

Chemical Analysis Report

SO-DIST-2019-10-09-01

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

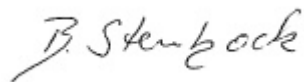
Event Description: **Caloosa Creeks**
Request ID: **RQ-2019-10-07-05**
Customer: **SO-DIST**
Project ID: **BMAP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Gary Snorek

For additional information please contact
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Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator

Date Certified: 31-OCT-2019 19:02



NON-CONFORMANCE REPORT INCLUDED

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: Orange River

Collection Date/Time: 10/07/2019 13:10

Field ID: G3SD0128

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2126332	SM 2120 B	Color (true)	48	AY	PCU	P372327	
	SM 2320 B-97	Total Alkalinity	209	Y	mg CaCO3/L	P372638	
	SM 2540 D-97	TSS	2	IY	mg/L	P372828	
	SM 4500 F-C-97	Fluoride	0.21		mg F/L	P372641	
2126335	SM 5310 B-00 dissolved	Organic Carbon	11	Y	mg C/L	P372322	
2126338	EPA 350.1 Rev. 2.0	Ammonia-N	0.034	Y	mg N/L	P372559	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66	Y	mg N/L	P372283	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.075	Y	mg N/L	P372723	
	EPA 365.1 Rev. 2.0	Total-P	0.038	Y	mg P/L	P372400	
	SM 5310 B-00	Organic Carbon	12	Y	mg C/L	P372322	
2126341	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.023	Y	mg P/L	P372189	

Ref. Method and Comment:

SM 2120 B: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2320 B-97: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample temperature was outside the acceptable range when received at the laboratory.

SM 5310 B-00 dissolved: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 350.1 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 351.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 353.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 365.1 Rev. 2.0: Total-P: Sample temperature was outside the acceptable range when received at the laboratory.

SM 5310 B-00: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 365.1 Rev. 2.0 dissolved: Sample temperature was outside the acceptable range when received at the laboratory.

Sample Location: Telegraph Creek

Collection Date/Time: 10/07/2019 13:55

Field ID: G3SD0129

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2126333	SM 2120 B	Color (true)	150	Y	PCU	P372327	
	SM 2320 B-97	Total Alkalinity	166	Y	mg CaCO3/L	P372638	
	SM 2540 D-97	TSS	3	IY	mg/L	P372828	
	SM 4500 F-C-97	Fluoride	0.21		mg F/L	P372641	
2126336	SM 5310 B-00 dissolved	Organic Carbon	22	Y	mg C/L	P372322	
2126339	EPA 350.1 Rev. 2.0	Ammonia-N	0.081	Y	mg N/L	P372559	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0	Y	mg N/L	P372283	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13	Y	mg N/L	P372723	
	EPA 365.1 Rev. 2.0	Total-P	0.074	Y	mg P/L	P372400	
	SM 5310 B-00	Organic Carbon	22	Y	mg C/L	P372322	
2126342	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.049	Y	mg P/L	P372189	

Ref. Method and Comment:

SM 2120 B: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2320 B-97: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample temperature was outside the acceptable range when received at the laboratory.

SM 5310 B-00 dissolved: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 350.1 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 351.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 353.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 365.1 Rev. 2.0: Total-P: Sample temperature was outside the acceptable range when received at the laboratory.

SM 5310 B-00: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 365.1 Rev. 2.0 dissolved: Sample temperature was outside the acceptable range when received at the laboratory.

Sample Location: Hancock Creek

Collection Date/Time: 10/07/2019 15:05

Field ID: G3SD0130

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2126334	SM 2120 B	Color (true)	85	Y	PCU	P372327	
	SM 2320 B-97	Total Alkalinity	171	Y	mg CaCO3/L	P372638	
	SM 2540 D-97	TSS	2	IY	mg/L	P372828	
	SM 4500 F-C-97	Fluoride	0.48		mg F/L	P372895	
2126337	SM 5310 B-00 dissolved	Organic Carbon	16	Y	mg C/L	P372322	
2126340	EPA 350.1 Rev. 2.0	Ammonia-N	0.016	Y	mg N/L	P372453	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84	Y	mg N/L	P372284	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.005	IY	mg N/L	P372728	
	EPA 365.1 Rev. 2.0	Total-P	0.16	Y	mg P/L	P372345	
	SM 5310 B-00	Organic Carbon	15	Y	mg C/L	P372322	
2126343	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12	Y	mg P/L	P372190	

Ref. Method and Comment:

SM 2120 B: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2320 B-97: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample temperature was outside the acceptable range when received at the laboratory.

SM 5310 B-00 dissolved: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 350.1 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 351.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 353.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 365.1 Rev. 2.0: Total-P: Sample temperature was outside the acceptable range when received at the laboratory.

SM 5310 B-00: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 365.1 Rev. 2.0 dissolved: Sample temperature was outside the acceptable range when received at the laboratory.

Non-Conformance Report

NCR ID: 7950

Event(s)

SO-DIST-2019-10-09-01

Job(s)

Sample(s)

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Samples arrived late

Observation: Samples arrived one or more days late by FedEx, samples received outside the acceptable temperature range.

Resolution: Customer contacted, email correspondence attached to sample submittal forms.
Samples will be qualified as appropriate.

Authorized by/Date: Joshua Ayres 10/10/2019

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372453

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372559

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P372283

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P372284

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372723

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372728

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372345

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372400

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372189

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: P372190

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

Reference Method: SM 2120 B
Batch ID: P372327

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P372638

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

Reference Method: SM 2540 D-97
Batch ID: P372828

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P372641

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P372895

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P372322

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

Reference Method: SM 5310 B-00 dissolved
Batch ID: P372322

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: P372453

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372559

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: P372283

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P372284

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372723

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372728

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372345

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372400

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372189

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.4		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372190

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

Reference Method: SM 2120 B
Batch ID: P372327

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.2		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P372638

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

Reference Method: SM 4500 F-C-97
Batch ID: P372641

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P372895

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.8		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P372322

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.8		P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P372322

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372453

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2126374	Ammonia-N	97.3	98.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372559

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2126649	Ammonia-N	99.7	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P372283

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2126018	Kjeldahl Nitrogen	96.8	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P372284

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2126281	Kjeldahl Nitrogen	105	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372723

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2126338	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372728

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2127325	NO2NO3-N	99.4	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372345

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2126281	Total-P	100	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372400

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2126338	Total-P	97.6	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372189

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2126341	O-Phosphate-P	95.9	96.3	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372190

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2126229	O-Phosphate-P	97.2	97.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P372641

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2126934	Fluoride	96.3	95.7	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P372895

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2126334	Fluoride	95.9	95.9	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P372322

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2126271	Organic Carbon	97.8	107	P/P	85 - 115

Reference Method: SM 5310 B-00 dissolved
Batch ID: P372322

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2126271	Organic Carbon	97.8	107	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372453

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2126374	Ammonia-N	0.593	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P372559

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2126649	Ammonia-N	0.183	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P372283

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2126018	Kjeldahl Nitrogen	3.60	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P372284

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2126281	Kjeldahl Nitrogen	0.121	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372723

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2126338	NO2NO3-N	0.718	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P372728

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2127325	NO2NO3-N	0.730	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372345

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2126281	Total-P	0.919	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P372400

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2126338	Total-P	0.806	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372189

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2126341	O-Phosphate-P	0.335	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P372190

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2126229	O-Phosphate-P	0.642	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P372327

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2126332	Color (true)	0.356	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P372638

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2126934	Total Alkalinity	0.590	Sample	P	0 - 2.8

Reference Method: SM 4500 F-C-97
Batch ID: P372641

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2126934	Fluoride	0.480	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
Batch ID: P372895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2126334	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P372322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2126271	Organic Carbon	5.61	Spike	P	0 - 20

Reference Method: SM 5310 B-00 dissolved
Batch ID: P372322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2126271	Organic Carbon	5.61	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: A94828

Included Lab Sample IDs: 2126341, 2126342, 2126343

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.1	P/P	90 - 110
O-Phosphate-P	98.8	95.7	P/P	90 - 110
O-Phosphate-P	99.1	98.8	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A94882

Included Lab Sample IDs: 2126338, 2126339, 2126340

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	96.0	P/P	90 - 110

Reference Method: SM 5310 B-00 dissolved

Run ID: A94882

Included Lab Sample IDs: 2126335, 2126336, 2126337

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	96.0	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A94887

Included Lab Sample IDs: 2126332, 2126333, 2126334

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.5	100	P/P	90 - 115

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A94903

Included Lab Sample IDs: 2126338, 2126339, 2126340

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.2	98.9	P/P	90 - 110
Kjeldahl Nitrogen	98.9	96.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A94935

Included Lab Sample IDs: 2126340

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A94964

Included Lab Sample IDs: 2126340

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A94989

Included Lab Sample IDs: 2126338, 2126339

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A94995

Included Lab Sample IDs: 2126338, 2126339

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A95002

Included Lab Sample IDs: 2126338, 2126339

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

Reference Method: SM 2320 B-97

Run ID: A95021

Included Lab Sample IDs: 2126332, 2126333, 2126334

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

Reference Method: SM 4500 F-C-97

Run ID: A95021

Included Lab Sample IDs: 2126332, 2126333

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A95031

Included Lab Sample IDs: 2126340

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

Reference Method: SM 4500 F-C-97

Run ID: A95133

Included Lab Sample IDs: 2126334

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	102	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	SMP	MS
EPA 350.1 Rev. 2.0	Ammonia-N	101	97.3	98.1			0.593
	Ammonia-N	101	99.7	99.4			0.183
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	96.8	101			3.60
	Kjeldahl Nitrogen	100	105	105			0.121
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	101			0.718
	NO2NO3-N	99.5	99.4	100			0.730
EPA 365.1 Rev. 2.0	Total-P	98.2	100	99.5			0.919
	Total-P	96.9	97.6	98.4			0.806
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.4	95.9	96.3			0.335
	O-Phosphate-P	104	97.2	97.9			0.642
SM 2120 B	Color (true)	98.2				0.356	
SM 2320 B-97	Total Alkalinity	104				0.590	
SM 4500 F-C-97	Fluoride	96.5	96.3	95.7			0.480
	Fluoride	96.8	95.9	95.9			0.0
SM 5310 B-00	Organic Carbon	99.8	97.8	107			5.61
SM 5310 B-00 dissolved	Organic Carbon	99.8	97.8	107			5.61

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2126338, 2126339, 2126340
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2126338, 2126339, 2126340
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2126338, 2126339, 2126340
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2126338, 2126339, 2126340
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2126341, 2126342, 2126343
SM 2120 B / E31780	True Color measured at 450 nm	2126332, 2126333, 2126334
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2126332, 2126333, 2126334
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2126332, 2126333, 2126334
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2126332, 2126333, 2126334
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2126338, 2126339, 2126340
SM 5310 B-00 dissolved / E31780	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	2126335, 2126336, 2126337

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	10/09/2019			10/11/2019 14:17	Ping Hua	2126340
	10/09/2019			10/15/2019 13:09	Ping Hua	2126338
	10/09/2019			10/15/2019 13:10	Ping Hua	2126339
EPA 351.2 Rev. 2.0	10/09/2019	10/10/2019 12:57	Sima Feizi	10/11/2019 15:14	Jhamieka S. Greenwood	2126338
	10/09/2019	10/10/2019 12:57	Sima Feizi	10/11/2019 15:15	Jhamieka S. Greenwood	2126339
	10/09/2019	10/10/2019 12:57	Sima Feizi	10/11/2019 15:34	Jhamieka S. Greenwood	2126340
EPA 353.2 Rev. 2.0	10/09/2019			10/16/2019 10:10	Beverly Y. Sanders	2126338
	10/09/2019			10/16/2019 10:19	Beverly Y. Sanders	2126339
	10/09/2019			10/17/2019 10:40	Beverly Y. Sanders	2126340
EPA 365.1 Rev. 2.0	10/09/2019	10/10/2019 14:40	Lipi Saha	10/14/2019 14:54	Rosalyn Ballman	2126340
	10/09/2019	10/14/2019 14:50	Lipi Saha	10/15/2019 15:57	Rosalyn Ballman	2126338
	10/09/2019	10/14/2019 14:50	Lipi Saha	10/15/2019 15:58	Rosalyn Ballman	2126339
EPA 365.1 Rev. 2.0 dissolved	10/09/2019			10/09/2019 12:28	Julia Storbeck	2126341
	10/09/2019			10/09/2019 12:39	Julia Storbeck	2126342
	10/09/2019			10/09/2019 12:59	Julia Storbeck	2126343
SM 2120 B	10/09/2019			10/09/2019 12:58	Madeline Funaro	2126332
	10/09/2019			10/09/2019 12:59	Madeline Funaro	2126333
	10/09/2019			10/09/2019 13:03	Madeline Funaro	2126334
SM 2320 B-97	10/09/2019			10/15/2019 04:03	Dale L. Simmons	2126334
	10/09/2019			10/15/2019 04:44	Dale L. Simmons	2126333
	10/09/2019			10/15/2019 05:12	Dale L. Simmons	2126332
SM 2540 D-97	10/09/2019			10/11/2019 12:48	Yijie Li	2126332, 2126333, 2126334
SM 4500 F-C-97	10/09/2019			10/15/2019 04:44	Dale L. Simmons	2126333
	10/09/2019			10/15/2019 05:12	Dale L. Simmons	2126332
	10/09/2019			10/22/2019 00:36	Dale L. Simmons	2126334
SM 5310 B-00	10/09/2019			10/10/2019 19:13	Madeline Funaro	2126338
	10/09/2019			10/10/2019 19:25	Madeline Funaro	2126339
	10/09/2019			10/10/2019 19:37	Madeline Funaro	2126340
SM 5310 B-00 dissolved	10/09/2019			10/10/2019 18:32	Madeline Funaro	2126335
	10/09/2019			10/10/2019 18:46	Madeline Funaro	2126336
	10/09/2019			10/10/2019 19:01	Madeline Funaro	2126337