

Chemical Analysis Report

NW-DIST-2019-08-22-02

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

Event Description: **EGLIN RUN EAST**
Request ID: **RQ-2019-08-19-62**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 208
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 06-SEP-2019 12:56

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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: Alaqua Creek at Park boat ramp

Collection Date/Time: 08/21/2019 10:45

Field ID: G3NW0163

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2113520	EPA 180.1 Rev. 2.0	Turbidity	5.7		NTU	P369552	
	EPA 300.0	Bromide	0.11		mg Br/L	P369760	
	SM 2320 B-97	Total Alkalinity	2.0	I	mg CaCO3/L	P370023	
	SM 2540 D-97	TSS	3	I	mg/L	P369690	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P370027	
2113521	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P370033	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33		mg N/L	P369654	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.019		mg N/L	P369824	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P369746	
	SM 5310 B-00	Organic Carbon	6.1		mg C/L	P369624	
2113522	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P369525	

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: Deer Moss Creek below College Blvd.

Collection Date/Time: 08/21/2019 11:55

Field ID: G3NW0138

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2113514	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P369552	
	EPA 300.0 Rev. 2.1	Chloride	16	A	mg Cl/L	P369923	
		Sulfate	12	A	mg SO4/L	P369926	
	SM 2120 B	Color (true)	7.2		PCU	P369559	
	SM 2320 B-97	Total Alkalinity	24		mg CaCO3/L	P370023	
	SM 2540 C-97	TDS	87		mg/L	P369988	
	SM 2540 D-97	TSS	2	U	mg/L	P369688	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P370027	
2113516	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P370033	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21		mg N/L	P369600	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.8		mg N/L	P369825	
	EPA 365.1 Rev. 2.0	Total-P	0.040		mg P/L	P369745	
	SM 5310 B-00	Organic Carbon	1.4		mg C/L	P369624	
2113518	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.037		mg P/L	P369527	

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: Shaw Still Branch upstream E College Blvd.

Collection Date/Time: 08/21/2019 12:05

Field ID: G3NW0162

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2113515	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P369552	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P369923	
		Sulfate	14		mg SO4/L	P369926	
	SM 2120 B	Color (true)	12		PCU	P369561	
	SM 2320 B-97	Total Alkalinity	46		mg CaCO3/L	P370023	
	SM 2540 C-97	TDS	115		mg/L	P369988	
	SM 2540 D-97	TSS	2	U	mg/L	P369688	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P370027	
2113517	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P370033	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22		mg N/L	P369600	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.6		mg N/L	P369825	
	EPA 365.1 Rev. 2.0	Total-P	0.002	I	mg P/L	P369746	
	SM 5310 B-00	Organic Carbon	2.1		mg C/L	P369624	
2113519	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P369527	

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: P369552

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P369760

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369923

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369926

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370033

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369600

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369654

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369824

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369825

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: P369745

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369746

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369525

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369527

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

Reference Method: SM 2120 B
Batch ID: P369559

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P369561

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P370023

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

Reference Method: SM 2540 C-97
Batch ID: P369988

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P369688

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P369690

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P370027

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P369624

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: P369760

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369923

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369926

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370033

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369600

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369654

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.1		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369824

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369825

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369745

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.9		P	90 - 110

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369746

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369525

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369527

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

Reference Method: SM 2120 B
Batch ID: P369559

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

Reference Method: SM 2120 B
Batch ID: P369561

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

Reference Method: SM 2320 B-97
Batch ID: P370023

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

Reference Method: SM 4500 F-C-97
Batch ID: P370027

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P369624

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	92.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P369760

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113204	Bromide	94.1	96.3	P/P	90 - 110
2113615	Bromide	97.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369923

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113514	Chloride	102		P	90 - 110
2113595	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369926

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113514	Sulfate	100		P	90 - 110
2113595	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370033

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113516	Ammonia-N	96.7	96.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369600

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113517	Kjeldahl Nitrogen	92.0	95.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369654

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113540	Kjeldahl Nitrogen	101	87.8	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369824

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113410	NO2NO3-N	93.0	91.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369825

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113540	NO2NO3-N	96.5	96.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369745

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113406	Total-P	97.1	92.2	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369746

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113517	Total-P	93.8	95.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369525

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113391	O-Phosphate-P	98.8	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369527

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113541	O-Phosphate-P	98.9	98.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P370027

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114020	Fluoride	97.5	99.4	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P369624

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2113533	Organic Carbon	95.1	92.1	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369552

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113399	Turbidity	0.266	Sample	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P369760

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113204	Bromide	1.88	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369923

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113514	Chloride	0.223	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369926

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113514	Sulfate	0.0501	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370033

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113516	Ammonia-N	0.694	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369600

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113517	Kjeldahl Nitrogen	3.09	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369654

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113540	Kjeldahl Nitrogen	8.78	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369824

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113410	NO2NO3-N	0.928	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369825

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113540	NO2NO3-N	0.314	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369745

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113406	Total-P	3.69	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P369746

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113517	Total-P	1.43	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369525

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113391	O-Phosphate-P	0.404	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369527

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113541	O-Phosphate-P	0.737	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P369559

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113566	Color (true)	1.29	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P369561

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113565	Color (true)	0.365	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P370023

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114020	Total Alkalinity	1.13	Sample	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P369988

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113535	TDS	5.76	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P370027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114020	Fluoride	1.47	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P369624

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2113533	Organic Carbon	2.19	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 365.1 Rev. 2.0 dissolved

Run ID: A93725

Included Lab Sample IDs: 2113518, 2113519, 2113522

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A93736

Included Lab Sample IDs: 2113514, 2113515, 2113520

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	102	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A93738

Included Lab Sample IDs: 2113514, 2113515

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

Reference Method: SM 5310 B-00

Run ID: A93766

Included Lab Sample IDs: 2113516, 2113517, 2113521

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	95.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93789

Included Lab Sample IDs: 2113516, 2113517

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.0	91.8	P/P	90 - 110

Reference Method: EPA 300.0

Run ID: A93817

Included Lab Sample IDs: 2113520

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A93818

Included Lab Sample IDs: 2113521

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.2	94.2	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A93819

Included Lab Sample IDs: 2113514, 2113515

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A93819

Included Lab Sample IDs: 2113514, 2113515

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A93834

Included Lab Sample IDs: 2113516, 2113517, 2113521

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93836

Included Lab Sample IDs: 2113516, 2113517, 2113521

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	97.5	98.0	P/P	90 - 110
NO2NO3-N	98.0	97.5	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A93928

Included Lab Sample IDs: 2113514, 2113515, 2113520

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

Reference Method: SM 4500 F-C-97

Run ID: A93928

Included Lab Sample IDs: 2113514, 2113515, 2113520

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A93933

Included Lab Sample IDs: 2113516, 2113517, 2113521

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.0	98.1	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					0.266	
EPA 300.0	Bromide	98.7	94.1	96.3	97.3		1.88
EPA 300.0 Rev. 2.1	Chloride	99.4	102	103		0.223	
	Sulfate	99.8	100	102		0.0501	
EPA 350.1 Rev. 2.0	Ammonia-N	97.4	96.7	96.0			0.694
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	92.0	95.4			3.09
	Kjeldahl Nitrogen	96.1	101	87.8			8.78
EPA 353.2 Rev. 2.0	NO2NO3-N	97.0	93.0	91.5			0.928
	NO2NO3-N	97.5	96.5	96.0			0.314
EPA 365.1 Rev. 2.0	Total-P	95.9	97.1	92.2			3.69
	Total-P	96.2	93.8	95.2			1.43
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.5	98.8	99.2			0.404
	O-Phosphate-P	102	98.9	98.0			0.737
SM 2120 B	Color (true)	100				1.29	
	Color (true)	102				0.365	
SM 2320 B-97	Total Alkalinity	103				1.13	
SM 2540 C-97	TDS					5.76	
SM 4500 F-C-97	Fluoride	98.1	97.5	99.4			1.47
SM 5310 B-00	Organic Carbon	92.3	95.1	92.1			2.19

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2113514, 2113515, 2113520
EPA 300.0 / E31780	Bromide in aqueous matrices	2113520
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2113514, 2113515
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2113514, 2113515
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2113516, 2113517, 2113521
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2113516, 2113517, 2113521
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2113516, 2113517, 2113521
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2113516, 2113517, 2113521
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2113518, 2113519, 2113522
SM 2120 B / E31780	True Color measured at 450 nm	2113514, 2113515
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2113514, 2113515, 2113520
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2113514, 2113515
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2113514, 2113515, 2113520
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2113514, 2113515, 2113520
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2113516, 2113517, 2113521

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	08/22/2019			08/22/2019 15:30	Rosalyn Ballman	2113514, 2113515, 2113520
EPA 300.0	08/22/2019			08/27/2019 05:58	Jhamieka S. Greenwood	2113520
EPA 300.0 Rev. 2.1	08/22/2019			08/28/2019 12:57	Jhamieka S. Greenwood	2113514
	08/22/2019			08/28/2019 14:10	Jhamieka S. Greenwood	2113515
EPA 350.1 Rev. 2.0	08/22/2019			08/30/2019 14:34	Ping Hua	2113516
	08/22/2019			08/30/2019 14:38	Ping Hua	2113517
	08/22/2019			08/30/2019 14:40	Ping Hua	2113521
EPA 351.2 Rev. 2.0	08/22/2019	08/23/2019 12:40	Sima Feizi	08/26/2019 15:25	Joseph Suarez	2113516
	08/22/2019	08/23/2019 12:40	Sima Feizi	08/26/2019 15:27	Joseph Suarez	2113517
	08/22/2019	08/26/2019 11:25	Sima Feizi	08/26/2019 19:56	Julia Storbeck	2113521
EPA 353.2 Rev. 2.0	08/22/2019			08/28/2019 10:53	Beverly Y. Sanders	2113521
	08/22/2019			08/28/2019 11:05	Beverly Y. Sanders	2113516
	08/22/2019			08/28/2019 11:06	Beverly Y. Sanders	2113517
EPA 365.1 Rev. 2.0	08/22/2019	08/27/2019 13:00	Lipi Saha	08/28/2019 12:18	Lipi Saha	2113516
	08/22/2019	08/27/2019 13:00	Lipi Saha	08/28/2019 12:20	Lipi Saha	2113517
	08/22/2019	08/27/2019 13:00	Lipi Saha	08/28/2019 12:21	Lipi Saha	2113521
EPA 365.1 Rev. 2.0 dissolved	08/22/2019			08/22/2019 13:45	Ping Hua	2113519
	08/22/2019			08/22/2019 13:46	Ping Hua	2113518
	08/22/2019			08/22/2019 13:58	Ping Hua	2113522
SM 2120 B	08/22/2019			08/22/2019 17:32	Madeline Funaro	2113514
	08/22/2019			08/22/2019 17:49	Madeline Funaro	2113515
SM 2320 B-97	08/22/2019			08/29/2019 20:21	Dale L. Simmons	2113514
	08/22/2019			08/29/2019 20:36	Dale L. Simmons	2113515
	08/22/2019			08/29/2019 21:34	Dale L. Simmons	2113520
SM 2540 C-97	08/22/2019			08/23/2019 18:44	Rosalyn Ballman	2113514, 2113515
SM 2540 D-97	08/22/2019			08/23/2019 18:44	Rosalyn Ballman	2113514, 2113515, 2113520
SM 4500 F-C-97	08/22/2019			08/29/2019 20:21	Dale L. Simmons	2113514
	08/22/2019			08/29/2019 20:36	Dale L. Simmons	2113515
	08/22/2019			08/29/2019 21:34	Dale L. Simmons	2113520
SM 5310 B-00	08/22/2019			08/24/2019 01:51	Madeline Funaro	2113516
	08/22/2019			08/24/2019 02:04	Madeline Funaro	2113517
	08/22/2019			08/24/2019 02:16	Madeline Funaro	2113521