

Chemical Analysis Report

SO-DIST-2019-02-22-01

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

Event Description: **SMP : P Riv**
Request ID: **RQ-2019-02-18-68**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
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FLDEP South District Office
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Date Certified: 14-MAR-2019 10:50



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: Alligator N@JonesLoopRd

Collection Date/Time: 02/21/2019 08:55

Field ID: G2SD0032

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2064817	EPA 180.1 Rev. 2.0	Turbidity	5.6		NTU	P359366	
	EPA 300.0 Rev. 2.1	Chloride	54		mg Cl/L	P360100	
		Sulfate	48		mg SO4/L	P360102	
	SM 2120 B	Color (true)	37		PCU	P359401	
	SM 2320 B-97	Total Alkalinity	185		mg CaCO3/L	P359609	RPD
	SM 2540 C-97	TDS	364		mg/L	P359868	
	SM 2540 D-97	TSS	2	I	mg/L	P359831	
	SM 4500 F-C-97	Fluoride	0.20		mg F/L	P359611	
2064819	EPA 350.1 Rev. 2.0	Ammonia-N	0.043		mg N/L	P359560	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P359526	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.082		mg N/L	P359585	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P359502	
	SM 5310 B-00	Organic Carbon	9.1		mg C/L	P359746	
2064821	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P359396	

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: Alligator N@JonesLoopRd

Collection Date/Time: 02/21/2019 09:10

Field ID: FB_02212019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2064823	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P359366	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P360100	
		Sulfate	0.20	U	mg SO4/L	P360102	
	SM 2120 B	Color (true)	2.5	U	PCU	P359400	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P359609	RPD
	SM 2540 C-97	TDS	15	U	mg/L	P359868	
	SM 2540 D-97	TSS	2	U	mg/L	P359831	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P359611	
2064824	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P359560	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P359526	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P359585	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P359502	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P359746	
2064825	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P359396	

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: Peace River Estuary

Collection Date/Time: 02/21/2019 09:45

Field ID: G3SD0148

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2064826	EPA 180.1 Rev. 2.0	Turbidity	14	A	NTU	P359366	RPD
	EPA 300.0	Bromide	0.41		mg Br/L	P360152	
	SM 2320 B-97	Total Alkalinity	63		mg CaCO3/L	P359609	
	SM 2540 D-97	TSS	21		mg/L	P359832	
	SM 4500 F-C-97	Fluoride	0.46		mg F/L	P359611	
2064827	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P359560	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P359526	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.37		mg N/L	P359585	
	EPA 365.1 Rev. 2.0	Total-P	0.75		mg P/L	P359502	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P359746	
2064828	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.46		mg P/L	P359396	

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: PeaceRiver HorseCreek2

Collection Date/Time: 02/21/2019 12:15

Field ID: G3SD0154

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2064818	EPA 180.1 Rev. 2.0	Turbidity	5.9		NTU	P359366	
	EPA 300.0 Rev. 2.1	Chloride	28		mg Cl/L	P360100	
		Sulfate	49		mg SO4/L	P360102	
	SM 2120 B	Color (true)	140		PCU	P359400	
	SM 2320 B-97	Total Alkalinity	66		mg CaCO3/L	P359609	RPD
	SM 2540 C-97	TDS	239		mg/L	P359868	
	SM 2540 D-97	TSS	10		mg/L	P359831	
	SM 4500 F-C-97	Fluoride	0.52		mg F/L	P359611	
2064820	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P359560	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P359526	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.44		mg N/L	P359585	
	EPA 365.1 Rev. 2.0	Total-P	0.72		mg P/L	P359502	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P359746	
2064822	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.51		mg P/L	P359396	

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: P359366

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P360152

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P360100

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P360102

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359560

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359526

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359585

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P359502

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P359396

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2120 B
Batch ID: P359400

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P359401

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P359609

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

Reference Method: SM 2540 C-97
Batch ID: P359868

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P359831

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P359832

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P359611

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P359746

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0
Batch ID: P360152

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P360100

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P360102

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359560

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359526

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359585

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	100		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P359502

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P359396

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

Reference Method: SM 2120 B
Batch ID: P359400

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.8		P	85 - 115

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P359401

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.1		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P359609

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

Reference Method: SM 4500 F-C-97
Batch ID: P359611

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.9		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P359746

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P360152

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2064826	Bromide	96.7	96.8	P/P	90 - 110
2065396	Bromide	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P360100

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2064354	Chloride	108		P	90 - 110
2064794	Chloride	105		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P360102

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2064354	Sulfate	107		P	90 - 110
2064794	Sulfate	108		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359560

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2064819	Ammonia-N	105	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359526

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2064819	Kjeldahl Nitrogen	107	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359585

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2064795	NO2NO3-N	97.6	98.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P359502

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2064802	Total-P	101	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P359396

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2064804	O-Phosphate-P	92.4	93.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P359611

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2064842	Fluoride	95.9	94.9	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P359746

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2064355	Organic Carbon	95.2	97.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P359366

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2064826	Turbidity	7.09	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P360152

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2064826	Bromide	0.0448	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P360100

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2064354	Chloride	0.532	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P360102

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2064354	Sulfate	0.491	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P359560

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2064819	Ammonia-N	3.03	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P359526

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2064819	Kjeldahl Nitrogen	2.02	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P359585

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2064795	NO2NO3-N	0.491	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P359502

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2064802	Total-P	3.02	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P359396

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2064804	O-Phosphate-P	1.61	Spike	P	0 - 20

Reference Method: SM 2120 B
 Batch ID: P359400

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2064857	Color (true)	0.709	Sample	P	0 - 20

Reference Method: SM 2120 B
 Batch ID: P359401

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2064798	Color (true)	1.93	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P359609

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2064842	Total Alkalinity	1.65	Sample	F	0 - 1.6

Reference Method: SM 2540 C-97
 Batch ID: P359868

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2064794	TDS	3.19	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P359611

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2064842	Fluoride	0.948	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
 Batch ID: P359746

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2064355	Organic Carbon	1.81	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: A89591

Included Lab Sample IDs: 2064817, 2064818, 2064823, 2064826

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A89594

Included Lab Sample IDs: 2064821, 2064822, 2064825, 2064828

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.9	98.6	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A89595

Included Lab Sample IDs: 2064817, 2064818, 2064823

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.8	98.8	P/P	90 - 115
Color (true)	98.8	99.9	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A89656

Included Lab Sample IDs: 2064820, 2064827

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A89659

Included Lab Sample IDs: 2064819, 2064824

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A89670

Included Lab Sample IDs: 2064819, 2064820, 2064824, 2064827

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	105	105	P/P	90 - 110
Ammonia-N	106	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A89683

Included Lab Sample IDs: 2064819, 2064820, 2064824, 2064827

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A89688

Included Lab Sample IDs: 2064817, 2064818, 2064823, 2064826

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A89688

Included Lab Sample IDs: 2064817, 2064818, 2064823, 2064826

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.8	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A89688

Included Lab Sample IDs: 2064817, 2064818, 2064823, 2064826

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A89719

Included Lab Sample IDs: 2064819, 2064820, 2064824, 2064827

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	104	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A89740

Included Lab Sample IDs: 2064819, 2064820, 2064824, 2064827

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.6	94.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A89885

Included Lab Sample IDs: 2064817, 2064818, 2064823

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

Reference Method: EPA 300.0

Run ID: A89904

Included Lab Sample IDs: 2064826

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	102	104	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					7.09	
EPA 300.0	Bromide	102	96.7	96.8	103		0.0448
EPA 300.0 Rev. 2.1	Chloride	108	108	105		0.532	
	Sulfate	108	107	108		0.491	
EPA 350.1 Rev. 2.0	Ammonia-N	97.7	105	99.6			3.03
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	107	104			2.02
EPA 353.2 Rev. 2.0	NO2NO3-N	100	97.6	98.1			0.491
EPA 365.1 Rev. 2.0	Total-P	98.6	101	104			3.02
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.3	92.4	93.9			1.61
SM 2120 B	Color (true)	99.8				0.709	
	Color (true)	99.1				1.93	
SM 2320 B-97	Total Alkalinity	102				1.65	
SM 2540 C-97	TDS					3.19	
SM 4500 F-C-97	Fluoride	95.9	95.9	94.9			0.948
SM 5310 B-00	Organic Carbon	96.2	95.2	97.0			1.81

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2064817, 2064818, 2064823, 2064826
EPA 300.0 / E31780	Bromide in aqueous matrices	2064826
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2064817, 2064818, 2064823
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2064817, 2064818, 2064823
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2064819, 2064820, 2064824, 2064827
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2064819, 2064820, 2064824, 2064827
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2064819, 2064820, 2064824, 2064827
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2064819, 2064820, 2064824, 2064827
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2064821, 2064822, 2064825, 2064828
SM 2120 B / E31780	True Color measured at 450 nm	2064817, 2064818, 2064823
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2064817, 2064818, 2064823, 2064826
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2064817, 2064818, 2064823
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2064817, 2064818, 2064823, 2064826
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2064817, 2064818, 2064823, 2064826
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2064819, 2064820, 2064824, 2064827

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	02/22/2019			02/22/2019 15:09	Adrian Shelby	2064817, 2064818, 2064823, 2064826
EPA 300.0	02/22/2019			03/07/2019 21:19	Lipi Saha	2064826
EPA 300.0 Rev. 2.1	02/22/2019			03/07/2019 07:38	Lipi Saha	2064817
	02/22/2019			03/07/2019 08:22	Lipi Saha	2064818
	02/22/2019			03/07/2019 08:37	Lipi Saha	2064823
EPA 350.1 Rev. 2.0	02/22/2019			02/26/2019 12:44	Ping Hua	2064819
	02/22/2019			02/26/2019 12:55	Ping Hua	2064820
	02/22/2019			02/26/2019 12:56	Ping Hua	2064827
	02/22/2019			02/26/2019 13:04	Ping Hua	2064824
EPA 351.2 Rev. 2.0	02/22/2019	02/26/2019 11:30	Adrian Shelby	02/28/2019 11:20	Joseph Suarez	2064819
	02/22/2019	02/26/2019 11:30	Adrian Shelby	02/28/2019 11:24	Joseph Suarez	2064820
	02/22/2019	02/26/2019 11:30	Adrian Shelby	02/28/2019 11:26	Joseph Suarez	2064824
	02/22/2019	02/26/2019 11:30	Adrian Shelby	02/28/2019 11:27	Joseph Suarez	2064827
EPA 353.2 Rev. 2.0	02/22/2019			02/27/2019 09:53	Beverly Y. Sanders	2064819
	02/22/2019			02/27/2019 09:54	Beverly Y. Sanders	2064820
	02/22/2019			02/27/2019 09:56	Beverly Y. Sanders	2064824
	02/22/2019			02/27/2019 09:57	Beverly Y. Sanders	2064827
EPA 365.1 Rev. 2.0	02/22/2019	02/25/2019 14:05	Sima Feizi	02/26/2019 12:50	Rosalyn Ballman	2064820
	02/22/2019	02/25/2019 14:05	Sima Feizi	02/26/2019 12:51	Rosalyn Ballman	2064827
	02/22/2019	02/25/2019 14:05	Sima Feizi	02/26/2019 14:22	Rosalyn Ballman	2064819
	02/22/2019	02/25/2019 14:05	Sima Feizi	02/26/2019 14:23	Rosalyn Ballman	2064824
EPA 365.1 Rev. 2.0 dissolved	02/22/2019			02/22/2019 15:42	Jhamieka S. Greenwood	2064825
	02/22/2019			02/22/2019 15:46	Jhamieka S. Greenwood	2064822
	02/22/2019			02/22/2019 15:47	Jhamieka S. Greenwood	2064828
	02/22/2019			02/22/2019 15:50	Jhamieka S. Greenwood	2064821
SM 2120 B	02/22/2019			02/22/2019 15:55	Chelsea Hernandez	2064817
	02/22/2019			02/22/2019 15:59	Chelsea Hernandez	2064818
	02/22/2019			02/22/2019 16:00	Chelsea Hernandez	2064823
SM 2320 B-97	02/22/2019			02/26/2019 23:36	Dale L. Simmons	2064817
	02/22/2019			02/26/2019 23:48	Dale L. Simmons	2064818
	02/22/2019			02/27/2019 00:02	Dale L. Simmons	2064823
	02/22/2019			02/27/2019 00:15	Dale L. Simmons	2064826
SM 2540 C-97	02/22/2019			02/27/2019 14:29	Yijie Li	2064817, 2064818, 2064823
SM 2540 D-97	02/22/2019			02/27/2019 14:29	Yijie Li	2064817, 2064818, 2064823, 2064826
SM 4500 F-C-97	02/22/2019			02/26/2019 23:36	Dale L. Simmons	2064817
	02/22/2019			02/26/2019 23:48	Dale L. Simmons	2064818
	02/22/2019			02/27/2019 00:02	Dale L. Simmons	2064823
	02/22/2019			02/27/2019 00:15	Dale L. Simmons	2064826
SM 5310 B-00	02/22/2019			02/28/2019 10:28	Chelsea Hernandez	2064819
	02/22/2019			02/28/2019 10:41	Chelsea Hernandez	2064820

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	02/22/2019			02/28/2019 10:57	Chelsea Hernandez	2064824
	02/22/2019			02/28/2019 11:11	Chelsea Hernandez	2064827