

Chemical Analysis Report

CEN-DIST-2019-05-01-01

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

Event Description: **Whip / Coon / Center**
Request ID: **RQ-2019-04-22-41**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Colin Wright, Program Administrator

Date Certified: 16-MAY-2019 17:06

A handwritten signature in black ink, appearing to read "Colin Wright", is shown on a light-colored rectangular 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: Lake Whippoorwill @ Center

Collection Date/Time: 04/30/2019 10:04

Field ID: G4CE0161

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2082115	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P363182	
	EPA 300.0 Rev. 2.1	Chloride	30		mg Cl/L	P363438	
		Sulfate	22		mg SO4/L	P363440	
	SM 2120 B	Color (true)	41	A	PCU	P363214	
	SM 2320 B-97	Total Alkalinity	18		mg CaCO3/L	P363755	
	SM 2540 C-97	TDS	121		mg/L	P363820	
	SM 2540 D-97	TSS	2	I	mg/L	P363831	
	SM 4500 F-C-97	Fluoride	0.060	I	mg F/L	P363959	
2082118	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P363382	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P363401	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P363308	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P363277	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P363352	
2082121	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P363193	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Coon Lake @ Center

Collection Date/Time: 04/30/2019 11:03

Field ID: G4CE0162

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2082116	EPA 180.1 Rev. 2.0	Turbidity	6.0	A	NTU	P363182	
	EPA 300.0 Rev. 2.1	Chloride	25		mg Cl/L	P363438	
		Sulfate	10		mg SO4/L	P363440	
	SM 2120 B	Color (true)	360		PCU	P363213	
	SM 2320 B-97	Total Alkalinity	3.0		mg CaCO3/L	P363755	
	SM 2540 C-97	TDS	125		mg/L	P363820	
	SM 2540 D-97	TSS	3	I	mg/L	P363831	
	SM 4500 F-C-97	Fluoride	0.048	I	mg F/L	P363959	
2082119	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P363627	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P363401	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.026		mg N/L	P363308	
	EPA 365.1 Rev. 2.0	Total-P	0.049		mg P/L	P363277	
	SM 5310 B-00	Organic Carbon	26		mg C/L	P363352	
2082122	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P363193	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
 SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Lake Center @ Center

Collection Date/Time: 04/30/2019 11:20

Field ID: G4CE0163

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2082117	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P363182	
	EPA 300.0 Rev. 2.1	Chloride	26		mg Cl/L	P363438	
		Sulfate	7.6		mg SO4/L	P363440	
	SM 2120 B	Color (true)	220		PCU	P363213	
	SM 2320 B-97	Total Alkalinity	4.5		mg CaCO3/L	P363755	
	SM 2540 C-97	TDS	109		mg/L	P363820	
	SM 2540 D-97	TSS	2	I	mg/L	P363831	
	SM 4500 F-C-97	Fluoride	0.045	I	mg F/L	P363959	
2082120	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P363627	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P363401	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P363308	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P363277	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P363352	
2082123	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P363195	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P363182

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363438

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363440

Component	Result	Code	Units
Sulfate	0.20	U	mg SO ₄ /L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363382

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363627

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363401

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363308

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363277

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P363193

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: P363195

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

Reference Method: SM 2120 B
Batch ID: P363213

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P363214

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P363755

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

Reference Method: SM 2540 C-97
Batch ID: P363820

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P363831

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P363959

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P363352

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: P363438

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

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P363440

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P363382

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

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P363627

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: P363401

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	109		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P363308

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P363277

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P363193

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P363195

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P363213

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

Reference Method: SM 2120 B
Batch ID: P363214

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

Reference Method: SM 2320 B-97
Batch ID: P363755

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

Reference Method: SM 4500 F-C-97
Batch ID: P363959

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P363352

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363438

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082046	Chloride	96.6		P	90 - 110
2082117	Chloride	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363440

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082046	Sulfate	97.8		P	90 - 110
2082117	Sulfate	99.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363382

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082105	Ammonia-N	104	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363627

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081828	Ammonia-N	102	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363401

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082105	Kjeldahl Nitrogen	101	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363308

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082105	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363277

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082118	Total-P	103	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P363193

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082121	O-Phosphate-P	94.8	95.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P363195

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082123	O-Phosphate-P	97.8	98.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P363352

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2082003	Organic Carbon	95.6	97.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P363182

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082116	Turbidity	0.334	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363438

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082046	Chloride	0.375	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P363440

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082046	Sulfate	0.537	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363382

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082105	Ammonia-N	1.46	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P363627

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081828	Ammonia-N	1.05	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363401

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082105	Kjeldahl Nitrogen	0.185	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P363308

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082105	NO2NO3-N	0.440	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P363277

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082118	Total-P	2.55	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P363193

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082121	O-Phosphate-P	1.15	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P363195

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082123	O-Phosphate-P	0.713	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P363213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082104	Color (true)	1.23	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P363214

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082115	Color (true)	0.668	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P363755

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081845	Total Alkalinity	0.904	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P363820

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082104	TDS	2.60	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P363959

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081845	Fluoride	0.979	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P363352

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2082003	Organic Carbon	0.923	Spike	P	0 - 20

Quality Assurance Report

Precision

* 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 180.1 Rev. 2.0

Run ID: A91137

Included Lab Sample IDs: 2082115, 2082116, 2082117

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A91138

Included Lab Sample IDs: 2082121, 2082122, 2082123

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.4	98.5	P/P	90 - 110
O-Phosphate-P	98.6	96.4	P/P	90 - 110
O-Phosphate-P	99.9	98.6	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A91150

Included Lab Sample IDs: 2082115, 2082116, 2082117

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115
Color (true)	102	102	P/P	85 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91184

Included Lab Sample IDs: 2082118, 2082119, 2082120

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

Reference Method: SM 5310 B-00

Run ID: A91203

Included Lab Sample IDs: 2082118, 2082119, 2082120

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.7	99.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91210

Included Lab Sample IDs: 2082118

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A91228

Included Lab Sample IDs: 2082115, 2082116, 2082117

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.1	99.4	P/P	90 - 110
Chloride	99.4	100	P/P	90 - 110
Sulfate	100	101	P/P	90 - 110
Sulfate	99.6	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91270

Included Lab Sample IDs: 2082118, 2082119

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91280

Included Lab Sample IDs: 2082118, 2082119, 2082120

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91299

Included Lab Sample IDs: 2082120

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91300

Included Lab Sample IDs: 2082119, 2082120

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

Reference Method: SM 2320 B-97

Run ID: A91346

Included Lab Sample IDs: 2082115, 2082116, 2082117

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

Reference Method: SM 4500 F-C-97

Run ID: A91436

Included Lab Sample IDs: 2082115, 2082116, 2082117

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	98.1	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				0.334	
EPA 300.0 Rev. 2.1	Chloride	98.4	96.6	99.3	0.375	
	Sulfate	99.2	97.8	99.5	0.537	
EPA 350.1 Rev. 2.0	Ammonia-N	103	104	102		1.46
	Ammonia-N	101	102	100		1.05
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	109	101	101		0.185
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	101	100		0.440
EPA 365.1 Rev. 2.0	Total-P	107	103	105		2.55
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.5	94.8	95.9		1.15
	O-Phosphate-P	98.6	97.8	98.5		0.713
SM 2120 B	Color (true)	102			1.23	
	Color (true)	101			0.668	
SM 2320 B-97	Total Alkalinity	103			0.904	
SM 2540 C-97	TDS				2.60	
SM 4500 F-C-97	Fluoride	96.6				0.979
SM 5310 B-00	Organic Carbon	98.4	95.6	97.0		0.923

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2082115, 2082116, 2082117
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2082115, 2082116, 2082117
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2082115, 2082116, 2082117
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2082118, 2082119, 2082120
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2082118, 2082119, 2082120
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2082118, 2082119, 2082120
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2082118, 2082119, 2082120
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2082121, 2082122, 2082123
SM 2120 B / E31780	True Color measured at 450 nm	2082115, 2082116, 2082117
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2082115, 2082116, 2082117
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2082115, 2082116, 2082117
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2082115, 2082116, 2082117
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2082115, 2082116, 2082117
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2082118, 2082119, 2082120

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	05/01/2019			05/01/2019 16:13	Adrian Shelby	2082115, 2082116, 2082117
EPA 300.0 Rev. 2.1	05/01/2019			05/06/2019 20:14	Lipi Saha	2082117
	05/01/2019			05/06/2019 22:51	Lipi Saha	2082115
	05/01/2019			05/06/2019 23:04	Lipi Saha	2082116
EPA 350.1 Rev. 2.0	05/01/2019			05/03/2019 13:16	Ping Hua	2082118
	05/01/2019			05/07/2019 13:13	Ping Hua	2082119
	05/01/2019			05/07/2019 13:15	Ping Hua	2082120
EPA 351.2 Rev. 2.0	05/01/2019	05/06/2019 12:50	Jhamieka S. Greenwood	05/08/2019 11:01	Joseph Suarez	2082118
	05/01/2019	05/06/2019 12:50	Jhamieka S. Greenwood	05/08/2019 11:02	Joseph Suarez	2082119
	05/01/2019	05/06/2019 12:50	Jhamieka S. Greenwood	05/08/2019 11:04	Joseph Suarez	2082120
EPA 353.2 Rev. 2.0	05/01/2019			05/03/2019 09:45	Beverly Y. Sanders	2082118
	05/01/2019			05/03/2019 09:46	Beverly Y. Sanders	2082119
	05/01/2019			05/03/2019 09:47	Beverly Y. Sanders	2082120
EPA 365.1 Rev. 2.0	05/01/2019	05/02/2019 13:35	Sima Feizi	05/03/2019 16:50	Rosalyn Ballman	2082118
	05/01/2019	05/02/2019 13:35	Sima Feizi	05/03/2019 16:51	Rosalyn Ballman	2082119
	05/01/2019	05/02/2019 13:35	Sima Feizi	05/08/2019 12:26	Rosalyn Ballman	2082120
EPA 365.1 Rev. 2.0 dissolved	05/01/2019			05/01/2019 15:23	Jhamieka S. Greenwood	2082121
	05/01/2019			05/01/2019 15:36	Jhamieka S. Greenwood	2082123
	05/01/2019			05/01/2019 15:53	Jhamieka S. Greenwood	2082122
SM 2120 B	05/01/2019			05/01/2019 16:19	Mariam Hanna	2082115
	05/01/2019			05/01/2019 16:34	Mariam Hanna	2082116
	05/01/2019			05/01/2019 16:35	Mariam Hanna	2082117
SM 2320 B-97	05/01/2019			05/09/2019 04:08	Dale L. Simmons	2082115
	05/01/2019			05/09/2019 04:19	Dale L. Simmons	2082116
	05/01/2019			05/09/2019 04:31	Dale L. Simmons	2082117
SM 2540 C-97	05/01/2019			05/03/2019 15:19	Yijie Li	2082115, 2082116, 2082117
SM 2540 D-97	05/01/2019			05/03/2019 15:19	Yijie Li	2082115, 2082116, 2082117
SM 4500 F-C-97	05/01/2019			05/14/2019 22:22	Dale L. Simmons	2082115
	05/01/2019			05/14/2019 22:28	Dale L. Simmons	2082116
	05/01/2019			05/14/2019 22:33	Dale L. Simmons	2082117
SM 5310 B-00	05/01/2019			05/03/2019 18:19	Lauren Lees	2082118
	05/01/2019			05/03/2019 18:31	Lauren Lees	2082119
	05/01/2019			05/03/2019 18:44	Lauren Lees	2082120