

Chemical Analysis Report

CEN-DIST-2020-03-20-01

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

Event Description: **Bird / Addison X2 / SJR at Puzzle**
Request ID: **RQ-2020-03-16-27**
Customer: **CEN-DIST**
Project ID: **SMP**

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 15-APR-2020 12:22

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line extending from the top of the "T".

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: Bird Lake Ditches @ 75m east of FL 407

Collection Date/Time: 03/19/2020 11:05

Field ID: G3CE0014

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2167185	EPA 180.1 Rev. 2.0	Turbidity	3.8	A	NTU	P381158	
	EPA 300.0 Rev. 2.1	Chloride	76		mg Cl/L	P381909	
		Sulfate	36		mg SO4/L	P381910	
	SM 2120 B-2011	Color (true)	23	A	PCU	P381033	
	SM 2320 B-2011	Total Alkalinity	288		mg CaCO3/L	P381413	
	SM 2540 C-2011	TDS	467		mg/L	P381579	
	SM 2540 D-2011	TSS	4	I	mg/L	P381582	
	SM 4500 F-C-2011	Fluoride	0.046	I	mg F/L	P381456	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.12		mg N/L	P381432	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.60		mg N/L	P381369	
2167186	EPA 353.2 Rev. 2.0	NO2NO3-N	0.058		mg N/L	P381547	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P381365	
	SM 5310 B-2011	Organic Carbon	7.4		mg C/L	P381174	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.059		mg P/L	P381151	
	dissolved						

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Addison Creek @ Enchanted Forest Nature Preserve

Collection Date/Time: 03/19/2020 11:50

Field ID: G5CE0112

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2167182	EPA 180.1 Rev. 2.0	Turbidity	17		NTU	P381157	
	EPA 300.0 Rev. 2.1	Bromide	1.1		mg Br/L	P381517	
	SM 2320 B-2011	Total Alkalinity	128		mg CaCO3/L	P381413	
	SM 2540 D-2011	TSS	5	I	mg/L	P381583	
	SM 4500 F-C-2011	Fluoride	0.063	I	mg F/L	P381456	
2167183	EPA 350.1 Rev. 2.0	Ammonia-N	0.23		mg N/L	P381439	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P381369	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.25		mg N/L	P381547	
	EPA 365.1 Rev. 2.0	Total-P	0.12		mg P/L	P381364	
	SM 5310 B-2011	Organic Carbon	14		mg C/L	P381174	
2167184	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.046		mg P/L	P381151	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P381157

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P381158

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381517

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381909

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381910

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381432

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381439

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381369

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381547

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381364

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381365

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P381151

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

Reference Method: SM 2120 B-2011
Batch ID: P381033

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P381413

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

Reference Method: SM 2540 C-2011
Batch ID: P381579

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P381582

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P381583

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P381456

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-2011
Batch ID: P381174

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381517

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381909

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381910

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381432

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381439

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: P381369

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381547

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: P381364

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	108		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381365

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P381151

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	93.8		P	90 - 110

Reference Method: SM 2120 B-2011
Batch ID: P381033

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

Reference Method: SM 2320 B-2011
Batch ID: P381413

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 107

Reference Method: SM 4500 F-C-2011
Batch ID: P381456

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.9		P	92 - 104

Reference Method: SM 5310 B-2011
Batch ID: P381174

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381517

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167411	Bromide	99.0	98.8	P/P	90 - 110
2167589	Bromide	98.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381909

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167748	Chloride	99.1		P	90 - 110
2168022	Chloride	96.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381910

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167748	Sulfate	98.8		P	90 - 110
2168022	Sulfate	95.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381432

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167353	Ammonia-N	97.1	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381439

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167783	Ammonia-N	99.6	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381369

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167159	Kjeldahl Nitrogen	101	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381547

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167155	NO2NO3-N	96.9	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381364

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167126	Total-P	108	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381365

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167186	Total-P	107	109	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P381151

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167184	O-Phosphate-P	90.9	90.2	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P381456

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2166472	Fluoride	98.9	99.5	P/P	91 - 105

Reference Method: SM 5310 B-2011
Batch ID: P381174

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2167159	Organic Carbon	99.8	101	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P381157

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167154	Turbidity	2.99	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P381158

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167185	Turbidity	4.76	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381517

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167411	Bromide	0.124	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381909

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167748	Chloride	0.0160	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P381910

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167748	Sulfate	0.385	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381432

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167353	Ammonia-N	2.73	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P381439

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167783	Ammonia-N	0.0689	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P381369

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167159	Kjeldahl Nitrogen	1.79	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P381547

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167155	NO2NO3-N	1.07	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381364

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167126	Total-P	2.41	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P381365

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167186	Total-P	0.891	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P381151

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167184	O-Phosphate-P	0.511	Spike	P	0 - 20

Reference Method: SM 2120 B-2011
Batch ID: P381033

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167185	Color (true)	13.5	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P381413

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166937	Total Alkalinity	0.0452	Sample	P	0 - 3.3

Reference Method: SM 2540 C-2011
Batch ID: P381579

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167154	TDS	6.17	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P381456

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2166472	Fluoride	0.533	Spike	P	0 - 2.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P381174

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2167159	Organic Carbon	0.516	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B-2011

Run ID: A98335

Included Lab Sample IDs: 2167185

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	103	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A98383

Included Lab Sample IDs: 2167184, 2167187

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.1	95.0	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A98384

Included Lab Sample IDs: 2167182, 2167185

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	98.0	P/P	95 - 105

Reference Method: SM 5310 B-2011

Run ID: A98395

Included Lab Sample IDs: 2167183, 2167186

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	97.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A98406

Included Lab Sample IDs: 2167182

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	99.1	98.8	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A98490

Included Lab Sample IDs: 2167182, 2167185

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A98491

Included Lab Sample IDs: 2167186

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A98492

Included Lab Sample IDs: 2167183

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-2011

Run ID: A98495

Included Lab Sample IDs: 2167182, 2167185

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.1	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A98506

Included Lab Sample IDs: 2167183, 2167186

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	96.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A98517

Included Lab Sample IDs: 2167183, 2167186

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A98597

Included Lab Sample IDs: 2167186

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A98618

Included Lab Sample IDs: 2167183

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A98686

Included Lab Sample IDs: 2167185

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.5	P/P	90 - 110
Sulfate	101	101	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 SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					2.99	
	Turbidity					4.76	
EPA 300.0 Rev. 2.1	Bromide	96.4	99.0	98.8	98.6		0.124
	Chloride	99.1	99.1	96.6		0.0160	
	Sulfate	99.7	98.8	95.0		0.385	
EPA 350.1 Rev. 2.0	Ammonia-N	99.7	97.1	100			2.73
	Ammonia-N	100	99.6	99.5			0.0689
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	101	103			1.79
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5	96.9	98.4			1.07
EPA 365.1 Rev. 2.0	Total-P	108	108	106			2.41
	Total-P	107	107	109			0.891
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	93.8	90.9	90.2			0.511
SM 2120 B-2011	Color (true)	102				13.5	
SM 2320 B-2011	Total Alkalinity	104				0.0452	
SM 2540 C-2011	TDS					6.17	
SM 4500 F-C-2011	Fluoride	95.9	98.9	99.5			0.533
SM 5310 B-2011	Organic Carbon	99.4	99.8	101			0.516

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2167182, 2167185
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2167182
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2167185
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2167185
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2167183, 2167186
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2167183, 2167186
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2167183, 2167186
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2167183, 2167186
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2167184, 2167187
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2167185
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2167182, 2167185
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2167185
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2167182, 2167185
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2167182, 2167185
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2167183, 2167186

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	03/20/2020			03/20/2020 16:05	Blanca Fach	2167182, 2167185
EPA 300.0 Rev. 2.1	03/20/2020			03/27/2020 19:21	Elliott Rodriguez	2167182
	03/20/2020			04/07/2020 01:30	Julia Storbeck	2167185
EPA 350.1 Rev. 2.0	03/20/2020			03/28/2020 16:08	Ping Hua	2167186
	03/20/2020			03/29/2020 10:30	Ping Hua	2167183
EPA 351.2 Rev. 2.0	03/20/2020	03/27/2020 09:45	Sima Feizi	03/30/2020 08:09	Jhamieka S. Greenwood	2167183
	03/20/2020	03/27/2020 09:45	Sima Feizi	03/30/2020 08:11	Jhamieka S. Greenwood	2167186
EPA 353.2 Rev. 2.0	03/20/2020			03/30/2020 17:45	Lauren Lees	2167183
	03/20/2020			03/30/2020 17:46	Lauren Lees	2167186
EPA 365.1 Rev. 2.0	03/20/2020	03/26/2020 17:15	Yen Ta	04/01/2020 15:26	Benjamin T. Nordmann	2167186
	03/20/2020	03/26/2020 17:15	Yen Ta	04/02/2020 21:07	Benjamin T. Nordmann	2167183
EPA 365.1 Rev. 2.0 dissolved	03/20/2020			03/20/2020 20:28	Carlos Miranda	2167184
	03/20/2020			03/20/2020 20:33	Carlos Miranda	2167187
SM 2120 B-2011	03/20/2020			03/20/2020 14:34	Madeline Gruver	2167185
SM 2320 B-2011	03/20/2020			03/27/2020 13:27	Dale L. Simmons	2167182
	03/20/2020			03/27/2020 13:39	Dale L. Simmons	2167185
SM 2540 C-2011	03/20/2020			03/25/2020 15:08	Yijie Li	2167185
SM 2540 D-2011	03/20/2020			03/25/2020 15:32	Yijie Li	2167182, 2167185
SM 4500 F-C-2011	03/20/2020			03/28/2020 02:48	Dale L. Simmons	2167185
	03/20/2020			03/28/2020 02:53	Dale L. Simmons	2167182
SM 5310 B-2011	03/20/2020			03/24/2020 03:55	Lauren Lees	2167183
	03/20/2020			03/24/2020 04:08	Lauren Lees	2167186