Chemical Analysis Report

NE-DIST-2018-05-15-01

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

Event Description: **UEC**
Request ID: **RQ-2018-05-07-29**
Customer: **NE-DIST**
Project ID: **SMP**

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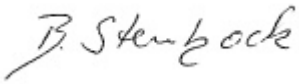
Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 08-JUN-2018 18:47



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: LAKE VEDRA AT SOLANA RD. **Collection Date/Time: 05/14/2018 09:00**

Field ID: 27010180 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992608	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P345361	
	EPA 300.0 Rev. 2.1	Chloride	140		mg Cl/L	P345692	
		Sulfate	100		mg SO4/L	P345693	
	SM 2120 B	Color (true)	54		PCU	P345339	
	SM 2320 B-97	Total Alkalinity	139	Q	mg CaCO3/L	P346239	RPD
	SM 2540 C-97	TDS	571		mg/L	P345722	
	SM 2540 D-97	TSS	25		mg/L	P345714	
	SM 4500 F-C-97	Fluoride	0.29		mg F/L	P345491	
1992613	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P345567	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.3		mg N/L	P345536	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P345410	
	EPA 365.1 Rev. 2.0	Total-P	0.25		mg P/L	P345444	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P345624	
1992618	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.052		mg P/L	P345366	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2320 B-97: Sample expired because of analytical difficulties.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: PONTE VEDRA LK @ SAWGRASS DR. **Collection Date/Time: 05/14/2018 09:20**

Field ID: 27010182 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992609	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P345361	
	EPA 300.0 Rev. 2.1	Chloride	130		mg Cl/L	P345692	
		Sulfate	90		mg SO4/L	P345693	
	SM 2120 B	Color (true)	61		PCU	P345339	
	SM 2320 B-97	Total Alkalinity	127		mg CaCO3/L	P345489	
	SM 2540 C-97	TDS	546	A	mg/L	P345722	
	SM 2540 D-97	TSS	4	IA	mg/L	P345714	
	SM 4500 F-C-97	Fluoride	0.24		mg F/L	P345491	
1992614	EPA 350.1 Rev. 2.0	Ammonia-N	0.11		mg N/L	P345567	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P345536	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P345410	
	EPA 365.1 Rev. 2.0	Total-P	0.18		mg P/L	P345444	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P345624	
1992619	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P345366	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: MOSES CR AT US 1 **Collection Date/Time: 05/14/2018 12:10**

Field ID: 27010050 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992610	EPA 180.1 Rev. 2.0	Turbidity	4.8		NTU	P345361	
	EPA 300.0 Rev. 2.1	Chloride	65		mg Cl/L	P345692	
		Sulfate	13		mg SO4/L	P345693	
	SM 2120 B	Color (true)	93		PCU	P345339	
	SM 2320 B-97	Total Alkalinity	125	A	mg CaCO3/L	P345489	
	SM 2540 C-97	TDS	282		mg/L	P345722	
	SM 2540 D-97	TSS	4	I	mg/L	P345714	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P345491	
1992615	EPA 350.1 Rev. 2.0	Ammonia-N	0.031		mg N/L	P345567	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.75		mg N/L	P345536	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.064		mg N/L	P345411	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P345444	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P345624	
1992620	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.088		mg P/L	P345366	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
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: The result was confirmed on 05/24/2018.

Sample Location: MOSES CR @ US 1 **Collection Date/Time: 05/14/2018 12:15**

Field ID: 27010050DUP Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992611	EPA 180.1 Rev. 2.0	Turbidity	4.6		NTU	P345361	
	EPA 300.0 Rev. 2.1	Chloride	65		mg Cl/L	P345692	
		Sulfate	13		mg SO4/L	P345693	
	SM 2120 B	Color (true)	93		PCU	P345339	
	SM 2320 B-97	Total Alkalinity	125		mg CaCO3/L	P345489	
	SM 2540 C-97	TDS	281		mg/L	P345722	
	SM 2540 D-97	TSS	4	I	mg/L	P345714	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P345491	
1992616	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P345567	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.84		mg N/L	P346212	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.063		mg N/L	P345411	
	EPA 365.1 Rev. 2.0	Total-P	0.18		mg P/L	P345444	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P345624	
1992621	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.088		mg P/L	P345366	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
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: The result was confirmed on 05/24/2018.

Sample Location: PALM COAST CANAL AT OLD KINGS RD. **Collection Date/Time: 05/14/2018 11:20**

Field ID: G5NE0005 Matrix: W-SURF-FRH

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

Field ID: G5NE0005 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1992612	EPA 180.1 Rev. 2.0	Turbidity	3.5		NTU	P345362	
	EPA 300.0 Rev. 2.1	Chloride	34		mg Cl/L	P345692	
		Sulfate	9.7		mg SO4/L	P345693	
	SM 2120 B	Color (true)	230		PCU	P345340	
	SM 2320 B-97	Total Alkalinity	77		mg CaCO3/L	P345489	
	SM 2540 C-97	TDS	216	A	mg/L	P345723	
	SM 2540 D-97	TSS	4	IA	mg/L	P345715	
	SM 4500 F-C-97	Fluoride	0.090	I	mg F/L	P345491	
1992617	EPA 350.1 Rev. 2.0	Ammonia-N	0.13		mg N/L	P345568	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.88		mg N/L	P346212	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.024		mg N/L	P345411	
	EPA 365.1 Rev. 2.0	Total-P	0.23		mg P/L	P345444	
	SM 5310 B-00	Organic Carbon	23		mg C/L	P345624	
1992622	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.15		mg P/L	P345366	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
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: P345361

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P345362

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345692

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345693

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345567

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345568

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345536

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346212

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345410

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345411

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345444

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345366

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

Reference Method: SM 2120 B
Batch ID: P345339

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P345340

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P345489

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

Reference Method: SM 2320 B-97
Batch ID: P346239

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

Reference Method: SM 2540 C-97
Batch ID: P345722

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P345723

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P345714

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P345715

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P345491

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P345624

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: P345692

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: P345692

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345693

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345567

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345568

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345536

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346212

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345410

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345411

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345444

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345366

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.2		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P345489

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P346239

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

Reference Method: SM 4500 F-C-97
Batch ID: P345491

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	92.9		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P345624

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345692

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992556	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345693

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992556	Sulfate	99.8		P	90 - 110
1992612	Sulfate	93.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345567

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992557	Ammonia-N	98.6	99.5	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345568

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992646	Ammonia-N	95.2	97.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345536

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992599	Kjeldahl Nitrogen	91.5	91.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346212

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992643	Kjeldahl Nitrogen	95.1	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345410

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992466	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345411

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992617	NO2NO3-N	97.7	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345444

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992645	Total-P	103	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345366

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992558	O-Phosphate-P	96.4	97.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P345491

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1992610	Fluoride	94.4	93.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P345624

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1991039	Organic Carbon	98.0	97.9	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P345361

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992568	Turbidity	4.12	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P345362

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992717	Turbidity	2.71	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345692

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992556	Chloride	1.25	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P345693

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992556	Sulfate	2.28	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345567

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992557	Ammonia-N	0.740	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P345568

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992646	Ammonia-N	2.12	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P345536

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992599	Kjeldahl Nitrogen	0.216	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346212

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992643	Kjeldahl Nitrogen	2.65	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345410

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992466	NO2NO3-N	0.499	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P345411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992617	NO2NO3-N	0.909	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P345444

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992645	Total-P	3.05	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345366

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992558	O-Phosphate-P	1.24	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P345339

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992569	Color (true)	0.150	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P345340

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992640	Color (true)	3.59	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P345489

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992610	Total Alkalinity	0.0961	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P346239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1996051	Total Alkalinity	3.21	Sample	F	0 - 1.6

Quality Assurance Report
Precision

Reference Method: SM 2540 C-97
Batch ID: P345722

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992609	TDS	6.04	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P345723

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992612	TDS	7.89	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P345491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1992610	Fluoride	0.480	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P345624

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1991039	Organic Carbon	0.0808	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: A83897
Included Lab Sample IDs: 1992608, 1992609, 1992610, 1992611, 1992612

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.4	98.4	P/P	90 - 115
Color (true)	98.9	99.1	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A83908
Included Lab Sample IDs: 1992608, 1992609, 1992610, 1992611, 1992612

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	102	P/P	95 - 105
Turbidity	102	99.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A83910
Included Lab Sample IDs: 1992618, 1992619, 1992620, 1992621, 1992622

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A83910
Included Lab Sample IDs: 1992618, 1992619, 1992620, 1992621, 1992622

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.0	96.7	P/P	90 - 110
O-Phosphate-P	97.3	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A83934
Included Lab Sample IDs: 1992613, 1992614, 1992615, 1992616, 1992617

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	101	P/P	90 - 110
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A83973
Included Lab Sample IDs: 1992609, 1992610, 1992611, 1992612

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	99.0	P/P	90 - 110
Total Alkalinity	99.0	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A83973
Included Lab Sample IDs: 1992608, 1992609, 1992610, 1992611, 1992612

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.7	98.1	P/P	90 - 110
Fluoride	98.1	96.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A84010
Included Lab Sample IDs: 1992613, 1992614, 1992615, 1992616, 1992617

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	99.9	P/P	90 - 110
Ammonia-N	101	100	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A84034
Included Lab Sample IDs: 1992613, 1992614, 1992615, 1992616, 1992617

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	99.8	P/P	90 - 110
Organic Carbon	99.8	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A84044
Included Lab Sample IDs: 1992613, 1992614, 1992615

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.2	96.0	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A84061
Included Lab Sample IDs: 1992608, 1992609, 1992610, 1992611, 1992612

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.9	98.3	P/P	90 - 110
Chloride	99.6	97.9	P/P	90 - 110
Sulfate	101	98.5	P/P	90 - 110
Sulfate	98.5	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A84065
Included Lab Sample IDs: 1992613, 1992614, 1992615, 1992616, 1992617

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.8	P/P	90 - 110
Total-P	101	100	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A84290
Included Lab Sample IDs: 1992608

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.2	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A84322
Included Lab Sample IDs: 1992616, 1992617

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.3	94.2	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					4.12	
	Turbidity					2.71	
EPA 300.0 Rev. 2.1	Chloride	101	101			1.25	
	Sulfate	101	99.8	93.7		2.28	
EPA 350.1 Rev. 2.0	Ammonia-N	102	98.6	99.5			0.740
	Ammonia-N	103	95.2	97.8			2.12
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.9	91.5	91.9			0.216
	Kjeldahl Nitrogen	95.4	95.1	100			2.65
EPA 353.2 Rev. 2.0	NO2NO3-N	102	100	100			0.499
	NO2NO3-N	102	97.7	98.7			0.909
EPA 365.1 Rev. 2.0	Total-P	106	103	100			3.05
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.2	96.4	97.6			1.24
SM 2120 B	Color (true)					0.150	
	Color (true)					3.59	

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
SM 2320 B-97	Total Alkalinity	101				0.0961	
	Total Alkalinity	102				3.21	
SM 2540 C-97	TDS					6.04	
	TDS					7.89	
SM 4500 F-C-97	Fluoride	92.9	94.4	93.8			0.480
SM 5310 B-00	Organic Carbon	99.4	98.0	97.9			0.0808

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1992608, 1992609, 1992610, 1992611, 1992612
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1992608, 1992609, 1992610, 1992611, 1992612
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1992608, 1992609, 1992610, 1992611, 1992612
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1992613, 1992614, 1992615, 1992616, 1992617
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1992613, 1992614, 1992615, 1992616, 1992617
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1992613, 1992614, 1992615, 1992616, 1992617
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1992613, 1992614, 1992615, 1992616, 1992617
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1992618, 1992619, 1992620, 1992621, 1992622
SM 2120 B / E31780	True Color measured at 450 nm	1992608, 1992609, 1992610, 1992611, 1992612
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1992608, 1992609, 1992610, 1992611, 1992612
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1992608, 1992609, 1992610, 1992611, 1992612
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	1992608, 1992609, 1992610, 1992611, 1992612
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1992608, 1992609, 1992610, 1992611, 1992612
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1992613, 1992614, 1992615, 1992616, 1992617

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	05/15/2018			05/15/2018 15:35	William L. Brown IV	1992608, 1992609, 1992610, 1992611, 1992612
EPA 300.0 Rev. 2.1	05/15/2018			05/21/2018 18:09	Lipi Saha	1992612
	05/15/2018			05/21/2018 19:57	Lipi Saha	1992608
	05/15/2018			05/21/2018 20:09	Lipi Saha	1992609
	05/15/2018			05/21/2018 20:21	Lipi Saha	1992610
	05/15/2018			05/21/2018 20:33	Lipi Saha	1992611
EPA 350.1 Rev. 2.0	05/15/2018			05/18/2018 10:22	Ping Hua	1992613
	05/15/2018			05/18/2018 10:24	Ping Hua	1992614
	05/15/2018			05/18/2018 10:25	Ping Hua	1992615
	05/15/2018			05/18/2018 10:27	Ping Hua	1992616
	05/15/2018			05/18/2018 10:37	Ping Hua	1992617
EPA 351.2 Rev. 2.0	05/15/2018	05/17/2018 15:45	Adrian Shelby	05/18/2018 21:12	Joseph Suarez	1992613
	05/15/2018	05/17/2018 15:45	Adrian Shelby	05/18/2018 21:14	Joseph Suarez	1992614
	05/15/2018	05/17/2018 15:45	Adrian Shelby	05/18/2018 21:15	Joseph Suarez	1992615
	05/15/2018	05/31/2018 18:10	Adrian Shelby	06/04/2018 12:08	Joseph Suarez	1992616
	05/15/2018	05/31/2018 18:10	Adrian Shelby	06/04/2018 12:10	Joseph Suarez	1992617
EPA 353.2 Rev. 2.0	05/15/2018			05/16/2018 12:51	Lauren Bottorf	1992613
	05/15/2018			05/16/2018 12:52	Lauren Bottorf	1992614
	05/15/2018			05/16/2018 12:59	Lauren Bottorf	1992617
	05/15/2018			05/16/2018 13:05	Lauren Bottorf	1992615
	05/15/2018			05/16/2018 13:06	Lauren Bottorf	1992616
EPA 365.1 Rev. 2.0	05/15/2018	05/16/2018 08:57	Sima Feizi	05/22/2018 10:36	Beverly Y. Sanders	1992613
	05/15/2018	05/16/2018 08:57	Sima Feizi	05/22/2018 10:37	Beverly Y. Sanders	1992614
	05/15/2018	05/16/2018 08:57	Sima Feizi	05/22/2018 10:41	Beverly Y. Sanders	1992615
	05/15/2018	05/16/2018 08:57	Sima Feizi	05/22/2018 10:42	Beverly Y. Sanders	1992616
	05/15/2018	05/16/2018 08:57	Sima Feizi	05/22/2018 10:43	Beverly Y. Sanders	1992617
EPA 365.1 Rev. 2.0 dissolved	05/15/2018			05/15/2018 15:55	Megan Treadwell	1992620
	05/15/2018			05/15/2018 15:56	Megan Treadwell	1992621
	05/15/2018			05/15/2018 16:21	Megan Treadwell	1992618
	05/15/2018			05/15/2018 16:23	Megan Treadwell	1992619
	05/15/2018			05/15/2018 16:26	Megan Treadwell	1992622
SM 2120 B	05/15/2018			05/15/2018 14:40	Julia Storbeck	1992608
	05/15/2018			05/15/2018 14:41	Julia Storbeck	1992609
	05/15/2018			05/15/2018 14:42	Julia Storbeck	1992610
	05/15/2018			05/15/2018 14:43	Julia Storbeck	1992611
	05/15/2018			05/15/2018 15:01	Julia Storbeck	1992612
SM 2320 B-97	05/15/2018			05/16/2018 17:22	Dale L. Simmons	1992610
	05/15/2018			05/16/2018 20:08	Dale L. Simmons	1992609
	05/15/2018			05/16/2018 20:19	Dale L. Simmons	1992611

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-97	05/15/2018			05/16/2018 20:29	Dale L. Simmons	1992612
	05/15/2018			05/31/2018 20:15	Dale L. Simmons	1992608
SM 2540 C-97	05/15/2018			05/16/2018 15:26	Yijie Li	1992608, 1992609, 1992610, 1992611, 1992612
SM 2540 D-97	05/15/2018			05/16/2018 15:26	Yijie Li	1992608, 1992609, 1992610, 1992611, 1992612
SM 4500 F-C-97	05/15/2018			05/16/2018 17:15	Dale L. Simmons	1992610
	05/15/2018			05/16/2018 19:58	Dale L. Simmons	1992608
	05/15/2018			05/16/2018 20:08	Dale L. Simmons	1992609
	05/15/2018			05/16/2018 20:19	Dale L. Simmons	1992611
	05/15/2018			05/16/2018 20:29	Dale L. Simmons	1992612
SM 5310 B-00	05/15/2018			05/18/2018 19:09	Julia Storbeck	1992613
	05/15/2018			05/18/2018 19:21	Julia Storbeck	1992614
	05/15/2018			05/18/2018 19:34	Julia Storbeck	1992615
	05/15/2018			05/18/2018 19:46	Julia Storbeck	1992616
	05/15/2018			05/18/2018 20:23	Julia Storbeck	1992617