

Chemical Analysis Report

SO-DIST-2019-12-03-01

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-2019-12-02-48**
Customer: **SO-DIST**
Project ID: **BMAP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
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Certified by: Colin Wright, Program Administrator

Date Certified: 23-DEC-2019 15:38

A handwritten signature in black ink, appearing to read "Colin Wright", is shown on a light-colored background.

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: Hancock Creek

Collection Date/Time: 12/02/2019 08:50

Field ID: G3SD0130

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2139948	SM 2120 B	Color (true)	69		PCU	P375436	
	SM 2320 B-97	Total Alkalinity	147		mg CaCO3/L	P375504	
	SM 2540 D-97	TSS	4	IA	mg/L	P375889	
	SM 4500 F-C-97	Fluoride	0.59		mg F/L	P375506	
2139951	SM 5310 B-00 dissolved	Organic Carbon	14		mg C/L	P375241	
2139954	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P375393	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P375216	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P375188	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P375334	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P375241	
2139957	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.033		mg P/L	P375149	

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: 12/02/2019 09:40

Field ID: G3SD0129

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2139949	SM 2120 B	Color (true)	100		PCU	P375436	
	SM 2320 B-97	Total Alkalinity	175		mg CaCO3/L	P375319	
	SM 2540 D-97	TSS	2	I	mg/L	P375887	
	SM 4500 F-C-97	Fluoride	0.31		mg F/L	P375322	
2139952	SM 5310 B-00 dissolved	Organic Carbon	18		mg C/L	P375239	
2139955	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P375393	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P375216	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.21		mg N/L	P375188	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P375334	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P375239	
2139958	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.083		mg P/L	P375149	

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: 12/02/2019 13:30

Field ID: G3SD0128

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2139950	SM 2120 B	Color (true)	52	A	PCU	P375436	
	SM 2320 B-97	Total Alkalinity	171		mg CaCO3/L	P375319	
	SM 2540 D-97	TSS	2	I	mg/L	P375887	
	SM 4500 F-C-97	Fluoride	0.26		mg F/L	P375322	
2139953	SM 5310 B-00 dissolved	Organic Carbon	12		mg C/L	P375239	
2139956	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P375393	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P375216	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.087		mg N/L	P375188	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P375447	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P375239	
2139959	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.032	Q	mg P/L	P375763	

Ref. Method and Comment:

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample was reanalyzed out of holding time because of analytical difficulties.

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375393

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375216

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P375188

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375334

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375447

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P375149

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P375763

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

Reference Method: SM 2120 B
Batch ID: P375436

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P375319

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P375504

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

Reference Method: SM 2540 D-97
Batch ID: P375887

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P375889

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P375322

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P375506

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P375239

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

Reference Method: SM 5310 B-00
Batch ID: P375241

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P375239

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P375241

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: P375393

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375216

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P375188

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375334

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375447

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: P375149

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P375763

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

Reference Method: SM 2120 B
Batch ID: P375436

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	101		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P375319

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P375504

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

Reference Method: SM 4500 F-C-97
Batch ID: P375322

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.2		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P375506

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.8		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P375239

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

Reference Method: SM 5310 B-00
Batch ID: P375241

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.0		P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P375239

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P375241

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375393

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139637	Ammonia-N	105	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375216

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139896	Kjeldahl Nitrogen	97.0	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P375188

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139954	NO2NO3-N	97.8	96.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375334

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139890	Total-P	100	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375447

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2140287	Total-P	102	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P375149

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139957	O-Phosphate-P	99.5	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P375763

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2143300	O-Phosphate-P	92.8	92.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P375322

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2140216	Fluoride	98.0	98.0	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P375506

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2140938	Fluoride	91.5	93.5	P/P	89 - 106

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P375239

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139990	Organic Carbon	99.0	97.4	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P375241

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139954	Organic Carbon	90.3	95.2	P/P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P375239

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139990	Organic Carbon	99.0	97.4	P/P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P375241

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139954	Organic Carbon	90.3	95.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375393

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139637	Ammonia-N	0.373	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375216

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139896	Kjeldahl Nitrogen	2.76	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P375188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139954	NO2NO3-N	1.03	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375334

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139890	Total-P	2.98	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375447

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2140287	Total-P	2.96	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P375149

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139957	O-Phosphate-P	0.303	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P375763

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2143300	O-Phosphate-P	0.0935	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P375436

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139950	Color (true)	0.468	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P375319

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2140216	Total Alkalinity	0.0597	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P375504

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2140938	Total Alkalinity	0.0943	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-97
Batch ID: P375322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2140216	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
Batch ID: P375506

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2140938	Fluoride	1.42	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P375239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139990	Organic Carbon	0.963	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P375241

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139954	Organic Carbon	3.84	Spike	P	0 - 20

Reference Method: SM 5310 B-00 dissolved
Batch ID: P375239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139990	Organic Carbon	0.963	Spike	P	0 - 20

Reference Method: SM 5310 B-00 dissolved
Batch ID: P375241

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139954	Organic Carbon	3.84	Spike	P	0 - 20

Quality Assurance Report Precision

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A96079

Included Lab Sample IDs: 2139957, 2139958

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	92.4	92.8	P/P	90 - 110
O-Phosphate-P	92.8	92.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A96096

Included Lab Sample IDs: 2139954, 2139955, 2139956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	102	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A96117

Included Lab Sample IDs: 2139954, 2139955, 2139956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	102	P/P	90 - 110
Organic Carbon	97.8	97.4	P/P	90 - 110

Reference Method: SM 5310 B-00 dissolved

Run ID: A96117

Included Lab Sample IDs: 2139951, 2139952, 2139953

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	102	P/P	90 - 110
Organic Carbon	97.8	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A96140

Included Lab Sample IDs: 2139954, 2139955, 2139956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	96.2	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A96148

Included Lab Sample IDs: 2139949, 2139950

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

Reference Method: SM 4500 F-C-97

Run ID: A96148

Included Lab Sample IDs: 2139949, 2139950

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A96177

Included Lab Sample IDs: 2139954, 2139955, 2139956

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

Reference Method: SM 2120 B

Run ID: A96192

Included Lab Sample IDs: 2139948, 2139949, 2139950

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A96193

Included Lab Sample IDs: 2139954, 2139955

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	101	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A96216

Included Lab Sample IDs: 2139948

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

Reference Method: SM 4500 F-C-97

Run ID: A96216

Included Lab Sample IDs: 2139948

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.1	98.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A96233

Included Lab Sample IDs: 2139956

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A96310

Included Lab Sample IDs: 2139959

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	95.2	94.6	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	96.4	105	105			0.373
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.8	97.0	100			2.76
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	97.8	96.8			1.03
EPA 365.1 Rev. 2.0	Total-P	99.2	100	96.5			2.98
	Total-P	101	102	105			2.96
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	105	99.5	99.1			0.303
	O-Phosphate-P	98.3	92.8	92.9			0.0935
SM 2120 B	Color (true)	101				0.468	
SM 2320 B-97	Total Alkalinity	103				0.0597	
	Total Alkalinity	103				0.0943	
SM 4500 F-C-97	Fluoride	97.2	98.0	98.0			0.0
	Fluoride	95.8	91.5	93.5			1.42
SM 5310 B-00	Organic Carbon	98.5	99.0	97.4			0.963
	Organic Carbon	97.0	90.3	95.2			3.84
SM 5310 B-00 dissolved	Organic Carbon	98.5	99.0	97.4			0.963
	Organic Carbon	97.0	90.3	95.2			3.84

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2139954, 2139955, 2139956
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2139954, 2139955, 2139956
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2139954, 2139955, 2139956
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2139954, 2139955, 2139956
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2139957, 2139958, 2139959
SM 2120 B / E31780	True Color measured at 450 nm	2139948, 2139949, 2139950
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2139948, 2139949, 2139950
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2139948, 2139949, 2139950
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2139948, 2139949, 2139950
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2139954, 2139955, 2139956
SM 5310 B-00 dissolved / E31780	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	2139951, 2139952, 2139953

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	12/03/2019			12/04/2019 13:36	Ping Hua	2139954
	12/03/2019			12/04/2019 13:37	Ping Hua	2139955
	12/03/2019			12/04/2019 13:39	Ping Hua	2139956
EPA 351.2 Rev. 2.0	12/03/2019	12/04/2019 12:22	Sima Feizi	12/05/2019 18:06	Jhamieka S. Greenwood	2139954
	12/03/2019	12/04/2019 12:22	Sima Feizi	12/05/2019 18:08	Jhamieka S. Greenwood	2139955
	12/03/2019	12/04/2019 12:22	Sima Feizi	12/05/2019 18:09	Jhamieka S. Greenwood	2139956
EPA 353.2 Rev. 2.0	12/03/2019			12/04/2019 10:11	Beverly Y. Sanders	2139954
	12/03/2019			12/04/2019 10:16	Beverly Y. Sanders	2139955
	12/03/2019			12/04/2019 10:18	Beverly Y. Sanders	2139956
EPA 365.1 Rev. 2.0	12/03/2019	12/06/2019 14:10	Lipi Saha	12/09/2019 13:02	Benjamin T. Nordmann	2139954
	12/03/2019	12/06/2019 14:10	Lipi Saha	12/09/2019 13:03	Benjamin T. Nordmann	2139955
	12/03/2019	12/09/2019 15:16	Yen Ta	12/10/2019 15:32	Benjamin T. Nordmann	2139956
EPA 365.1 Rev. 2.0 dissolved	12/03/2019			12/03/2019 16:41	Julia Storbeck	2139957
	12/03/2019			12/03/2019 16:54	Julia Storbeck	2139958
	12/03/2019			12/12/2019 17:25	Samantha Davila	2139959
SM 2120 B	12/03/2019			12/03/2019 17:57	Madeline Funaro	2139948, 2139949
	12/03/2019			12/03/2019 17:59	Madeline Funaro	2139950
SM 2320 B-97	12/03/2019			12/06/2019 09:39	Dale L. Simmons	2139950
	12/03/2019			12/06/2019 09:52	Dale L. Simmons	2139949
	12/03/2019			12/10/2019 00:00	Dale L. Simmons	2139948
SM 2540 D-97	12/03/2019			12/05/2019 15:36	Yijie Li	2139948, 2139949, 2139950
SM 4500 F-C-97	12/03/2019			12/06/2019 09:39	Dale L. Simmons	2139950
	12/03/2019			12/06/2019 09:52	Dale L. Simmons	2139949
	12/03/2019			12/09/2019 23:04	Dale L. Simmons	2139948
SM 5310 B-00	12/03/2019			12/04/2019 19:42	Madeline Funaro	2139955
	12/03/2019			12/04/2019 19:57	Madeline Funaro	2139956
	12/03/2019			12/05/2019 05:56	Madeline Funaro	2139954
SM 5310 B-00 dissolved	12/03/2019			12/04/2019 19:14	Madeline Funaro	2139952
	12/03/2019			12/04/2019 19:28	Madeline Funaro	2139953
	12/03/2019			12/05/2019 06:47	Madeline Funaro	2139951