

Chemical Analysis Report

SO-DIST-2019-01-08-01

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-2018-12-17-06**
Customer: **SO-DIST**
Project ID: **BMAP**

Send Reports to:
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FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
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Date Certified: 28-JAN-2019 17:59



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: Orange River

Collection Date/Time: 01/07/2019 08:50

Field ID: G3SD0128

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2052145	SM 2120 B	Color (true)	29		PCU	P356964	
	SM 2320 B-97	Total Alkalinity	214		mg CaCO3/L	P357388	
	SM 2540 D-97	TSS	2	I	mg/L	P357572	
	SM 4500 F-C-97	Fluoride	0.18		mg F/L	P357521	
2052148	SM 5310 B-00 dissolved	Organic Carbon	8.2		mg C/L	P357193	
2052151	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P357124	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P357016	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.045		mg N/L	P357005	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P357024	
	SM 5310 B-00	Organic Carbon	8.1		mg C/L	P357193	
2052154	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P356968	

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: 01/07/2019 09:40

Field ID: G3SD0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2052146	SM 2120 B	Color (true)	140		PCU	P356965	
	SM 2320 B-97	Total Alkalinity	222		mg CaCO3/L	P357388	
	SM 2540 D-97	TSS	9	I	mg/L	P357572	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P357521	
2052149	SM 5310 B-00 dissolved	Organic Carbon	21		mg C/L	P357193	
2052152	EPA 350.1 Rev. 2.0	Ammonia-N	0.028		mg N/L	P357124	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P357016	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P357005	
	EPA 365.1 Rev. 2.0	Total-P	0.068		mg P/L	P357024	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P357193	
2052155	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.042		mg P/L	P356968	

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: 01/07/2019 10:40

Field ID: G3SD0130

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2052147	SM 2120 B	Color (true)	55		PCU	P356965	
	SM 2320 B-97	Total Alkalinity	172		mg CaCO3/L	P357389	
	SM 2540 D-97	TSS	5	I	mg/L	P357572	
	SM 4500 F-C-97	Fluoride	0.36		mg F/L	P357384	
2052150	SM 5310 B-00 dissolved	Organic Carbon	12		mg C/L	P357193	
2052153	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P357248	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.8		mg N/L	P357127	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P357453	
	EPA 365.1 Rev. 2.0	Total-P	0.17		mg P/L	P357025	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P357193	
2052156	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P356971	

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: P357124

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357248

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357016

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357127

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357005

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357453

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357024

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357025

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356968

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: P356971

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

Reference Method: SM 2120 B
Batch ID: P356964

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P356965

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P357388

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

Reference Method: SM 2320 B-97
Batch ID: P357389

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

Reference Method: SM 2540 D-97
Batch ID: P357572

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P357384

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P357521

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P357193

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: P357193

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: P357124

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357248

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: P357016

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: P357127

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357005

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: P357453

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: P357024

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357025

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356968

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356971

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

Reference Method: SM 2120 B
Batch ID: P356964

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

Reference Method: SM 2120 B
Batch ID: P356965

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

Reference Method: SM 2320 B-97
Batch ID: P357388

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P357389

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P357384

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.0		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P357521

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P357193

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P357193

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357124

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2052140	Ammonia-N	95.5	97.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357248

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2052153	Ammonia-N	102	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357016

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2052118	Kjeldahl Nitrogen	107	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357127

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2052255	Kjeldahl Nitrogen	106	112	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357005

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2052151	NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357453

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2052153	NO2NO3-N	96.0	94.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357024

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2052151	Total-P	102	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357025

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2052255	Total-P	97.8	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356968

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2052142	O-Phosphate-P	94.8	96.2	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356971

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2052276	O-Phosphate-P	92.7	94.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P357384

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2052147	Fluoride	96.2	97.5	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P357521

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2052977	Fluoride	98.1	99.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P357193

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2052118	Organic Carbon	98.5	95.6	P/P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P357193

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2052118	Organic Carbon	98.5	95.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2052140	Ammonia-N	1.74	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357248

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2052153	Ammonia-N	1.61	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357016

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2052118	Kjeldahl Nitrogen	1.23	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357127

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2052255	Kjeldahl Nitrogen	4.74	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357005

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2052151	NO2NO3-N	0.406	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357453

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2052153	NO2NO3-N	1.57	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357024

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2052151	Total-P	2.25	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357025

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2052255	Total-P	2.65	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356968

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2052142	O-Phosphate-P	1.31	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P356971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2052276	O-Phosphate-P	1.79	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P356964

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2052117	Color (true)	1.48	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P356965

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2052172	Color (true)	1.80	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P357388

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2052977	Total Alkalinity	0.539	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P357389

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2052880	Total Alkalinity	0.752	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P357384

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2052147	Fluoride	0.947	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
Batch ID: P357521

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2052977	Fluoride	0.968	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P357193

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2052118	Organic Carbon	1.73	Spike	P	0 - 20

Reference Method: SM 5310 B-00 dissolved
Batch ID: P357193

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2052118	Organic Carbon	1.73	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: A88703

Included Lab Sample IDs: 2052154, 2052155, 2052156

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.0	98.3	P/P	90 - 110
O-Phosphate-P	98.3	98.2	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A88704

Included Lab Sample IDs: 2052145, 2052146, 2052147

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88716

Included Lab Sample IDs: 2052151, 2052152

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88753

Included Lab Sample IDs: 2052152, 2052153

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88760

Included Lab Sample IDs: 2052151, 2052152

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88769

Included Lab Sample IDs: 2052151

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

Reference Method: SM 5310 B-00

Run ID: A88785

Included Lab Sample IDs: 2052151, 2052152, 2052153

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.5	95.3	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00 dissolved

Run ID: A88785

Included Lab Sample IDs: 2052148, 2052149, 2052150

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.7	96.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A88790

Included Lab Sample IDs: 2052151, 2052152

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88802

Included Lab Sample IDs: 2052153

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A88815

Included Lab Sample IDs: 2052153

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

Reference Method: SM 4500 F-C-97

Run ID: A88857

Included Lab Sample IDs: 2052147

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	99.1	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A88858

Included Lab Sample IDs: 2052145, 2052146, 2052147

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88879

Included Lab Sample IDs: 2052153

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	99.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A88903

Included Lab Sample IDs: 2052145, 2052146

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	99.1	P/P	90 - 110

Quality Assurance Report

Calibration Verification

* 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	SMP	MS
EPA 350.1 Rev. 2.0	Ammonia-N	97.8	95.5	97.4			1.74
	Ammonia-N	101	102	100			1.61
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	107	105			1.23
	Kjeldahl Nitrogen	101	106	112			4.74
EPA 353.2 Rev. 2.0	NO2NO3-N	100	101	101			0.406
	NO2NO3-N	99.0	96.0	94.5			1.57
EPA 365.1 Rev. 2.0	Total-P	98.5	102	105			2.25
	Total-P	102	97.8	100			2.65
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.4	94.8	96.2			1.31
	O-Phosphate-P	98.0	92.7	94.5			1.79
SM 2120 B	Color (true)	101				1.48	
	Color (true)	102				1.80	
SM 2320 B-97	Total Alkalinity	102				0.539	
	Total Alkalinity	101				0.752	
SM 4500 F-C-97	Fluoride	97.0	96.2	97.5			0.947
	Fluoride	94.9	98.1	99.2			0.968
SM 5310 B-00	Organic Carbon	96.6	98.5	95.6			1.73
SM 5310 B-00 dissolved	Organic Carbon	96.6	98.5	95.6			1.73

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2052151, 2052152, 2052153
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2052151, 2052152, 2052153
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2052151, 2052152, 2052153
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2052151, 2052152, 2052153
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2052154, 2052155, 2052156
SM 2120 B / E31780	True Color measured at 450 nm	2052145, 2052146, 2052147
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2052145, 2052146, 2052147
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2052145, 2052146, 2052147
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2052145, 2052146, 2052147
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2052151, 2052152, 2052153
SM 5310 B-00 dissolved / E31780	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	2052148, 2052149, 2052150

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	01/08/2019			01/10/2019 13:13	Ping Hua	2052151
	01/08/2019			01/10/2019 13:14	Ping Hua	2052152
	01/08/2019			01/14/2019 13:35	Ping Hua	2052153
EPA 351.2 Rev. 2.0	01/08/2019	01/09/2019 11:30	Adrian Shelby	01/10/2019 14:57	Joseph Suarez	2052151
	01/08/2019	01/09/2019 11:30	Adrian Shelby	01/10/2019 14:58	Joseph Suarez	2052152
	01/08/2019	01/11/2019 10:45	Adrian Shelby	01/15/2019 12:54	Joseph Suarez	2052153
EPA 353.2 Rev. 2.0	01/08/2019			01/09/2019 10:28	Beverly Y. Sanders	2052151
	01/08/2019			01/09/2019 10:34	Beverly Y. Sanders	2052152
	01/08/2019			01/17/2019 10:19	Beverly Y. Sanders	2052153
EPA 365.1 Rev. 2.0	01/08/2019	01/09/2019 12:35	Sima Feizi	01/10/2019 19:01	Beverly Y. Sanders	2052152
	01/08/2019	01/09/2019 12:35	Sima Feizi	01/10/2019 19:14	Beverly Y. Sanders	2052153
	01/08/2019	01/09/2019 12:35	Sima Feizi	01/11/2019 13:22	Rosalyn Ballman	2052151
EPA 365.1 Rev. 2.0 dissolved	01/08/2019			01/08/2019 15:54	Jhamieka S. Greenwood	2052156
	01/08/2019			01/08/2019 16:10	Jhamieka S. Greenwood	2052154
	01/08/2019			01/08/2019 16:11	Jhamieka S. Greenwood	2052155
SM 2120 B	01/08/2019			01/08/2019 15:47	Chelsea Hernandez	2052145
	01/08/2019			01/08/2019 15:51	Chelsea Hernandez	2052146, 2052147
SM 2320 B-97	01/08/2019			01/16/2019 07:36	Dale L. Simmons	2052145
	01/08/2019			01/16/2019 07:51	Dale L. Simmons	2052146
	01/08/2019			01/16/2019 13:50	Dale L. Simmons	2052147
SM 2540 D-97	01/08/2019			01/10/2019 14:35	Yijie Li	2052145, 2052146, 2052147
SM 4500 F-C-97	01/08/2019			01/16/2019 18:32	Dale L. Simmons	2052147
	01/08/2019			01/17/2019 22:07	Dale L. Simmons	2052145
	01/08/2019			01/17/2019 22:14	Dale L. Simmons	2052146
SM 5310 B-00	01/08/2019			01/12/2019 03:51	Megan Treadwell	2052151
	01/08/2019			01/12/2019 04:06	Megan Treadwell	2052152
	01/08/2019			01/12/2019 04:20	Megan Treadwell	2052153
SM 5310 B-00 dissolved	01/08/2019			01/12/2019 02:39	Megan Treadwell	2052148
	01/08/2019			01/12/2019 02:52	Megan Treadwell	2052149
	01/08/2019			01/12/2019 03:08	Megan Treadwell	2052150