Chemical Analysis Report

NE-DIST-2018-06-01-01

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

Event Description: **Interlachen_2018**
Request ID: **RQ-2018-04-23-23**
Customer: **NE-DIST**
Project ID: **SMP**

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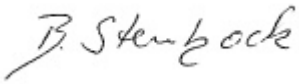
Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 18-JUN-2018 16:34



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: CLEARWATER LAKE CENTER **Collection Date/Time: 05/31/2018 14:30**

Field ID: G1NE1131 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996513	EPA 180.1 Rev. 2.0	Turbidity	1.6		NTU	P346282	
	EPA 300.0 Rev. 2.1	Chloride	7.3		mg Cl/L	P346443	
		Sulfate	4.8		mg SO4/L	P346445	
	SM 2120 B	Color (true)	150		PCU	P346278	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P346613	
	SM 2540 C-97	TDS	37		mg/L	P346790	
	SM 2540 D-97	TSS	2	I	mg/L	P346729	
	SM 4500 F-C-97	Fluoride	0.044	I	mg F/L	P346617	
1996517	EPA 350.1 Rev. 2.0	Ammonia-N	0.096		mg N/L	P346692	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.80		mg N/L	P346462	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.010		mg N/L	P346322	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P346387	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P346675	
1996521	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P346286	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: MARINER LAKE CENTER **Collection Date/Time: 05/31/2018 12:15**

Field ID: G1NE0859 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996514	EPA 180.1 Rev. 2.0	Turbidity	0.80		NTU	P346282	
	EPA 300.0 Rev. 2.1	Chloride	6.0		mg Cl/L	P346443	
		Sulfate	2.1		mg SO4/L	P346445	
	SM 2120 B	Color (true)	12		PCU	P346278	
	SM 2320 B-97	Total Alkalinity	1.4	I	mg CaCO3/L	P346613	
	SM 2540 C-97	TDS	27		mg/L	P346790	
	SM 2540 D-97	TSS	2	I	mg/L	P346729	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P346617	
1996518	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P346692	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28		mg N/L	P346462	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P346322	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P346387	
	SM 5310 B-00	Organic Carbon	3.0		mg C/L	P346675	
1996522	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P346286	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: CHURCH LAKE CENTER **Collection Date/Time: 05/31/2018 13:25**

Field ID: G1NE0867 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes

Field ID: G1NE0867 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996515	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P346282	
	EPA 300.0 Rev. 2.1	Chloride	5.5		mg Cl/L	P346443	
		Sulfate	3.5		mg SO4/L	P346445	
	SM 2120 B	Color (true)	22		PCU	P346278	
	SM 2320 B-97	Total Alkalinity	4.5		mg CaCO3/L	P346613	
	SM 2540 C-97	TDS	23	I	mg/L	P346791	
	SM 2540 D-97	TSS	2	I	mg/L	P346730	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P346617	
1996519	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P346692	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P346462	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P346322	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P346387	
	SM 5310 B-00	Organic Carbon	5.5		mg C/L	P346675	
1996523	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P346286	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: HARDESTY LAKE CENTER **Collection Date/Time: 05/31/2018 10:55**

Field ID: G1NE0869 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1996516	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P346282	
	EPA 300.0 Rev. 2.1	Chloride	6.8		mg Cl/L	P346443	
		Sulfate	0.92		mg SO4/L	P346445	
	SM 2120 B	Color (true)	270		PCU	P346278	
	SM 2320 B-97	Total Alkalinity	1.2	I	mg CaCO3/L	P346613	
	SM 2540 C-97	TDS	31		mg/L	P346791	
	SM 2540 D-97	TSS	4	I	mg/L	P346730	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P346617	
1996520	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P346692	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.96		mg N/L	P346462	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P346322	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P346387	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P346675	
1996524	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P346286	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0: Total-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.
SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P346282

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346443

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346445

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346692

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346462

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346322

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346387

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346286

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

Reference Method: SM 2120 B
Batch ID: P346278

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P346613

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

Reference Method: SM 2540 C-97
Batch ID: P346790

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P346791

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P346729

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P346730

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P346617

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P346675

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: P346443

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346445

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346445

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346692

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346462

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346322

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346387

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: P346286

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

Reference Method: SM 2320 B-97
Batch ID: P346613

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P346617

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

Reference Method: SM 5310 B-00
Batch ID: P346675

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346443

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996399	Chloride	99.8		P	90 - 110
1996562	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346445

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996399	Sulfate	101		P	90 - 110
1996562	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346692

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996463	Ammonia-N	94.3	96.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346462

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996518	Kjeldahl Nitrogen	108	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346322

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996463	NO2NO3-N	101		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346286

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1996521	O-Phosphate-P	97.5	98.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P346617

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1997172	Fluoride	97.0	99.0	P/P	91 - 105

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P346282

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996501	Turbidity	1.76	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346443

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996562	Chloride	0.752	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P346445

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996562	Sulfate	0.357	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346692

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996463	Ammonia-N	2.06	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346462

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996518	Kjeldahl Nitrogen	2.85	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996463	NO2NO3-N	0.425	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346387

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996563	Total-P	3.47	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P346286

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996521	O-Phosphate-P	0.583	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P346278

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996565	Color (true)	0.546	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-97
Batch ID: P346613

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997172	Total Alkalinity	1.46	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P346790

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996562	TDS	3.31	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P346791

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996565	TDS	1.98	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P346617

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1997172	Fluoride	1.43	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P346675

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996382	Organic Carbon	0.158	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: SM 2120 B
Run ID: A84304
Included Lab Sample IDs: 1996513, 1996514, 1996515, 1996516

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	90 - 115
Color (true)	99.5	101	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A84305
Included Lab Sample IDs: 1996513, 1996514, 1996515, 1996516

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A84306
Included Lab Sample IDs: 1996521, 1996522, 1996523, 1996524

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.7	97.9	P/P	90 - 110
O-Phosphate-P	98.4	99.7	P/P	90 - 110
O-Phosphate-P	99.7	97.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A84329
Included Lab Sample IDs: 1996517, 1996518, 1996519, 1996520

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A84339
Included Lab Sample IDs: 1996513, 1996514, 1996515, 1996516

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	99.8	P/P	90 - 110
Sulfate	102	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A84427
Included Lab Sample IDs: 1996517, 1996518, 1996519

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

Reference Method: SM 2320 B-97
Run ID: A84458
Included Lab Sample IDs: 1996513, 1996514, 1996515, 1996516

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.4	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A84458
Included Lab Sample IDs: 1996513, 1996514, 1996515, 1996516

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	98.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A84460
Included Lab Sample IDs: 1996520

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A84463
Included Lab Sample IDs: 1996517, 1996518, 1996519, 1996520

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	108	P/P	90 - 110
Kjeldahl Nitrogen	108	101	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A84491
Included Lab Sample IDs: 1996517, 1996518, 1996519, 1996520

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.6	97.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A84494
Included Lab Sample IDs: 1996517, 1996518, 1996519, 1996520

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	93.8	P/P	90 - 110
Ammonia-N	93.8	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					1.76	
EPA 300.0 Rev. 2.1	Chloride	103	102	99.8		0.752	
	Sulfate	103	102	101		0.357	
EPA 350.1 Rev. 2.0	Ammonia-N	99.5	94.3	96.5			2.06
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	108	104			2.85
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	101				0.425
EPA 365.1 Rev. 2.0	Total-P	106					3.47
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.5	97.5	98.1			0.583
SM 2120 B	Color (true)					0.546	
SM 2320 B-97	Total Alkalinity	102				1.46	
SM 2540 C-97	TDS					3.31	
	TDS					1.98	
SM 4500 F-C-97	Fluoride	94.7	97.0	99.0			1.43
SM 5310 B-00	Organic Carbon	99.6					0.158

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1996513, 1996514, 1996515, 1996516
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1996513, 1996514, 1996515, 1996516

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1996513, 1996514, 1996515, 1996516
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1996517, 1996518, 1996519, 1996520
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1996517, 1996518, 1996519, 1996520
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1996517, 1996518, 1996519, 1996520
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1996517, 1996518, 1996519, 1996520
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1996521, 1996522, 1996523, 1996524
SM 2120 B / E31780	True Color measured at 450 nm	1996513, 1996514, 1996515, 1996516
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1996513, 1996514, 1996515, 1996516
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1996513, 1996514, 1996515, 1996516
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	1996513, 1996514, 1996515, 1996516
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1996513, 1996514, 1996515, 1996516
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1996517, 1996518, 1996519, 1996520

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	06/01/2018			06/01/2018 16:16	Julia Storbeck	1996513, 1996514, 1996515, 1996516
EPA 300.0 Rev. 2.1	06/01/2018			06/05/2018 15:35	Lipi Saha	1996513
	06/01/2018			06/05/2018 15:47	Lipi Saha	1996514
	06/01/2018			06/05/2018 15:59	Lipi Saha	1996515
	06/01/2018			06/05/2018 16:11	Lipi Saha	1996516
EPA 350.1 Rev. 2.0	06/01/2018			06/11/2018 13:17	Julia Storbeck	1996517
	06/01/2018			06/11/2018 13:19	Julia Storbeck	1996518
	06/01/2018			06/11/2018 13:20	Julia Storbeck	1996519
	06/01/2018			06/11/2018 13:28	Julia Storbeck	1996520
EPA 351.2 Rev. 2.0	06/01/2018	06/06/2018 10:40	Adrian Shelby	06/08/2018 14:37	Joseph Suarez	1996517
	06/01/2018	06/06/2018 10:40	Adrian Shelby	06/08/2018 14:39	Joseph Suarez	1996518
	06/01/2018	06/06/2018 10:40	Adrian Shelby	06/08/2018 14:47	Joseph Suarez	1996519
	06/01/2018	06/06/2018 10:40	Adrian Shelby	06/08/2018 14:48	Joseph Suarez	1996520
EPA 353.2 Rev. 2.0	06/01/2018			06/04/2018 11:29	Lauren Bottorf	1996517
	06/01/2018			06/04/2018 11:30	Lauren Bottorf	1996518
	06/01/2018			06/04/2018 11:31	Lauren Bottorf	1996519
	06/01/2018			06/04/2018 11:32	Lauren Bottorf	1996520
EPA 365.1 Rev. 2.0	06/01/2018	06/05/2018 11:00	Sima Feizi	06/07/2018 12:00	Beverly Y. Sanders	1996517
	06/01/2018	06/05/2018 11:00	Sima Feizi	06/07/2018 12:01	Beverly Y. Sanders	1996518
	06/01/2018	06/05/2018 11:00	Sima Feizi	06/07/2018 12:02	Beverly Y. Sanders	1996519
	06/01/2018	06/05/2018 11:00	Sima Feizi	06/08/2018 13:14	Beverly Y. Sanders	1996520
EPA 365.1 Rev. 2.0 dissolved	06/01/2018			06/01/2018 15:58	Megan Treadwell	1996521
	06/01/2018			06/01/2018 16:16	Megan Treadwell	1996522
	06/01/2018			06/01/2018 16:17	Megan Treadwell	1996523
	06/01/2018			06/01/2018 16:22	Megan Treadwell	1996524
SM 2120 B	06/01/2018			06/01/2018 15:15	Tanya Welborn	1996513
	06/01/2018			06/01/2018 15:16	Tanya Welborn	1996514, 1996515
	06/01/2018			06/01/2018 15:52	Tanya Welborn	1996516
SM 2320 B-97	06/01/2018			06/07/2018 03:30	Dale L. Simmons	1996513
	06/01/2018			06/07/2018 03:42	Dale L. Simmons	1996514
	06/01/2018			06/07/2018 03:53	Dale L. Simmons	1996515
	06/01/2018			06/07/2018 04:01	Dale L. Simmons	1996516
SM 2540 C-97	06/01/2018			06/06/2018 15:03	Yijie Li	1996513, 1996514, 1996515, 1996516
SM 2540 D-97	06/01/2018			06/06/2018 15:03	Yijie Li	1996513, 1996514, 1996515, 1996516
SM 4500 F-C-97	06/01/2018			06/07/2018 03:30	Dale L. Simmons	1996513
	06/01/2018			06/07/2018 03:42	Dale L. Simmons	1996514
	06/01/2018			06/07/2018 03:53	Dale L. Simmons	1996515
	06/01/2018			06/07/2018 04:01	Dale L. Simmons	1996516
SM 5310 B-00	06/01/2018			06/08/2018 16:53	Megan Treadwell	1996517
	06/01/2018			06/08/2018 17:08	Megan Treadwell	1996518

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	06/01/2018			06/08/2018 17:25	Megan Treadwell	1996519
	06/01/2018			06/08/2018 17:41	Megan Treadwell	1996520