

Chemical Analysis Report

CEN-DIST-2019-02-15-02

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-2019-02-11-40**
Customer: **CEN-DIST**
Project ID: **SMP**

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Date Certified: 05-MAR-2019 14:51



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: Coon Lake @ Center

Collection Date/Time: 02/14/2019 11:20

Field ID: G4CE0162

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2063074	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P359009	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P359573	
		Sulfate	6.9		mg SO4/L	P359575	
	SM 2120 B	Color (true)	240		PCU	P359014	
	SM 2320 B-97	Total Alkalinity	4.1		mg CaCO3/L	P359383	
	SM 2540 C-97	TDS	116		mg/L	P359534	
	SM 2540 D-97	TSS	2	I	mg/L	P359440	
	SM 4500 F-C-97	Fluoride	0.046	I	mg F/L	P359392	
2063077	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P359344	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P359235	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.042		mg N/L	P359358	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P359141	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P359418	
2063080	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P359025	

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: Lake Center @ Center

Collection Date/Time: 02/14/2019 12:10

Field ID: G4CE0163

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2063075	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P359009	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P359573	
		Sulfate	9.1		mg SO4/L	P359575	
	SM 2120 B	Color (true)	350		PCU	P359015	
	SM 2320 B-97	Total Alkalinity	2.6		mg CaCO3/L	P359383	
	SM 2540 C-97	TDS	124		mg/L	P359534	
	SM 2540 D-97	TSS	2	I	mg/L	P359440	
	SM 4500 F-C-97	Fluoride	0.047	I	mg F/L	P359392	
2063078	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P359344	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P359235	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.083		mg N/L	P359358	
	EPA 365.1 Rev. 2.0	Total-P	0.046		mg P/L	P359141	
	SM 5310 B-00	Organic Carbon	27		mg C/L	P359418	
2063081	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.015		mg P/L	P359027	

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: Lake Whippoorwill @ Center

Collection Date/Time: 02/14/2019 13:21

Field ID: G4CE0161

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2063076	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P359009	
	EPA 300.0 Rev. 2.1	Chloride	27		mg Cl/L	P359573	
		Sulfate	19		mg SO4/L	P359575	
	SM 2120 B	Color (true)	52	A	PCU	P359015	
	SM 2320 B-97	Total Alkalinity	17		mg CaCO3/L	P359383	
	SM 2540 C-97	TDS	127		mg/L	P359534	
	SM 2540 D-97	TSS	4	I	mg/L	P359440	
	SM 4500 F-C-97	Fluoride	0.059	I	mg F/L	P359392	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P359344	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.52		mg N/L	P359234	
2063079	EPA 353.2 Rev. 2.0	NO2NO3-N	0.028		mg N/L	P359359	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P359141	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P359418	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P359027	
	dissolved						

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P359009

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359573

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359575

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359344

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359234

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359235

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359358

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359359

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: P359141

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P359025

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P359027

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

Reference Method: SM 2120 B
Batch ID: P359014

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P359015

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P359383

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

Reference Method: SM 2540 C-97
Batch ID: P359534

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P359440

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P359392

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P359418

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: P359573

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359575

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359344

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359234

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359235

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359358

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359359

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P359141

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P359025

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P359027

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.7		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P359014

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

Reference Method: SM 2120 B
Batch ID: P359015

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

Reference Method: SM 2320 B-97
Batch ID: P359383

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

Reference Method: SM 4500 F-C-97
Batch ID: P359392

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.4		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P359418

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359573

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2063007	Chloride	94.5		P	90 - 110
2063214	Chloride	99.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359575

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2063007	Sulfate	99.0		P	90 - 110
2063214	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359344

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2063016	Ammonia-N	98.0	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359234

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2063110	Kjeldahl Nitrogen	105	97.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359235

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2063009	Kjeldahl Nitrogen	99.3	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359358

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062969	NO2NO3-N	96.0	96.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359359

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2063079	NO2NO3-N	98.9	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P359141

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2063110	Total-P	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P359025

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2063011	O-Phosphate-P	93.3	95.0	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P359027

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2063167	O-Phosphate-P	96.9	98.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P359392

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062967	Fluoride	97.6	97.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P359418

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062970	Organic Carbon	96.9	97.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P359009

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2063092	Turbidity	2.95	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359573

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2063007	Chloride	0.254	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P359575

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2063007	Sulfate	0.544	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359344

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2063016	Ammonia-N	0.935	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2063110	Kjeldahl Nitrogen	4.83	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359235

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2063009	Kjeldahl Nitrogen	0.758	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359358

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062969	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359359

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2063079	NO2NO3-N	0.443	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P359141

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2063110	Total-P	0.228	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P359025

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2063011	O-Phosphate-P	1.81	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P359027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2063167	O-Phosphate-P	1.33	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P359014

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062963	Color (true)	1.29	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P359015

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2063076	Color (true)	1.93	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P359383

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062967	Total Alkalinity	0.525	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P359534

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2063015	TDS	7.54	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P359392

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062967	Fluoride	0.0	Spike	P	0 - 3.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P359418

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062970	Organic Carbon	0.501	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A89446

Included Lab Sample IDs: 2063074, 2063075, 2063076

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

Reference Method: SM 2120 B

Run ID: A89448

Included Lab Sample IDs: 2063074, 2063075, 2063076

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	100	P/P	90 - 115
Color (true)	99.8	102	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A89450

Included Lab Sample IDs: 2063080, 2063081, 2063082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.5	98.6	P/P	90 - 110
O-Phosphate-P	98.4	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A89567

Included Lab Sample IDs: 2063077, 2063078, 2063079

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A89577

Included Lab Sample IDs: 2063077, 2063078, 2063079

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.7	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A89583

Included Lab Sample IDs: 2063079

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.6	95.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A89586

Included Lab Sample IDs: 2063077, 2063078, 2063079

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A89593

Included Lab Sample IDs: 2063074, 2063075, 2063076

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	108	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A89593

Included Lab Sample IDs: 2063074, 2063075, 2063076

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

Reference Method: SM 5310 B-00

Run ID: A89603

Included Lab Sample IDs: 2063077, 2063078, 2063079

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.5	94.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A89640

Included Lab Sample IDs: 2063077, 2063078

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	95.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A89674

Included Lab Sample IDs: 2063074, 2063075, 2063076

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Chloride	101	102	P/P	90 - 110
Sulfate	101	102	P/P	90 - 110
Sulfate	102	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	MS
EPA 180.1 Rev. 2.0	Turbidity				2.95	
EPA 300.0 Rev. 2.1	Chloride	100	94.5	99.4	0.254	
	Sulfate	101	99.0	101	0.544	
EPA 350.1 Rev. 2.0	Ammonia-N	99.4	98.0	99.0		0.935
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.1	105	97.7		4.83
	Kjeldahl Nitrogen	105	99.3	100		0.758
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	98.0	96.0	96.0		0.0
	NO ₂ NO ₃ -N	98.5	98.9	98.4		0.443
EPA 365.1 Rev. 2.0	Total-P	105	102	102		0.228
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.3	93.3	95.0		1.81
	O-Phosphate-P	98.7	96.9	98.2		1.33
SM 2120 B	Color (true)	100			1.29	
	Color (true)	102			1.93	
SM 2320 B-97	Total Alkalinity	102			0.525	
SM 2540 C-97	TDS				7.54	
SM 4500 F-C-97	Fluoride	96.4	97.6	97.6		0.0
SM 5310 B-00	Organic Carbon	95.8	96.9	97.5		0.501

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2063074, 2063075, 2063076
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2063074, 2063075, 2063076
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2063074, 2063075, 2063076
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2063077, 2063078, 2063079
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2063077, 2063078, 2063079
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2063077, 2063078, 2063079
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2063077, 2063078, 2063079
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2063080, 2063081, 2063082
SM 2120 B / E31780	True Color measured at 450 nm	2063074, 2063075, 2063076
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2063074, 2063075, 2063076
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2063074, 2063075, 2063076
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2063074, 2063075, 2063076
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2063074, 2063075, 2063076
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2063077, 2063078, 2063079

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	02/15/2019			02/15/2019 16:26	Adrian Shelby	2063074, 2063075, 2063076
EPA 300.0 Rev. 2.1	02/15/2019			02/26/2019 23:40	Lipi Saha	2063074
	02/15/2019			02/27/2019 00:24	Lipi Saha	2063075
	02/15/2019			02/27/2019 00:39	Lipi Saha	2063076
EPA 350.1 Rev. 2.0	02/15/2019			02/21/2019 11:56	Ping Hua	2063077
	02/15/2019			02/21/2019 11:57	Ping Hua	2063078
	02/15/2019			02/21/2019 11:59	Ping Hua	2063079
EPA 351.2 Rev. 2.0	02/15/2019	02/19/2019 11:30	Adrian Shelby	02/22/2019 13:26	Joseph Suarez	2063077
	02/15/2019	02/19/2019 11:30	Adrian Shelby	02/22/2019 13:28	Joseph Suarez	2063078
	02/15/2019	02/20/2019 12:40	Jhamieka S. Greenwood	02/22/2019 10:23	Joseph Suarez	2063079
EPA 353.2 Rev. 2.0	02/15/2019			02/22/2019 10:53	Beverly Y. Sanders	2063077
	02/15/2019			02/22/2019 10:55	Beverly Y. Sanders	2063078
	02/15/2019			02/22/2019 11:02	Beverly Y. Sanders	2063079
EPA 365.1 Rev. 2.0	02/15/2019	02/19/2019 11:45	Sima Feizi	02/21/2019 18:23	Rosalyn Ballman	2063077
	02/15/2019	02/19/2019 11:45	Sima Feizi	02/21/2019 18:24	Rosalyn Ballman	2063078
	02/15/2019	02/19/2019 11:45	Sima Feizi	02/21/2019 18:25	Rosalyn Ballman	2063079
EPA 365.1 Rev. 2.0 dissolved	02/15/2019			02/15/2019 17:57	Jhamieka S. Greenwood	2063080
	02/15/2019			02/15/2019 17:58	Jhamieka S. Greenwood	2063081
	02/15/2019			02/15/2019 18:08	Jhamieka S. Greenwood	2063082
SM 2120 B	02/15/2019			02/15/2019 16:39	Chelsea Hernandez	2063076
	02/15/2019			02/15/2019 16:54	Chelsea Hernandez	2063074
	02/15/2019			02/15/2019 16:55	Chelsea Hernandez	2063075
SM 2320 B-97	02/15/2019			02/21/2019 06:27	Dale L. Simmons	2063074
	02/15/2019			02/21/2019 06:36	Dale L. Simmons	2063075
	02/15/2019			02/21/2019 06:48	Dale L. Simmons	2063076
SM 2540 C-97	02/15/2019			02/20/2019 16:21	Yijie Li	2063074, 2063075, 2063076
SM 2540 D-97	02/15/2019			02/20/2019 16:21	Yijie Li	2063074, 2063075, 2063076
SM 4500 F-C-97	02/15/2019			02/21/2019 06:27	Dale L. Simmons	2063074
	02/15/2019			02/21/2019 06:36	Dale L. Simmons	2063075
	02/15/2019			02/21/2019 06:48	Dale L. Simmons	2063076
SM 5310 B-00	02/15/2019			02/24/2019 05:19	Julia Storbeck	2063077
	02/15/2019			02/24/2019 05:33	Julia Storbeck	2063078
	02/15/2019			02/24/2019 05:47	Julia Storbeck	2063079