

Chemical Analysis Report

NW-DIST-2019-03-22-01

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

Event Description: **Milton Run**
Request ID: **RQ-2019-03-18-21**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 308
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

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Certified by: Colin Wright, Program Administrator

Date Certified: 12-APR-2019 10:52

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray 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: Jakes Bayou upstream of Robinson Point Rd Collection Date/Time: 03/21/2019 10:15

Field ID: G4NW0394

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2072183	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P360923	
	EPA 300.0	Bromide	6.7		mg Br/L	P361847	
	SM 2320 B-97	Total Alkalinity	13	AJ	mg CaCO3/L	P361325	RPD
	SM 2540 D-97	TSS	7	IA	mg/L	P361419	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P361657	
2072184	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P361177	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29	I	mg N/L	P361278	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022		mg N/L	P361201	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P361266	
	SM 5310 B-00	Organic Carbon	5.1		mg C/L	P361056	
2072185	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P360926	

Ref. Method and Comment:

SM 2320 B-97: Refer to the narrative for an explanation of QC Codes.

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

Sample Location: Sandy Point Creek Below Sandy Point Street Collection Date/Time: 03/21/2019 10:40

Field ID: G4NW0080

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2072174	EPA 180.1 Rev. 2.0	Turbidity	3.7		NTU	P360923	
	EPA 300.0 Rev. 2.1	Chloride	14	A	mg Cl/L	P361399	
		Sulfate	1.8	A	mg SO4/L	P361401	
	SM 2120 B	Color (true)	270		PCU	P360945	
	SM 2320 B-97	Total Alkalinity	8.5		mg CaCO3/L	P361324	RPD
	SM 2540 C-97	TDS	70		mg/L	P361411	
	SM 2540 D-97	TSS	3	I	mg/L	P361415	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P361328	
2072177	EPA 350.1 Rev. 2.0	Ammonia-N	0.060		mg N/L	P361377	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.72		mg N/L	P361150	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P361052	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P361198	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P361060	
2072180	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P360927	

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: Bucket Branch end of Bucket Creek Rd

Collection Date/Time: 03/21/2019 11:10

Field ID: G4NW0059

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2072175	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P360923	
	EPA 300.0 Rev. 2.1	Chloride	4.6		mg Cl/L	P361399	
		Sulfate	0.83		mg SO4/L	P361401	
	SM 2120 B	Color (true)	28	A	PCU	P360945	
	SM 2320 B-97	Total Alkalinity	2.9		mg CaCO3/L	P361324	RPD
	SM 2540 C-97	TDS	20	I	mg/L	P361412	
	SM 2540 D-97	TSS	2	U	mg/L	P361416	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P361328	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P361377	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.084	I	mg N/L	P361150	
2072178	EPA 353.2 Rev. 2.0	NO2NO3-N	0.17		mg N/L	P361052	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P361196	
	SM 5310 B-00	Organic Carbon	1.9		mg C/L	P361060	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.005	I	mg P/L	P360927	
	dissolved						

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: Pace Mill Creek upstream of Hwy 90

Collection Date/Time: 03/21/2019 12:00

Field ID: G4NW0481

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2072176	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P360923	
	EPA 300.0 Rev. 2.1	Chloride	6.8		mg Cl/L	P361399	
		Sulfate	1.6		mg SO4/L	P361401	
	SM 2120 B	Color (true)	30	A	PCU	P360947	
	SM 2320 B-97	Total Alkalinity	7.6		mg CaCO3/L	P361324	RPD
	SM 2540 C-97	TDS	30		mg/L	P361412	
	SM 2540 D-97	TSS	2	U	mg/L	P361416	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P361328	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.050		mg N/L	P361377	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21		mg N/L	P361150	
2072179	EPA 353.2 Rev. 2.0	NO2NO3-N	0.43		mg N/L	P361052	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P361197	
	SM 5310 B-00	Organic Carbon	2.3		mg C/L	P361060	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P360927	
	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: P360923

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P361847

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361399

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361401

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P361177

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P361377

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361150

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361278

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P361052

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P361201

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361196

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361197

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361198

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361266

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P360926

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P360927

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

Reference Method: SM 2120 B
Batch ID: P360945

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P360947

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P361324

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

Reference Method: SM 2320 B-97
Batch ID: P361325

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

Reference Method: SM 2540 C-97
Batch ID: P361411

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P361412

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P361415

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P361416

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P361419

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P361328

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P361657

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P361056

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

Reference Method: SM 5310 B-00
Batch ID: P361060

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: P361847

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361399

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361401

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P361177

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: P361377

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: P361150

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361278

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P361052

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	101		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P361201

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	99.5		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361196

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361197

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361198

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361266

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P360926

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P360927

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

Reference Method: SM 2120 B
Batch ID: P360945

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

Reference Method: SM 2120 B
Batch ID: P360947

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

Reference Method: SM 2320 B-97
Batch ID: P361324

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.4		P	98 - 107

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P361325

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.8		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P361328

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P361657

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.3		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P361056

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.2		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P361060

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
Batch ID: P361847

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2073272	Bromide	97.7	97.9	P/P	90 - 110
2074743	Bromide	99.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361399

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072174	Chloride	98.7		P	90 - 110
2072176	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361401

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072174	Sulfate	101		P	90 - 110
2072176	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P361177

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2071011	Ammonia-N	104	106	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P361377

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072179	Ammonia-N	103	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361150

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072178	Kjeldahl Nitrogen	105	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361278

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072184	Kjeldahl Nitrogen	92.1	94.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P361052

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072177	NO2NO3-N	97.2	98.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P361201

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072030	NO2NO3-N	98.6	98.1	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361196

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072178	Total-P	105	97.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361197

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072179	Total-P	98.6	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361198

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072333	Total-P	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361266

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2071363	Total-P	90.4	91.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P360926

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2071929	O-Phosphate-P	96.6	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P360927

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072181	O-Phosphate-P	96.4	96.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P361328

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072023	Fluoride	103	104	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P361657

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2073355	Fluoride	98.0	99.1	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P361056

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2072128	Organic Carbon	98.5	99.3	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P361060

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2071261	Organic Carbon	99.6	99.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P360923

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072029	Turbidity	2.60	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P361847

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2073272	Bromide	0.117	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361399

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072174	Chloride	1.53	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P361401

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072174	Sulfate	2.61	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P361177

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2071011	Ammonia-N	1.35	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P361377

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072179	Ammonia-N	0.329	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361150

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072178	Kjeldahl Nitrogen	1.64	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P361278

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072184	Kjeldahl Nitrogen	2.40	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P361052

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072177	NO2NO3-N	1.42	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P361201

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072030	NO2NO3-N	0.491	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361196

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072178	Total-P	7.24	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072179	Total-P	0.0254	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361198

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072333	Total-P	0.143	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P361266

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2071363	Total-P	1.04	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P360926

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2071929	O-Phosphate-P	0.896	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P360927

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072181	O-Phosphate-P	0.494	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P360945

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072175	Color (true)	0.584	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P360947

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072176	Color (true)	2.44	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P361324

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072023	Total Alkalinity	3.79	Sample	F	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P361325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072183	Total Alkalinity	8.26	Sample	F	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P361411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072024	TDS	6.06	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P361412

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072350	TDS	5.53	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P361328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072023	Fluoride	0.484	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
Batch ID: P361657

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2073355	Fluoride	0.948	Spike	P	0 - 3.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P361056

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2072128	Organic Carbon	0.615	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P361060

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2071261	Organic Carbon	0.0623	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: A90192

Included Lab Sample IDs: 2072174, 2072175, 2072176, 2072183

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: A90194

Included Lab Sample IDs: 2072180, 2072181, 2072182, 2072185

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	99.6	P/P	90 - 110
O-Phosphate-P	99.6	98.1	P/P	90 - 110
O-Phosphate-P	99.8	99.0	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A90211

Included Lab Sample IDs: 2072174, 2072175, 2072176

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A90234

Included Lab Sample IDs: 2072177, 2072178, 2072179

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	102	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A90237

Included Lab Sample IDs: 2072184

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.8	97.8	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A90238

Included Lab Sample IDs: 2072177, 2072178, 2072179

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.4	93.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A90288

Included Lab Sample IDs: 2072184

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A90297

Included Lab Sample IDs: 2072184

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90306

Included Lab Sample IDs: 2072177, 2072178, 2072179

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90331

Included Lab Sample IDs: 2072177, 2072178, 2072179

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

Reference Method: SM 2320 B-97

Run ID: A90337

Included Lab Sample IDs: 2072174, 2072175, 2072176, 2072183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.9	99.7	P/P	90 - 110
Total Alkalinity	99.7	99.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A90337

Included Lab Sample IDs: 2072174, 2072175, 2072176

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A90350

Included Lab Sample IDs: 2072184

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A90355

Included Lab Sample IDs: 2072177, 2072178, 2072179

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90356

Included Lab Sample IDs: 2072184

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A90356

Included Lab Sample IDs: 2072184

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	95.2	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A90374

Included Lab Sample IDs: 2072174, 2072175, 2072176

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Chloride	100	102	P/P	90 - 110
Sulfate	101	102	P/P	90 - 110
Sulfate	101	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A90475

Included Lab Sample IDs: 2072183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.1	P/P	90 - 110

Reference Method: EPA 300.0

Run ID: A90561

Included Lab Sample IDs: 2072183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	99.3	99.0	P/P	90 - 110

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

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					2.60	
EPA 300.0	Bromide	102	97.7	97.9	99.9		0.117
EPA 300.0 Rev. 2.1	Chloride	98.7	98.7	100		1.53	
	Sulfate	100	101	101		2.61	
EPA 350.1 Rev. 2.0	Ammonia-N	103	104	106			1.35
	Ammonia-N	101	103	102			0.329
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	105	103			1.64
	Kjeldahl Nitrogen	98.7	92.1	94.6			2.40
EPA 353.2 Rev. 2.0	NO2NO3-N	101	97.2	98.7			1.42
	NO2NO3-N	99.5	98.6	98.1			0.491
EPA 365.1 Rev. 2.0	Total-P	101	105	97.9			7.24
	Total-P	100	98.6	98.6			0.0254
	Total-P	103	100	100			0.143
	Total-P	100	90.4	91.4			1.04
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.9	96.6	97.6			0.896
	O-Phosphate-P	104	96.4	96.9			0.494
SM 2120 B	Color (true)	102				0.584	
	Color (true)	101				2.44	
SM 2320 B-97	Total Alkalinity	98.4				3.79	
	Total Alkalinity	99.8				8.26	
SM 2540 C-97	TDS					6.06	
	TDS					5.53	
SM 4500 F-C-97	Fluoride	100	103	104			0.484
	Fluoride	98.3	98.0	99.1			0.948
SM 5310 B-00	Organic Carbon	98.2	98.5	99.3			0.615
	Organic Carbon	95.8	99.6	99.8			0.0623

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2072174, 2072175, 2072176, 2072183
EPA 300.0 / E31780	Bromide in aqueous matrices	2072183
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2072174, 2072175, 2072176
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2072174, 2072175, 2072176
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2072177, 2072178, 2072179, 2072184
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2072177, 2072178, 2072179, 2072184
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2072177, 2072178, 2072179, 2072184
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2072177, 2072178, 2072179, 2072184
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2072180, 2072181, 2072182, 2072185
SM 2120 B / E31780	True Color measured at 450 nm	2072174, 2072175, 2072176
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2072174, 2072175, 2072176, 2072183
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2072174, 2072175, 2072176
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2072174, 2072175, 2072176, 2072183
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2072174, 2072175, 2072176, 2072183
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2072177, 2072178, 2072179, 2072184

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	03/22/2019			03/22/2019 14:19	Adrian Shelby	2072174, 2072175, 2072176, 2072183
EPA 300.0	03/22/2019			04/09/2019 18:23	Lipi Saha	2072183
EPA 300.0 Rev. 2.1	03/22/2019			03/28/2019 21:32	Lipi Saha	2072174
	03/22/2019			03/28/2019 21:56	Lipi Saha	2072176
	03/22/2019			03/29/2019 02:33	Lipi Saha	2072175
EPA 350.1 Rev. 2.0	03/22/2019			03/27/2019 11:17	Ping Hua	2072184
	03/22/2019			03/29/2019 11:41	Ping Hua	2072179
	03/22/2019			03/29/2019 11:45	Ping Hua	2072177
	03/22/2019			03/29/2019 11:47	Ping Hua	2072178
EPA 351.2 Rev. 2.0	03/22/2019	03/27/2019 14:00	Jhamieka S. Greenwood	03/28/2019 14:48	Joseph Suarez	2072177
	03/22/2019	03/27/2019 14:00	Jhamieka S. Greenwood	03/28/2019 14:49	Joseph Suarez	2072178
	03/22/2019	03/27/2019 14:00	Jhamieka S. Greenwood	03/28/2019 14:54	Joseph Suarez	2072179
	03/22/2019	03/29/2019 13:30	Jhamieka S. Greenwood	04/01/2019 11:56	Joseph Suarez	2072184
EPA 353.2 Rev. 2.0	03/22/2019			03/26/2019 12:06	Lauren Lees	2072177
	03/22/2019			03/26/2019 12:14	Lauren Lees	2072178
	03/22/2019			03/26/2019 12:15	Lauren Lees	2072179
	03/22/2019			03/28/2019 12:08	Virginia P. Brown	2072184
EPA 365.1 Rev. 2.0	03/22/2019	03/28/2019 13:10	Adrian Shelby	03/29/2019 14:22	Rosalyn Ballman	2072178
	03/22/2019	03/28/2019 13:10	Adrian Shelby	03/29/2019 14:36	Rosalyn Ballman	2072179
	03/22/2019	03/28/2019 13:10	Adrian Shelby	03/29/2019 14:39	Rosalyn Ballman	2072177
	03/22/2019	03/29/2019 12:25	Adrian Shelby	04/01/2019 16:21	Rosalyn Ballman	2072184
EPA 365.1 Rev. 2.0 dissolved	03/22/2019			03/22/2019 14:55	Julia Storbeck	2072181
	03/22/2019			03/22/2019 15:06	Julia Storbeck	2072180
	03/22/2019			03/22/2019 15:07	Julia Storbeck	2072182
	03/22/2019			03/22/2019 15:19	Julia Storbeck	2072185
SM 2120 B	03/22/2019			03/22/2019 15:56	Blanca Fach	2072175
	03/22/2019			03/22/2019 16:08	Blanca Fach	2072176
	03/22/2019			03/22/2019 16:13	Blanca Fach	2072174
SM 2320 B-97	03/22/2019			03/30/2019 09:27	Samantha Davila	2072174
	03/22/2019			03/30/2019 09:40	Samantha Davila	2072175
	03/22/2019			03/30/2019 09:52	Samantha Davila	2072176
	03/22/2019			03/30/2019 12:46	Samantha Davila	2072183
SM 2540 C-97	03/22/2019			03/27/2019 14:03	Yijie Li	2072174, 2072175, 2072176
SM 2540 D-97	03/22/2019			03/27/2019 14:03	Yijie Li	2072174, 2072175, 2072176, 2072183
SM 4500 F-C-97	03/22/2019			03/30/2019 09:27	Samantha Davila	2072174
	03/22/2019			03/30/2019 09:40	Samantha Davila	2072175
	03/22/2019			03/30/2019 09:52	Samantha Davila	2072176
	03/22/2019			04/05/2019 00:09	Dale L. Simmons	2072183
SM 5310 B-00	03/22/2019			03/26/2019 05:29	Julia Storbeck	2072177
	03/22/2019			03/26/2019 05:42	Julia Storbeck	2072178

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	03/22/2019			03/26/2019 05:57	Julia Storbeck	2072179
	03/22/2019			03/26/2019 07:22	Julia Storbeck	2072184