

Chemical Analysis Report

NE-DIST-2018-03-29-02

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

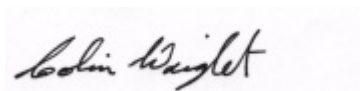
Event Description: **Interlachen_2018**
Request ID: **RQ-2018-02-26-24**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Colin Wright, Program Administrator

Date Certified: 19-APR-2018 13:48

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light pink 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 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: SMITH LAKE CENTER

Collection Date/Time: 03/28/2018 09:50

Field ID: G2NE1156

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1978951	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P342445	
	EPA 300.0 Rev. 2.1	Chloride	5.7		mg Cl/L	P342595	
		Sulfate	1.8		mg SO4/L	P342598	
	SM 2120 B	Color (true)	31	A	PCU	P342456	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P342983	
	SM 2540 C-97	TDS	32		mg/L	P343091	
	SM 2540 D-97	TSS	2	U	mg/L	P342609	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P342987	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P343145	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P342494	
1978957	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P342845	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P342738	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P342907	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P342461	
	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: HARDESTY LAKE CENTER

Collection Date/Time: 03/28/2018 12:40

Field ID: G1NE0869

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1978952	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P342445	
	EPA 300.0 Rev. 2.1	Chloride	7.6		mg Cl/L	P342595	
		Sulfate	1.6		mg SO4/L	P342598	
	SM 2120 B	Color (true)	310		PCU	P342456	
	SM 2320 B-97	Total Alkalinity	1.6	I	mg CaCO3/L	P342983	
	SM 2540 C-97	TDS	57		mg/L	P343091	
	SM 2540 D-97	TSS	2	U	mg/L	P342609	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P342987	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P343145	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P342494	
1978958	EPA 353.2 Rev. 2.0	NO2NO3-N	0.065		mg N/L	P342845	
	EPA 365.1 Rev. 2.0	Total-P	0.033		mg P/L	P342738	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P342907	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.009	I	mg P/L	P342458	
	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: CLEARWATER LAKE CENTER

Collection Date/Time: 03/28/2018 10:30

Field ID: G1NE1131

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1978953	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P342445	
	EPA 300.0 Rev. 2.1	Chloride	8.0		mg Cl/L	P342595	
		Sulfate	5.7		mg SO4/L	P342598	

Field ID: G1NE1131

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1978953	SM 2120 B	Color (true)	170		PCU	P342456	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P342983	
	SM 2540 C-97	TDS	52		mg/L	P343091	
	SM 2540 D-97	TSS	3	I	mg/L	P342609	
	SM 4500 F-C-97	Fluoride	0.051	I	mg F/L	P342987	
1978959	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P343145	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.88		mg N/L	P342494	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P342845	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P342738	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P342907	
1978965	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P342458	

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: CHURCH LAKE CENTER

Collection Date/Time: 03/28/2018 12:10

Field ID: G1NE0867

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1978954	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P342445	
	EPA 300.0 Rev. 2.1	Chloride	5.7		mg Cl/L	P342595	
		Sulfate	3.8		mg SO4/L	P342598	
	SM 2120 B	Color (true)	30		PCU	P342456	
	SM 2320 B-97	Total Alkalinity	4.6		mg CaCO3/L	P342983	
	SM 2540 C-97	TDS	31		mg/L	P343091	
	SM 2540 D-97	TSS	2	U	mg/L	P342609	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P342987	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P343145	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P342494	
1978960	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P342845	
	EPA 365.1 Rev. 2.0	Total-P	0.024		mg P/L	P342738	
	SM 5310 B-00	Organic Carbon	5.9		mg C/L	P342907	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P342458	

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: MARINER LAKE CENTER

Collection Date/Time: 03/28/2018 10:55

Field ID: G1NE0859

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1978955	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P342445	
	EPA 300.0 Rev. 2.1	Chloride	6.1		mg Cl/L	P342595	
		Sulfate	2.2		mg SO4/L	P342598	
	SM 2120 B	Color (true)	14		PCU	P342456	
	SM 2320 B-97	Total Alkalinity	1.2	I	mg CaCO3/L	P343025	RPD
	SM 2540 C-97	TDS	16	I	mg/L	P343091	
	SM 2540 D-97	TSS	2	U	mg/L	P342610	

Field ID: G1NE0859

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1978955	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P343645	
1978961	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P343145	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28		mg N/L	P342494	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P342846	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P342738	
	SM 5310 B-00	Organic Carbon	2.9		mg C/L	P342907	
1978967	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P342458	

Ref. Method and Comment:

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

Sample Location: LAKE IDA CENTER

Collection Date/Time: 03/28/2018 11:45

Field ID: 20020116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1978956	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P342445	
	EPA 300.0 Rev. 2.1	Chloride	8.6		mg Cl/L	P342595	
		Sulfate	2.4		mg SO4/L	P342598	
	SM 2120 B	Color (true)	330		PCU	P342456	
	SM 2320 B-97	Total Alkalinity	1.6	I	mg CaCO3/L	P343025	RPD
	SM 2540 C-97	TDS	56		mg/L	P343091	
	SM 2540 D-97	TSS	2	U	mg/L	P342610	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P343645	
1978962	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P343145	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.65		mg N/L	P342494	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.082		mg N/L	P342846	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P342738	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P342907	
1978968	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.021		mg P/L	P342461	

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: P342445

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P342595

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342598

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343145

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342494

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342845

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342846

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342738

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342458

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342461

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

Reference Method: SM 2120 B
Batch ID: P342456

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P342983

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

Reference Method: SM 2320 B-97
Batch ID: P343025

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

Reference Method: SM 2540 C-97
Batch ID: P343091

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P342609

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P342610

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P342987

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P343645

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P342907

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: P342595

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342595

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	94.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342598

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343145

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342494

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.6		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342845

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342846

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342738

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342458

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342461

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P342983

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.3		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P343025

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.5		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P342987

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.7		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P343645

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.7		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P342907

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342595

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978899	Chloride	94.8		P	90 - 110
1978956	Chloride	96.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342598

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978899	Sulfate	98.0		P	90 - 110
1978956	Sulfate	99.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343145

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978958	Ammonia-N	97.9	98.9	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342494

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978907	Kjeldahl Nitrogen	98.5	99.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342845

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978903	NO2NO3-N	107	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342846

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978961	NO2NO3-N	108	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342738

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978938	Total-P	98.4	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342458

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978908	O-Phosphate-P	98.6	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342461

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978963	O-Phosphate-P	98.4	98.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P342987

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978937	Fluoride	95.9	99.1	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P343645

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978282	Fluoride	97.0	97.0	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P342907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978904	Organic Carbon	102	99.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P342445

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979003	Turbidity	0.738	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342595

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978899	Chloride	0.569	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P342598

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978899	Sulfate	0.517	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343145

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978958	Ammonia-N	0.809	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342494

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978907	Kjeldahl Nitrogen	0.768	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342845

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978903	NO2NO3-N	0.466	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342846

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978961	NO2NO3-N	0.926	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342738

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978938	Total-P	0.202	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978908	O-Phosphate-P	0.203	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342461

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978963	O-Phosphate-P	0.304	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P342456

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978951	Color (true)	0.190	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P342983

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978937	Total Alkalinity	0.278	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P343025

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979714	Total Alkalinity	1.58	Sample	F	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P343091

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978937	TDS	1.70	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P342987

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978937	Fluoride	2.42	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
Batch ID: P343645

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978282	Fluoride	0.0	Spike	P	0 - 3.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P342907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978904	Organic Carbon	2.09	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 300.0 Rev. 2.1
Run ID: A82892
Included Lab Sample IDs: 1978951, 1978952, 1978953, 1978954, 1978955, 1978956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.3	97.7	P/P	90 - 110
Chloride	97.8	97.3	P/P	90 - 110
Sulfate	98.2	98.3	P/P	90 - 110
Sulfate	98.3	97.4	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A82942
Included Lab Sample IDs: 1978951, 1978952, 1978953, 1978954, 1978955, 1978956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A82943
Included Lab Sample IDs: 1978963, 1978964, 1978965, 1978966, 1978967, 1978968

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

Reference Method: SM 2120 B
Run ID: A82944
Included Lab Sample IDs: 1978951, 1978952, 1978953, 1978954, 1978955, 1978956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	101	P/P	85 - 115
Color (true)	99.6	99.8	P/P	85 - 115

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A83005
Included Lab Sample IDs: 1978957, 1978958, 1978959, 1978960, 1978961, 1978962

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	99.4	P/P	90 - 110
Kjeldahl Nitrogen	99.4	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83055

Included Lab Sample IDs: 1978957, 1978958, 1978959, 1978960, 1978961, 1978962

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A83062

Included Lab Sample IDs: 1978957, 1978958, 1978959, 1978960, 1978961, 1978962

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	104	P/P	90 - 110
NO2NO3-N	104	104	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A83079

Included Lab Sample IDs: 1978957, 1978958, 1978959, 1978960, 1978961, 1978962

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.8	98.3	P/P	90 - 110
Organic Carbon	98.6	96.8	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A83098

Included Lab Sample IDs: 1978951, 1978952, 1978953, 1978954

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	98.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A83098

Included Lab Sample IDs: 1978951, 1978952, 1978953, 1978954

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	99.1	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A83116

Included Lab Sample IDs: 1978955, 1978956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	96.4	98.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83153

Included Lab Sample IDs: 1978957, 1978958, 1978959, 1978960, 1978961, 1978962

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	102	P/P	90 - 110
Ammonia-N	99.3	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A83315

Included Lab Sample IDs: 1978955, 1978956

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	102	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				0.738	
EPA 300.0 Rev. 2.1	Chloride	94.7	94.8 96.9		0.569	
	Sulfate	97.1	98.0 99.0		0.517	
EPA 350.1 Rev. 2.0	Ammonia-N	96.4	97.9 98.9			0.809
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.6	98.5 99.6			0.768
EPA 353.2 Rev. 2.0	NO2NO3-N	104	107 108			0.466
	NO2NO3-N	106	108 108			0.926
EPA 365.1 Rev. 2.0	Total-P	103	98.4 98.6			0.202
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	98.6 98.8			0.203
	O-Phosphate-P	103	98.4 98.7			0.304
SM 2120 B	Color (true)				0.190	
SM 2320 B-97	Total Alkalinity	99.3			0.278	
	Total Alkalinity	98.5			1.58	
SM 2540 C-97	TDS				1.70	
SM 4500 F-C-97	Fluoride	94.7	95.9 99.1			2.42
	Fluoride	96.7	97.0 97.0			0.0
SM 5310 B-00	Organic Carbon	99.2	102 99.2			2.09

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1978951, 1978952, 1978953, 1978954, 1978955, 1978956
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1978951, 1978952, 1978953, 1978954, 1978955, 1978956
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1978951, 1978952, 1978953, 1978954, 1978955, 1978956
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1978957, 1978958, 1978959, 1978960, 1978961, 1978962
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1978957, 1978958, 1978959, 1978960, 1978961, 1978962
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1978957, 1978958, 1978959, 1978960, 1978961, 1978962
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1978957, 1978958, 1978959, 1978960, 1978961, 1978962
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1978963, 1978964, 1978965, 1978966, 1978967, 1978968
SM 2120 B / E31780	True Color measured at 450 nm	1978951, 1978952, 1978953, 1978954, 1978955, 1978956

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1978951, 1978952, 1978953, 1978954, 1978955, 1978956
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1978951, 1978952, 1978953, 1978954, 1978955, 1978956
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1978951, 1978952, 1978953, 1978954, 1978955, 1978956
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1978951, 1978952, 1978953, 1978954, 1978955, 1978956
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1978957, 1978958, 1978959, 1978960, 1978961, 1978962

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	03/29/2018			03/29/2018 16:28	DeAsia Armster	1978951, 1978952, 1978953, 1978954, 1978955, 1978956
EPA 300.0 Rev. 2.1	03/29/2018			03/30/2018 16:57	Lipi Saha	1978956
	03/29/2018			03/30/2018 18:44	Lipi Saha	1978951
	03/29/2018			03/30/2018 18:56	Lipi Saha	1978952
	03/29/2018			03/30/2018 19:08	Lipi Saha	1978953
	03/29/2018			03/30/2018 19:20	Lipi Saha	1978954
	03/29/2018			03/30/2018 19:32	Lipi Saha	1978955
EPA 350.1 Rev. 2.0	03/29/2018			04/10/2018 10:23	Ping Hua	1978958
	03/29/2018			04/10/2018 10:34	Ping Hua	1978957
	03/29/2018			04/10/2018 10:35	Ping Hua	1978959
	03/29/2018			04/10/2018 10:43	Ping Hua	1978960
	03/29/2018			04/10/2018 10:45	Ping Hua	1978961
	03/29/2018			04/10/2018 10:46	Ping Hua	1978962
EPA 351.2 Rev. 2.0	03/29/2018	03/30/2018 08:12	Adrian Shelby	04/03/2018 13:02	Joseph Suarez	1978957
	03/29/2018	03/30/2018 08:12	Adrian Shelby	04/03/2018 13:04	Joseph Suarez	1978958
	03/29/2018	03/30/2018 08:12	Adrian Shelby	04/03/2018 13:06	Joseph Suarez	1978959
	03/29/2018	03/30/2018 08:12	Adrian Shelby	04/03/2018 13:07	Joseph Suarez	1978960
	03/29/2018	03/30/2018 08:12	Adrian Shelby	04/03/2018 13:12	Joseph Suarez	1978961
	03/29/2018	03/30/2018 08:12	Adrian Shelby	04/03/2018 13:13	Joseph Suarez	1978962
EPA 353.2 Rev. 2.0	03/29/2018			04/05/2018 12:26	Lauren Bottorf	1978957
	03/29/2018			04/05/2018 12:27	Lauren Bottorf	1978958
	03/29/2018			04/05/2018 12:28	Lauren Bottorf	1978959
	03/29/2018			04/05/2018 12:29	Lauren Bottorf	1978960
	03/29/2018			04/05/2018 12:36	Lauren Bottorf	1978961
	03/29/2018			04/05/2018 12:42	Lauren Bottorf	1978962
EPA 365.1 Rev. 2.0	03/29/2018	04/04/2018 12:52	Sima Feizi	04/05/2018 12:39	Beverly Y. Sanders	1978957, 1978958
	03/29/2018	04/04/2018 12:52	Sima Feizi	04/05/2018 12:40	Beverly Y. Sanders	1978959
	03/29/2018	04/04/2018 12:52	Sima Feizi	04/05/2018 12:41	Beverly Y. Sanders	1978960
	03/29/2018	04/04/2018 12:52	Sima Feizi	04/05/2018 12:42	Beverly Y. Sanders	1978961
	03/29/2018	04/04/2018 12:52	Sima Feizi	04/05/2018 12:43	Beverly Y. Sanders	1978962
EPA 365.1 Rev. 2.0 dissolved	03/29/2018			03/29/2018 14:48	Megan Treadwell	1978963
	03/29/2018			03/29/2018 15:13	Megan Treadwell	1978964
	03/29/2018			03/29/2018 15:14	Megan Treadwell	1978965
	03/29/2018			03/29/2018 15:15	Megan Treadwell	1978966
	03/29/2018			03/29/2018 15:16	Megan Treadwell	1978967, 1978968
SM 2120 B	03/29/2018			03/29/2018 16:48	Tanya Welborn	1978951
	03/29/2018			03/29/2018 16:50	Tanya Welborn	1978954
	03/29/2018			03/29/2018 16:51	Tanya Welborn	1978955
	03/29/2018			03/29/2018 17:20	Tanya Welborn	1978952, 1978953

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B	03/29/2018			03/29/2018 17:21	Tanya Welborn	1978956
SM 2320 B-97	03/29/2018			04/06/2018 02:13	Dale L. Simmons	1978951
	03/29/2018			04/06/2018 02:23	Dale L. Simmons	1978952
	03/29/2018			04/06/2018 02:33	Dale L. Simmons	1978953
	03/29/2018			04/06/2018 02:44	Dale L. Simmons	1978954
	03/29/2018			04/06/2018 20:45	Dale L. Simmons	1978955
	03/29/2018			04/06/2018 20:59	Dale L. Simmons	1978956
SM 2540 C-97	03/29/2018			03/30/2018 11:35	DeAsia Armster	1978951, 1978952, 1978953, 1978954, 1978955, 1978956
SM 2540 D-97	03/29/2018			03/30/2018 11:35	DeAsia Armster	1978951, 1978952, 1978953, 1978954, 1978955, 1978956
SM 4500 F-C-97	03/29/2018			04/06/2018 02:13	Dale L. Simmons	1978951
	03/29/2018			04/06/2018 02:23	Dale L. Simmons	1978952
	03/29/2018			04/06/2018 02:33	Dale L. Simmons	1978953
	03/29/2018			04/06/2018 02:44	Dale L. Simmons	1978954
	03/29/2018			04/17/2018 16:13	Dale L. Simmons	1978955
	03/29/2018			04/17/2018 16:18	Dale L. Simmons	1978956
SM 5310 B-00	03/29/2018			04/06/2018 01:28	Julia Storbeck	1978957
	03/29/2018			04/06/2018 02:05	Julia Storbeck	1978958
	03/29/2018			04/06/2018 02:19	Julia Storbeck	1978959
	03/29/2018			04/06/2018 02:32	Julia Storbeck	1978960
	03/29/2018			04/06/2018 02:44	Julia Storbeck	1978961
	03/29/2018			04/06/2018 02:56	Julia Storbeck	1978962