

Chemical Analysis Report

SE-DIST-2019-04-09-01

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

Event Description: **SMP- Palm Beach Canoe**
Request ID: **RQ-2019-04-01-60**
Customer: **SE-DIST**
Project ID: **SMP**

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Date Certified: 24-APR-2019 16:06



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 Mangonia North

Collection Date/Time: 04/08/2019 13:20

Field ID: G3SE0030

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2076612	EPA 180.1 Rev. 2.0	Turbidity	6.2		NTU	P361820	
	EPA 300.0 Rev. 2.1	Chloride	51		mg Cl/L	P362267	
		Sulfate	23		mg SO4/L	P362270	
	SM 2120 B	Color (true)	32		PCU	P361862	
	SM 2320 B-97	Total Alkalinity	90		mg CaCO3/L	P362174	RPD
	SM 2540 C-97	TDS	250		mg/L	P362515	
	SM 2540 D-97	TSS	7	I	mg/L	P362232	
	SM 4500 F-C-97	Fluoride	0.16		mg F/L	P362180	
2076613	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P362288	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P362265	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P362331	
	EPA 365.1 Rev. 2.0	Total-P	0.042		mg P/L	P362148	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P361977	
2076614	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P361839	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

SM 2120 B: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Sample Location: Clear Lake Center

Collection Date/Time: 04/08/2019 13:30

Field ID: G3SE0044

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2076615	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P361820	
	EPA 300.0 Rev. 2.1	Chloride	48	A	mg Cl/L	P362268	
		Sulfate	21	A	mg SO4/L	P362271	
	SM 2120 B	Color (true)	26		PCU	P361862	
	SM 2320 B-97	Total Alkalinity	82		mg CaCO3/L	P362174	RPD
	SM 2540 C-97	TDS	217		mg/L	P362515	
	SM 2540 D-97	TSS	3	I	mg/L	P362232	
	SM 4500 F-C-97	Fluoride	0.15		mg F/L	P362180	
2076616	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P362288	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P362265	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362331	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P362148	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P361977	
2076617	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P361839	

Ref. Method and Comment:

SM 2120 B: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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

Sample Location: Pine Lake Center

Collection Date/Time: 04/08/2019 13:45

Field ID: G3SE0045

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2076618	EPA 180.1 Rev. 2.0	Turbidity	4.4		NTU	P361820	
	EPA 300.0 Rev. 2.1	Chloride	32		mg Cl/L	P362268	
		Sulfate	14		mg SO4/L	P362271	
	SM 2120 B	Color (true)	34		PCU	P361862	
	SM 2320 B-97	Total Alkalinity	133		mg CaCO3/L	P362174	RPD
	SM 2540 C-97	TDS	229		mg/L	P362515	
	SM 2540 D-97	TSS	8	I	mg/L	P362232	
	SM 4500 F-C-97	Fluoride	0.078	I	mg F/L	P362180	
2076619	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P362288	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P362336	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362331	
	EPA 365.1 Rev. 2.0	Total-P	0.067		mg P/L	P362148	
	SM 5310 B-00	Organic Carbon	9.6		mg C/L	P361977	
2076620	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P361839	

Ref. Method and Comment:

SM 2120 B: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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: P361820

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362267

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362268

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362270

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362271

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362288

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362265

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362336

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362331

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: P362148

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361839

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

Reference Method: SM 2120 B
Batch ID: P361862

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P362174

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

Reference Method: SM 2540 C-97
Batch ID: P362515

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P362232

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P362180

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P361977

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: P362267

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362268

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362270

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362271

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362288

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362265

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	106		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362336

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	106		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362331

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362148

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361839

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.3		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P361862

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

Reference Method: SM 2320 B-97
Batch ID: P362174

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P362180

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P361977

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362267

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2076390	Chloride	106		P	90 - 110
2076511	Chloride	108		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362268

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2076615	Chloride	104		P	90 - 110
2076713	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362270

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2076390	Sulfate	107		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362271

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2076615	Sulfate	104		P	90 - 110
2076713	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362288

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2076616	Ammonia-N	101	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362265

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2076551	Kjeldahl Nitrogen	108	109	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362336

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2076619	Kjeldahl Nitrogen	110	109	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362331

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2076584	NO2NO3-N	101	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362148

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2076616	Total-P	96.9	95.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361839

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2076614	O-Phosphate-P	96.4	98.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P362180

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2076647	Fluoride	103	102	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P361977

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2076545	Organic Carbon	102	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P361820

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076543	Turbidity	11.7	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362267

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076390	Chloride	9.70	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362268

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076615	Chloride	0.448	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362270

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076390	Sulfate	9.97	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P362271

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076615	Sulfate	0.775	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362288

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076616	Ammonia-N	1.32	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362265

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076551	Kjeldahl Nitrogen	1.43	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P362336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076619	Kjeldahl Nitrogen	0.386	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362331

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076584	NO2NO3-N	1.35	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362148

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076616	Total-P	1.44	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P361839

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076614	O-Phosphate-P	1.85	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P362174

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076647	Total Alkalinity	10.1	Sample	F	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P362515

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076489	TDS	1.89	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P362180

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076647	Fluoride	0.509	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P361977

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2076545	Organic Carbon	0.520	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: A90551

Included Lab Sample IDs: 2076612, 2076615, 2076618

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: A90555

Included Lab Sample IDs: 2076614, 2076617, 2076620

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.4	99.6	P/P	90 - 110
O-Phosphate-P	98.8	99.2	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A90564

Included Lab Sample IDs: 2076612, 2076615, 2076618

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

Reference Method: SM 5310 B-00

Run ID: A90618

Included Lab Sample IDs: 2076613, 2076616, 2076619

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

Reference Method: SM 2320 B-97

Run ID: A90703

Included Lab Sample IDs: 2076612, 2076615, 2076618

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.7	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A90703

Included Lab Sample IDs: 2076612, 2076615, 2076618

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90756

Included Lab Sample IDs: 2076613, 2076616

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	99.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A90760

Included Lab Sample IDs: 2076612, 2076615, 2076618

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A90760

Included Lab Sample IDs: 2076612, 2076615, 2076618

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A90764

Included Lab Sample IDs: 2076613, 2076616, 2076619

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	100	P/P	90 - 110
Ammonia-N	99.9	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90770

Included Lab Sample IDs: 2076619

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A90779

Included Lab Sample IDs: 2076613, 2076616, 2076619

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90786

Included Lab Sample IDs: 2076613, 2076616

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	98.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90860

Included Lab Sample IDs: 2076619

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.2	97.8	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		LCS	Precision	
						SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					11.7	
EPA 300.0 Rev. 2.1	Chloride	103	106	108		9.70	
	Chloride	105	104	102		0.448	
	Sulfate	105	107			9.97	
	Sulfate	106	104	101		0.775	
	Ammonia-N	98.5	101	100			1.32
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	108	109			1.43
	Kjeldahl Nitrogen	106	110	109			0.386
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	101	98.5			1.35
EPA 365.1 Rev. 2.0	Total-P	98.0	96.9	95.5			1.44
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.3	96.4	98.2			1.85
SM 2120 B	Color (true)	101					
SM 2320 B-97	Total Alkalinity	101				10.1	
SM 2540 C-97	TDS					1.89	
SM 4500 F-C-97	Fluoride	102	103	102			0.509
SM 5310 B-00	Organic Carbon	102	102	102			0.520

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2076612, 2076615, 2076618
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2076612, 2076615, 2076618
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2076612, 2076615, 2076618
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2076613, 2076616, 2076619
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2076613, 2076616, 2076619
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2076613, 2076616, 2076619
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2076613, 2076616, 2076619
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2076614, 2076617, 2076620
SM 2120 B / E31780	True Color measured at 450 nm	2076612, 2076615, 2076618
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2076612, 2076615, 2076618
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2076612, 2076615, 2076618
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2076612, 2076615, 2076618
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2076612, 2076615, 2076618
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2076613, 2076616, 2076619

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	04/09/2019			04/09/2019 15:54	Adrian Shelby	2076612, 2076615, 2076618
EPA 300.0 Rev. 2.1	04/09/2019			04/15/2019 23:49	Julia Storbeck	2076612
	04/09/2019			04/16/2019 01:02	Julia Storbeck	2076615
	04/09/2019			04/16/2019 01:50	Julia Storbeck	2076618
EPA 350.1 Rev. 2.0	04/09/2019			04/16/2019 11:36	Ping Hua	2076616
	04/09/2019			04/16/2019 11:42	Ping Hua	2076613
	04/09/2019			04/16/2019 11:49	Ping Hua	2076619
EPA 351.2 Rev. 2.0	04/09/2019	04/16/2019 12:00	Adrian Shelby	04/17/2019 13:10	Joseph Suarez	2076613
	04/09/2019	04/16/2019 12:00	Adrian Shelby	04/17/2019 13:11	Joseph Suarez	2076616
	04/09/2019	04/17/2019 12:45	Adrian Shelby	04/18/2019 14:12	Joseph Suarez	2076619
EPA 353.2 Rev. 2.0	04/09/2019			04/17/2019 10:23	Beverly Y. Sanders	2076613
	04/09/2019			04/17/2019 10:24	Beverly Y. Sanders	2076616
	04/09/2019			04/17/2019 10:25	Beverly Y. Sanders	2076619
EPA 365.1 Rev. 2.0	04/09/2019	04/15/2019 13:05	Sima Feizi	04/16/2019 14:27	Rosalyn Ballman	2076619
	04/09/2019	04/15/2019 13:05	Sima Feizi	04/16/2019 15:50	Rosalyn Ballman	2076613
	04/09/2019	04/15/2019 13:05	Sima Feizi	04/16/2019 15:51	Rosalyn Ballman	2076616
EPA 365.1 Rev. 2.0 dissolved	04/09/2019			04/09/2019 16:40	Julia Storbeck	2076614
	04/09/2019			04/09/2019 17:20	Julia Storbeck	2076617
	04/09/2019			04/09/2019 17:21	Julia Storbeck	2076620
SM 2120 B	04/09/2019			04/09/2019 16:01	Mariam Hanna	2076612
	04/09/2019			04/09/2019 16:02	Mariam Hanna	2076615
	04/09/2019			04/09/2019 16:03	Mariam Hanna	2076618
SM 2320 B-97	04/09/2019			04/13/2019 16:53	Dale L. Simmons	2076612
	04/09/2019			04/13/2019 17:10	Dale L. Simmons	2076615
	04/09/2019			04/13/2019 17:27	Dale L. Simmons	2076618
SM 2540 C-97	04/09/2019			04/11/2019 16:14	Yijie Li	2076612, 2076615, 2076618
SM 2540 D-97	04/09/2019			04/11/2019 16:14	Yijie Li	2076612, 2076615, 2076618
SM 4500 F-C-97	04/09/2019			04/13/2019 16:53	Dale L. Simmons	2076612
	04/09/2019			04/13/2019 17:10	Dale L. Simmons	2076615
	04/09/2019			04/13/2019 17:27	Dale L. Simmons	2076618
SM 5310 B-00	04/09/2019			04/10/2019 23:15	Julia Storbeck	2076613
	04/09/2019			04/10/2019 23:27	Julia Storbeck	2076616
	04/09/2019			04/10/2019 23:39	Julia Storbeck	2076619