Chemical Analysis Report

NE-DIST-2018-03-29-01

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

Event Description: **Interlachen 2**
Request ID: **RQ-2018-03-12-18**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
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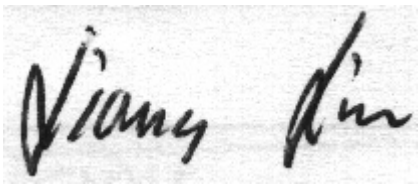
Certified by: Liang Lin, Environmental Administrator

Date Certified: 20-APR-2018 10:21



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: COWPEN LAKE CENTER **Collection Date/Time: 03/28/2018 11:45**

Field ID: 20020053 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1978898	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P342444	
	EPA 300.0 Rev. 2.1	Chloride	9.0		mg Cl/L	P342595	
		Sulfate	3.8		mg SO4/L	P342598	
	SM 2120 B	Color (true)	12		PCU	P342455	
	SM 2320 B-97	Total Alkalinity	1.7	I	mg CaCO3/L	P342983	
	SM 2540 C-97	TDS	33		mg/L	P342835	
	SM 2540 D-97	TSS	2	U	mg/L	P342609	
	SM 4500 F-C-97	Fluoride	0.039	I	mg F/L	P342987	
1978903	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P342924	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.52		mg N/L	P342492	
	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	P342737	
	SM 5310 B-00	Organic Carbon	5.4		mg C/L	P342907	
1978908	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 FANNY CENTER **Collection Date/Time: 03/28/2018 13:05**

Field ID: 20020100 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1978899	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P342444	
	EPA 300.0 Rev. 2.1	Chloride	12	A	mg Cl/L	P342595	
		Sulfate	8.6	A	mg SO4/L	P342598	
	SM 2120 B	Color (true)	53		PCU	P342455	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P342983	
	SM 2540 C-97	TDS	41		mg/L	P342835	
	SM 2540 D-97	TSS	2	U	mg/L	P342609	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P342987	
1978904	EPA 350.1 Rev. 2.0	Ammonia-N	0.66		mg N/L	P342924	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P342492	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P342845	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P342737	
	SM 5310 B-00	Organic Carbon	6.7		mg C/L	P342907	
1978909	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: GILLIS POND CENTER **Collection Date/Time: 03/28/2018 12:45**

Field ID: G1NE0863 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1978900	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P342444	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P342595	
		Sulfate	3.8		mg SO4/L	P342598	

Field ID: G1NE0863 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1978900	SM 2120 B	Color (true)	210		PCU	P342455	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P342983	
	SM 2540 C-97	TDS	53		mg/L	P342835	
	SM 2540 D-97	TSS	2	U	mg/L	P342609	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P342987	
1978905	EPA 350.1 Rev. 2.0	Ammonia-N	1.9		mg N/L	P343145	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	3.0		mg N/L	P342492	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P342845	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P342737	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P342907	
1978910	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: SOUTH BULL POND CENTER **Collection Date/Time: 03/28/2018 10:50**

Field ID: G1NE0861 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1978901	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P342444	
	EPA 300.0 Rev. 2.1	Chloride	9.2		mg Cl/L	P342595	
		Sulfate	3.5		mg SO4/L	P342598	
	SM 2120 B	Color (true)	230		PCU	P342455	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P342983	
	SM 2540 C-97	TDS	56		mg/L	P342835	
	SM 2540 D-97	TSS	2	U	mg/L	P342609	
	SM 4500 F-C-97	Fluoride	0.044	I	mg F/L	P342987	
1978906	EPA 350.1 Rev. 2.0	Ammonia-N	0.18		mg N/L	P343145	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P342492	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P342845	
	EPA 365.1 Rev. 2.0	Total-P	0.031		mg P/L	P342737	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P342907	
1978911	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		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: GALILEE LAKE CENTER **Collection Date/Time: 03/28/2018 13:40**

Field ID: G1NE0870 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1978902	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P342444	
	EPA 300.0 Rev. 2.1	Chloride	7.2		mg Cl/L	P342595	
		Sulfate	3.6		mg SO4/L	P342598	
	SM 2120 B	Color (true)	24		PCU	P342455	
	SM 2320 B-97	Total Alkalinity	1.4	I	mg CaCO3/L	P342983	
	SM 2540 C-97	TDS	27		mg/L	P343091	
	SM 2540 D-97	TSS	2	U	mg/L	P342609	

Field ID: G1NE0870 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1978902	SM 4500 F-C-97	Fluoride	0.038	I	mg F/L	P342987	
1978907	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P343145	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.53		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	0.010		mg P/L	P342737	
	SM 5310 B-00	Organic Carbon	6.2		mg C/L	P342907	
1978912	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.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P342444

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

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: P342924

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/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: P342492

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	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

Quality Assurance Report
Method Blank Results

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 365.1 Rev. 2.0
Batch ID: P342737

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: SM 2120 B
Batch ID: P342455

Component	Result	Code	Units
Color (true)	2.5	U	PCU

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

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 C-97
Batch ID: P342835

Component	Result	Code	Units
TDS	15	U	mg/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 4500 F-C-97
Batch ID: P342987

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: 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
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: P342924

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	92.6		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: P342492

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.7		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 365.1 Rev. 2.0
Batch ID: P342737

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342737

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	106		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: 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 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 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: P342924

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978783	Ammonia-N	97.6	100	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342492

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978785	Kjeldahl Nitrogen	104	104	P/P	90 - 110

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 365.1 Rev. 2.0
Batch ID: P342737

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978904	Total-P	101	103	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: 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 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

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P342444

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978934	Turbidity	5.46	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: P342924

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978783	Ammonia-N	1.89	Spike	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: P342492

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978785	Kjeldahl Nitrogen	0.0458	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

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P342737

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978904	Total-P	1.67	Spike	P	0 - 20

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: SM 2120 B
Batch ID: P342455

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978886	Color (true)	8.53	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 2540 C-97
Batch ID: P342835

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978991	TDS	2.13	Sample	P	0 - 10

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 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

Quality Assurance Report
Precision

* 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: 1978898, 1978899, 1978900, 1978901, 1978902

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A82942
Included Lab Sample IDs: 1978898, 1978899, 1978900, 1978901, 1978902

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.0	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A82943
Included Lab Sample IDs: 1978908, 1978909, 1978910, 1978911, 1978912

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
O-Phosphate-P	102	101	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A82944
Included Lab Sample IDs: 1978898, 1978899, 1978900, 1978901, 1978902

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	101	P/P	85 - 115
Color (true)	99.2	99.6	P/P	85 - 115
Color (true)	99.6	102	P/P	85 - 115

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A83005
Included Lab Sample IDs: 1978903, 1978904, 1978905, 1978906, 1978907

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	99.8	P/P	90 - 110
Kjeldahl Nitrogen	101	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A83055
Included Lab Sample IDs: 1978903, 1978904, 1978905, 1978906, 1978907

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A83062
Included Lab Sample IDs: 1978903, 1978904, 1978905, 1978906, 1978907

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

Reference Method: SM 5310 B-00
Run ID: A83079
Included Lab Sample IDs: 1978903, 1978904, 1978905, 1978906, 1978907

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.0	98.6	P/P	90 - 110
Organic Carbon	98.6	96.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A83082
Included Lab Sample IDs: 1978903, 1978904

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.3	98.9	P/P	90 - 110
Ammonia-N	99.5	102	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A83098
Included Lab Sample IDs: 1978898, 1978899, 1978900, 1978901, 1978902

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: 1978898, 1978899, 1978900, 1978901, 1978902

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A83153
Included Lab Sample IDs: 1978905, 1978906, 1978907

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	102	P/P	90 - 110
Ammonia-N	99.3	101	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		
				LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				5.46	

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
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	92.6	97.6	100			1.89
	Ammonia-N	96.4	97.9	98.9			0.809
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.7	104	104			0.0458
	Kjeldahl Nitrogen	97.6	98.5	99.6			0.768
EPA 353.2 Rev. 2.0	NO2NO3-N	104	107	108			0.466
EPA 365.1 Rev. 2.0	Total-P	106	101	103			1.67
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	98.6	98.8			0.203
SM 2120 B	Color (true)					8.53	
SM 2320 B-97	Total Alkalinity	99.3				0.278	
SM 2540 C-97	TDS					2.13	
	TDS					1.70	
SM 4500 F-C-97	Fluoride	94.7	95.9	99.1			2.42
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	1978898, 1978899, 1978900, 1978901, 1978902
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1978898, 1978899, 1978900, 1978901, 1978902
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1978898, 1978899, 1978900, 1978901, 1978902
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1978903, 1978904, 1978905, 1978906, 1978907
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1978903, 1978904, 1978905, 1978906, 1978907
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1978903, 1978904, 1978905, 1978906, 1978907
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1978903, 1978904, 1978905, 1978906, 1978907
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1978908, 1978909, 1978910, 1978911, 1978912
SM 2120 B / E31780	True Color measured at 450 nm	1978898, 1978899, 1978900, 1978901, 1978902
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1978898, 1978899, 1978900, 1978901, 1978902
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1978898, 1978899, 1978900, 1978901, 1978902
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1978898, 1978899, 1978900, 1978901, 1978902
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1978898, 1978899, 1978900, 1978901, 1978902
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1978903, 1978904, 1978905, 1978906, 1978907

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	1978898, 1978899, 1978900, 1978901, 1978902
EPA 300.0 Rev. 2.1	03/29/2018			03/30/2018 16:33	Lipi Saha	1978899
	03/29/2018			03/30/2018 17:21	Lipi Saha	1978898
	03/29/2018			03/30/2018 17:33	Lipi Saha	1978900
	03/29/2018			03/30/2018 17:45	Lipi Saha	1978901
	03/29/2018			03/30/2018 17:56	Lipi Saha	1978902
EPA 350.1 Rev. 2.0	03/29/2018			04/05/2018 11:02	Ping Hua	1978903
	03/29/2018			04/05/2018 13:38	Ping Hua	1978904
	03/29/2018			04/10/2018 10:31	Ping Hua	1978907
	03/29/2018			04/10/2018 12:21	Ping Hua	1978905
	03/29/2018			04/10/2018 12:22	Ping Hua	1978906
EPA 351.2 Rev. 2.0	03/29/2018	03/30/2018 08:12	Adrian Shelby	04/03/2018 12:19	Joseph Suarez	1978903
	03/29/2018	03/30/2018 08:12	Adrian Shelby	04/03/2018 12:21	Joseph Suarez	1978904
	03/29/2018	03/30/2018 08:12	Adrian Shelby	04/03/2018 12:22	Joseph Suarez	1978905
	03/29/2018	03/30/2018 08:12	Adrian Shelby	04/03/2018 12:24	Joseph Suarez	1978906
	03/29/2018	03/30/2018 08:12	Adrian Shelby	04/03/2018 12:56	Joseph Suarez	1978907
EPA 353.2 Rev. 2.0	03/29/2018			04/05/2018 12:14	Lauren Bottorf	1978903
	03/29/2018			04/05/2018 12:20	Lauren Bottorf	1978904
	03/29/2018			04/05/2018 12:21	Lauren Bottorf	1978905
	03/29/2018			04/05/2018 12:22	Lauren Bottorf	1978906
	03/29/2018			04/05/2018 12:23	Lauren Bottorf	1978907
EPA 365.1 Rev. 2.0	03/29/2018	04/04/2018 12:52	Sima Feizi	04/05/2018 12:26	Beverly Y. Sanders	1978903
	03/29/2018	04/04/2018 12:52	Sima Feizi	04/05/2018 12:27	Beverly Y. Sanders	1978904
	03/29/2018	04/04/2018 12:52	Sima Feizi	04/05/2018 12:28	Beverly Y. Sanders	1978905
	03/29/2018	04/04/2018 12:52	Sima Feizi	04/05/2018 12:29	Beverly Y. Sanders	1978906
	03/29/2018	04/04/2018 12:52	Sima Feizi	04/05/2018 12:37	Beverly Y. Sanders	1978907
EPA 365.1 Rev. 2.0 dissolved	03/29/2018			03/29/2018 14:36	Megan Treadwell	1978908
	03/29/2018			03/29/2018 15:04	Megan Treadwell	1978909
	03/29/2018			03/29/2018 15:05	Megan Treadwell	1978910, 1978911
	03/29/2018			03/29/2018 15:11	Megan Treadwell	1978912
SM 2120 B	03/29/2018			03/29/2018 16:40	Tanya Welborn	1978898
	03/29/2018			03/29/2018 16:41	Tanya Welborn	1978899
	03/29/2018			03/29/2018 16:44	Tanya Welborn	1978902
	03/29/2018			03/29/2018 17:16	Tanya Welborn	1978900
	03/29/2018			03/29/2018 17:19	Tanya Welborn	1978901
SM 2320 B-97	03/29/2018			04/06/2018 01:27	Dale L. Simmons	1978898
	03/29/2018			04/06/2018 01:37	Dale L. Simmons	1978899
	03/29/2018			04/06/2018 01:46	Dale L. Simmons	1978900
	03/29/2018			04/06/2018 01:53	Dale L. Simmons	1978901

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-97	03/29/2018			04/06/2018 02:04	Dale L. Simmons	1978902
SM 2540 C-97	03/29/2018			03/30/2018 11:35	DeAsia Armster	1978898, 1978899, 1978900, 1978901, 1978902
SM 2540 D-97	03/29/2018			03/30/2018 11:35	DeAsia Armster	1978898, 1978899, 1978900, 1978901, 1978902
SM 4500 F-C-97	03/29/2018			04/06/2018 01:27	Dale L. Simmons	1978898
	03/29/2018			04/06/2018 01:37	Dale L. Simmons	1978899
	03/29/2018			04/06/2018 01:46	Dale L. Simmons	1978900
	03/29/2018			04/06/2018 01:53	Dale L. Simmons	1978901
	03/29/2018			04/06/2018 02:04	Dale L. Simmons	1978902
SM 5310 B-00	03/29/2018			04/05/2018 22:37	Julia Storbeck	1978904
	03/29/2018			04/06/2018 00:23	Julia Storbeck	1978903
	03/29/2018			04/06/2018 00:38	Julia Storbeck	1978905
	03/29/2018			04/06/2018 00:50	Julia Storbeck	1978906
	03/29/2018			04/06/2018 01:02	Julia Storbeck	1978907