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365285

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090856	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365107

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090882	Total-P	94.6	95.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365189

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090911	Total-P	100	99.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364999

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090951	O-Phosphate-P	98.6	99.3	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365000

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090841	O-Phosphate-P	98.0	98.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P365404

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090335	Fluoride	96.1	96.6	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P365568

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090850	Fluoride	98.1	98.1	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P365295

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090580	Organic Carbon	91.8	91.0	P/P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P365295

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090580	Organic Carbon	91.8	91.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091026	Ammonia-N	0.288	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365212

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090433	Ammonia-N	1.18	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365182

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090855	Kjeldahl Nitrogen	3.49	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365275

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090777	Kjeldahl Nitrogen	5.32	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365196

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090490	NO2NO3-N	0.517	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365285

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090856	NO2NO3-N	0.994	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365107

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090882	Total-P	1.10	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365189

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090911	Total-P	0.281	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364999

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090951	O-Phosphate-P	0.707	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365000

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090841	O-Phosphate-P	0.861	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P365012

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090578	Color (true)	2.11	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P365401

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090335	Total Alkalinity	4.94	Sample	F	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P365562

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090850	Total Alkalinity	0.741	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-97
Batch ID: P365404

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090335	Fluoride	0.482	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
Batch ID: P365568

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090850	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P365295

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090580	Organic Carbon	0.749	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00 dissolved
Batch ID: P365295

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090580	Organic Carbon	0.749	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: A91848

Included Lab Sample IDs: 2090857, 2090858, 2090859

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	98.9	P/P	90 - 110
O-Phosphate-P	99.6	99.1	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A91850

Included Lab Sample IDs: 2090848, 2090849, 2090850

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	103	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91913

Included Lab Sample IDs: 2090854, 2090855

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	96.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91914

Included Lab Sample IDs: 2090854, 2090855, 2090856

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91915

Included Lab Sample IDs: 2090856

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91938

Included Lab Sample IDs: 2090854

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91942

Included Lab Sample IDs: 2090855

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91947

Included Lab Sample IDs: 2090856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91947

Included Lab Sample IDs: 2090856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A91953

Included Lab Sample IDs: 2090854, 2090855, 2090856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.2	95.9	P/P	90 - 110

Reference Method: SM 5310 B-00 dissolved

Run ID: A91953

Included Lab Sample IDs: 2090851, 2090852, 2090853

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.2	95.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A92003

Included Lab Sample IDs: 2090856

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.2	99.2	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A92009

Included Lab Sample IDs: 2090848, 2090849

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	105	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A92009

Included Lab Sample IDs: 2090848, 2090849

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A92011

Included Lab Sample IDs: 2090854, 2090855

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.6	98.3	P/P	90 - 110
Kjeldahl Nitrogen	98.3	96.7	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A92072

Included Lab Sample IDs: 2090850

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	105	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A92072

Included Lab Sample IDs: 2090850

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	99.5	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 350.1 Rev. 2.0	Ammonia-N	99.8	105	106		0.288
	Ammonia-N	100	98.3	99.7		1.18
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	107	105	111		3.49
	Kjeldahl Nitrogen	103	99.1	92.1		5.32
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	97.0	97.0	96.5		0.517
	NO ₂ NO ₃ -N	100	101	100		0.994
EPA 365.1 Rev. 2.0	Total-P	103	94.6	95.6		1.10
	Total-P	96.0	100	99.9		0.281
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.9	98.6	99.3		0.707
	O-Phosphate-P	98.1	98.0	98.9		0.861
SM 2120 B	Color (true)	102			2.11	
SM 2320 B-97	Total Alkalinity	104			4.94	
	Total Alkalinity	105			0.741	
SM 4500 F-C-97	Fluoride	97.4	96.1	96.6		0.482
	Fluoride	97.4	98.1	98.1		0.0
SM 5310 B-00	Organic Carbon	98.2	91.8	91.0		0.749
SM 5310 B-00 dissolved	Organic Carbon	98.2	91.8	91.0		0.749

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2090854, 2090855, 2090856
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2090854, 2090855, 2090856
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2090854, 2090855, 2090856
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2090854, 2090855, 2090856
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2090857, 2090858, 2090859
SM 2120 B / E31780	True Color measured at 450 nm	2090848, 2090849, 2090850
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2090848, 2090849, 2090850
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2090848, 2090849, 2090850
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2090848, 2090849, 2090850
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2090854, 2090855, 2090856
SM 5310 B-00 dissolved / E31780	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	2090851, 2090852, 2090853

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	06/04/2019			06/05/2019 13:57	Ping Hua	2090856
	06/04/2019			06/05/2019 14:37	Ping Hua	2090854
	06/04/2019			06/05/2019 14:39	Ping Hua	2090855
EPA 351.2 Rev. 2.0	06/04/2019	06/06/2019 12:15	Adrian Shelby	06/11/2019 10:39	Joseph Suarez	2090854
	06/04/2019	06/06/2019 12:15	Adrian Shelby	06/11/2019 10:43	Joseph Suarez	2090855
	06/04/2019	06/07/2019 11:30	Adrian Shelby	06/10/2019 15:42	Virginia P. Brown	2090856
EPA 353.2 Rev. 2.0	06/04/2019			06/06/2019 10:05	Beverly Y. Sanders	2090854
	06/04/2019			06/06/2019 10:06	Beverly Y. Sanders	2090855
	06/04/2019			06/07/2019 09:35	Beverly Y. Sanders	2090856
EPA 365.1 Rev. 2.0	06/04/2019	06/05/2019 12:10	Sima Feizi	06/06/2019 13:02	Rosalyn Ballman	2090856
	06/04/2019	06/06/2019 12:35	Sima Feizi	06/07/2019 09:43	Lipi Saha	2090854
	06/04/2019	06/06/2019 12:35	Sima Feizi	06/07/2019 11:32	Lipi Saha	2090855
EPA 365.1 Rev. 2.0 dissolved	06/04/2019			06/04/2019 15:30	Jhamieka S. Greenwood	2090857
	06/04/2019			06/04/2019 15:31	Jhamieka S. Greenwood	2090858
	06/04/2019			06/04/2019 15:42	Jhamieka S. Greenwood	2090859
SM 2120 B	06/04/2019			06/04/2019 17:27	Madeline Funaro	2090848
	06/04/2019			06/04/2019 17:28	Madeline Funaro	2090849
	06/04/2019			06/04/2019 17:29	Madeline Funaro	2090850
SM 2320 B-97	06/04/2019			06/11/2019 10:46	Dale L. Simmons	2090849
	06/04/2019			06/11/2019 10:59	Dale L. Simmons	2090848
	06/04/2019			06/13/2019 09:23	Dale L. Simmons	2090850
SM 2540 D-97	06/04/2019			06/06/2019 15:49	Yijie Li	2090848, 2090849, 2090850
SM 4500 F-C-97	06/04/2019			06/11/2019 10:46	Dale L. Simmons	2090849
	06/04/2019			06/11/2019 10:59	Dale L. Simmons	2090848
	06/04/2019			06/13/2019 07:37	Dale L. Simmons	2090850
SM 5310 B-00	06/04/2019			06/07/2019 01:09	Julia Storbeck	2090855
	06/04/2019			06/07/2019 01:23	Julia Storbeck	2090856
	06/04/2019			06/07/2019 12:54	Julia Storbeck	2090854
SM 5310 B-00 dissolved	06/04/2019			06/07/2019 12:12	Julia Storbeck	2090851
	06/04/2019			06/07/2019 12:25	Julia Storbeck	2090852
	06/04/2019			06/07/2019 12:39	Julia Storbeck	2090853