Chemical Analysis Report

NE-DIST-2018-07-26-02

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

Event Description: **Upper East Coast**
Request ID: **RQ-2018-07-23-24**
Customer: **NE-DIST**
Project ID: **SMP**

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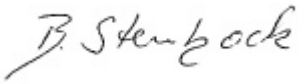
Certified by: Dr. rer. nat. Bettina Steinbock, Environmental Administrator Date Certified: 16-AUG-2018 16:24



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: 07/25/2018 08:45**

Field ID: 27010180 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2011171	EPA 180.1 Rev. 2.0	Turbidity	6.0		NTU	P349236	
	EPA 300.0 Rev. 2.1	Chloride	130		mg Cl/L	P349591	
		Sulfate	96		mg SO4/L	P349594	
	SM 2120 B	Color (true)	57		PCU	P349232	
	SM 2320 B-97	Total Alkalinity	127		mg CaCO3/L	P349484	
	SM 2540 C-97	TDS	504	A	mg/L	P349480	
	SM 2540 D-97	TSS	9	I	mg/L	P349435	
	SM 4500 F-C-97	Fluoride	0.26		mg F/L	P349488	
2011175	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P349570	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P349441	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P349409	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P349512	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P349689	
2011179	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.010		mg P/L	P349241	

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 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: PONTE VEDRA LK @ SAWGRASS DR. **Collection Date/Time: 07/25/2018 09:05**

Field ID: 27010182 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2011172	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P349236	
	EPA 300.0 Rev. 2.1	Chloride	100		mg Cl/L	P349591	
		Sulfate	68		mg SO4/L	P349594	
	SM 2120 B	Color (true)	87	A	PCU	P349232	
	SM 2320 B-97	Total Alkalinity	127		mg CaCO3/L	P349484	
	SM 2540 C-97	TDS	467		mg/L	P349479	
	SM 2540 D-97	TSS	3	I	mg/L	P349435	
	SM 4500 F-C-97	Fluoride	0.21		mg F/L	P349488	
2011176	EPA 350.1 Rev. 2.0	Ammonia-N	0.050		mg N/L	P349570	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.95		mg N/L	P349441	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P349409	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P349512	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P349689	
2011180	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.090		mg P/L	P349241	

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 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: MOSES CR AT US 1 **Collection Date/Time: 07/25/2018 10:15**

Field ID: 27010050 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2011173	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P349236	
	EPA 300.0 Rev. 2.1	Chloride	28		mg Cl/L	P349591	
		Sulfate	4.5		mg SO4/L	P349594	
	SM 2120 B	Color (true)	750		PCU	P349232	
	SM 2320 B-97	Total Alkalinity	29		mg CaCO3/L	P349484	
	SM 2540 C-97	TDS	219		mg/L	P349479	
	SM 2540 D-97	TSS	7	I	mg/L	P349436	
	SM 4500 F-C-97	Fluoride	0.061	I	mg F/L	P349488	
2011177	EPA 350.1 Rev. 2.0	Ammonia-N	0.022		mg N/L	P349570	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P349442	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.017		mg N/L	P349409	
	EPA 365.1 Rev. 2.0	Total-P	0.059		mg P/L	P349513	
	SM 5310 B-00	Organic Carbon	56		mg C/L	P349689	
2011181	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.027		mg P/L	P349241	

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: PALM COAST CANAL AT OLD KINGS RD. **Collection Date/Time: 07/25/2018 11:05**

Field ID: G5NE0005 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2011174	EPA 180.1 Rev. 2.0	Turbidity	3.5		NTU	P349236	
	EPA 300.0 Rev. 2.1	Chloride	32		mg Cl/L	P349591	
		Sulfate	14		mg SO4/L	P349594	
	SM 2120 B	Color (true)	200		PCU	P349232	
	SM 2320 B-97	Total Alkalinity	76		mg CaCO3/L	P349484	
	SM 2540 C-97	TDS	193		mg/L	P349479	
	SM 2540 D-97	TSS	2	IA	mg/L	P349436	
	SM 4500 F-C-97	Fluoride	0.088	I	mg F/L	P349488	
2011178	EPA 350.1 Rev. 2.0	Ammonia-N	0.10		mg N/L	P349570	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.92		mg N/L	P349442	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.033		mg N/L	P349409	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P349513	
	SM 5310 B-00	Organic Carbon	20		mg C/L	P349689	
2011182	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.056		mg P/L	P349241	

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: FIELD BLANK NE ROC DI **Collection Date/Time: 07/25/2018 10:55**

Field ID: BLANK 07252018 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2011183	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P349235	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P349591	
		Sulfate	0.20	U	mg SO4/L	P349594	
	SM 2120 B	Color (true)	2.5	U	PCU	P349232	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P349484	
	SM 2540 C-97	TDS	15	U	mg/L	P349479	
	SM 2540 D-97	TSS	2	U	mg/L	P349436	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P349488	
2011184	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P349570	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P349442	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P349409	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P349513	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P349689	

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: P349235

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P349236

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349591

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349594

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349570

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349441

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349442

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P349409

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349512

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349513

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P349241

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

Reference Method: SM 2120 B
Batch ID: P349232

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P349484

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

Reference Method: SM 2540 C-97
Batch ID: P349479

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P349480

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P349435

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P349436

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P349488

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: P349689

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: P349591

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349594

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349570

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349441

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349442

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P349409

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: P349512

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349513

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P349241

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.2		P	90 - 110

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P349232

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	97.5		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P349484

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P349488

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.6		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P349689

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.9		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349591

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2011059	Chloride	98.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349594

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2011059	Sulfate	96.6		P	90 - 110
2011141	Sulfate	98.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349570

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2011114	Ammonia-N	96.1	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349442

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2011486	Kjeldahl Nitrogen	107	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P349409

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2011175	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2011092	Total-P	91.3	92.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349513

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2011487	Total-P	94.3	94.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P349241

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2011179	O-Phosphate-P	96.6	96.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P349488

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2011556	Fluoride	96.9	97.7	P/P	91 - 105

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P349689

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2011487	Organic Carbon	98.0	99.1	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P349235

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2011058	Turbidity	6.03	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P349236

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2011099	Turbidity	2.72	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2011059	Chloride	1.90	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P349594

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2011059	Sulfate	2.43	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P349570

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2011114	Ammonia-N	3.12	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349441

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2011175	Kjeldahl Nitrogen	0.809	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P349442

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2011486	Kjeldahl Nitrogen	0.711	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P349409

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2011175	NO2NO3-N	0.489	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2011092	Total-P	1.19	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P349513

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2011487	Total-P	0.147	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P349241

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2011179	O-Phosphate-P	0.562	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P349232

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2011172	Color (true)	1.28	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P349484

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2011556	Total Alkalinity	0.661	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P349479

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2011141	TDS	2.02	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P349480

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2011171	TDS	2.38	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P349488

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2011556	Fluoride	0.520	Spike	P	0 - 3.5

Quality Assurance Report
Precision

Reference Method: SM 5310 B-00
Batch ID: P349689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2011487	Organic Carbon	1.07	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: A85507
Included Lab Sample IDs: 2011171, 2011172, 2011173, 2011174, 2011183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	103	P/P	90 - 115
Color (true)	103	102	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A85508
Included Lab Sample IDs: 2011171, 2011172, 2011173, 2011174, 2011183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	104	102	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A85510
Included Lab Sample IDs: 2011179, 2011180, 2011181, 2011182

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.1	97.4	P/P	90 - 110
O-Phosphate-P	97.4	96.8	P/P	90 - 110
O-Phosphate-P	98.8	97.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A85559
Included Lab Sample IDs: 2011175, 2011176, 2011177, 2011178, 2011184

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A85560
Included Lab Sample IDs: 2011171, 2011172, 2011173, 2011174, 2011183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.5	99.9	P/P	90 - 110
Sulfate	99.8	100	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A85607
Included Lab Sample IDs: 2011171, 2011172, 2011173, 2011174, 2011183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110
Total Alkalinity	103	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A85607
Included Lab Sample IDs: 2011171, 2011172, 2011173, 2011174, 2011183

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	99.1	P/P	90 - 110
Fluoride	99.1	99.5	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A85615
Included Lab Sample IDs: 2011175, 2011176

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.2	99.6	P/P	90 - 110
Kjeldahl Nitrogen	99.6	94.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A85630
Included Lab Sample IDs: 2011175, 2011176, 2011177, 2011178

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	94.9	94.7	P/P	90 - 110
Total-P	95.7	94.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A85636
Included Lab Sample IDs: 2011184

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A85647
Included Lab Sample IDs: 2011177, 2011178, 2011184

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.1	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A85648
Included Lab Sample IDs: 2011175, 2011176, 2011177, 2011178, 2011184

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	98.0	P/P	90 - 110
Ammonia-N	98.0	100	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A85704
Included Lab Sample IDs: 2011175, 2011176, 2011177, 2011178, 2011184

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	99.0	P/P	90 - 110
Organic Carbon	99.0	99.7	P/P	90 - 110
Organic Carbon	99.7	99.1	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					6.03	
	Turbidity					2.72	
EPA 300.0 Rev. 2.1	Chloride	105	98.6			1.90	
	Sulfate	105	96.6	98.3		2.43	
EPA 350.1 Rev. 2.0	Ammonia-N	100	96.1	101			3.12
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.9					0.809
	Kjeldahl Nitrogen	99.8	107	106			0.711
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	102			0.489
EPA 365.1 Rev. 2.0	Total-P	96.2	91.3	92.6			1.19
	Total-P	98.4	94.3	94.1			0.147
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.2	96.6	96.0			0.562
SM 2120 B	Color (true)	97.5				1.28	
SM 2320 B-97	Total Alkalinity	104				0.661	
SM 2540 C-97	TDS					2.02	
	TDS					2.38	
SM 4500 F-C-97	Fluoride	97.6	96.9	97.7			0.520
SM 5310 B-00	Organic Carbon	95.9	98.0	99.1			1.07

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2011171, 2011172, 2011173, 2011174, 2011183
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2011171, 2011172, 2011173, 2011174, 2011183
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2011171, 2011172, 2011173, 2011174, 2011183
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2011175, 2011176, 2011177, 2011178, 2011184
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2011175, 2011176, 2011177, 2011178, 2011184
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2011175, 2011176, 2011177, 2011178, 2011184
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2011175, 2011176, 2011177, 2011178, 2011184
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2011179, 2011180, 2011181, 2011182
SM 2120 B / E31780	True Color measured at 450 nm	2011171, 2011172, 2011173, 2011174, 2011183
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2011171, 2011172, 2011173, 2011174, 2011183
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2011171, 2011172, 2011173, 2011174, 2011183
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2011171, 2011172, 2011173, 2011174, 2011183
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2011171, 2011172, 2011173, 2011174, 2011183
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2011175, 2011176, 2011177, 2011178, 2011184

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	07/26/2018			07/26/2018 16:36	Blanca Fach	2011171, 2011172, 2011173, 2011174, 2011183
EPA 300.0 Rev. 2.1	07/26/2018			08/02/2018 14:43	Lipi Saha	2011171
	07/26/2018			08/02/2018 14:55	Lipi Saha	2011172
	07/26/2018			08/02/2018 15:07	Lipi Saha	2011173
	07/26/2018			08/02/2018 15:19	Lipi Saha	2011174
	07/26/2018			08/02/2018 15:31	Lipi Saha	2011183
EPA 350.1 Rev. 2.0	07/26/2018			08/02/2018 10:48	Ping Hua	2011175
	07/26/2018			08/02/2018 10:56	Ping Hua	2011176
	07/26/2018			08/02/2018 10:57	Ping Hua	2011177
	07/26/2018			08/02/2018 10:59	Ping Hua	2011178
	07/26/2018			08/02/2018 11:03	Ping Hua	2011184
EPA 351.2 Rev. 2.0	07/26/2018	07/31/2018 11:15	Adrian Shelby	08/01/2018 12:46	Joseph Suarez	2011175
	07/26/2018	07/31/2018 11:15	Adrian Shelby	08/01/2018 12:53	Joseph Suarez	2011176
	07/26/2018	07/31/2018 11:15	Adrian Shelby	08/02/2018 12:41	Joseph Suarez	2011177
	07/26/2018	07/31/2018 11:15	Adrian Shelby	08/02/2018 12:42	Joseph Suarez	2011178
	07/26/2018	07/31/2018 11:15	Adrian Shelby	08/02/2018 12:44	Joseph Suarez	2011184
EPA 353.2 Rev. 2.0	07/26/2018			07/30/2018 14:39	Lauren Bottorf	2011175
	07/26/2018			07/30/2018 14:45	Lauren Bottorf	2011184
	07/26/2018			07/30/2018 14:48	Lauren Bottorf	2011176
	07/26/2018			07/30/2018 14:49	Lauren Bottorf	2011177
	07/26/2018			07/30/2018 14:51	Lauren Bottorf	2011178
EPA 365.1 Rev. 2.0	07/26/2018	08/01/2018 12:35	Sima Feizi	08/02/2018 09:07	Beverly Y. Sanders	2011175
	07/26/2018	08/01/2018 12:35	Sima Feizi	08/02/2018 09:08	Beverly Y. Sanders	2011176
	07/26/2018	08/01/2018 12:35	Sima Feizi	08/02/2018 09:17	Beverly Y. Sanders	2011177
	07/26/2018	08/01/2018 12:35	Sima Feizi	08/02/2018 09:18	Beverly Y. Sanders	2011178
	07/26/2018	08/01/2018 12:35	Sima Feizi	08/02/2018 11:43	Beverly Y. Sanders	2011184
EPA 365.1 Rev. 2.0 dissolved	07/26/2018			07/26/2018 16:55	Julia Storbeck	2011179
	07/26/2018			07/26/2018 17:10	Julia Storbeck	2011181
	07/26/2018			07/26/2018 17:20	Julia Storbeck	2011180, 2011182
SM 2120 B	07/26/2018			07/26/2018 16:09	Tanya Welborn	2011171
	07/26/2018			07/26/2018 16:11	Tanya Welborn	2011172
	07/26/2018			07/26/2018 16:13	Tanya Welborn	2011183
	07/26/2018			07/26/2018 16:27	Tanya Welborn	2011173
	07/26/2018			07/26/2018 16:28	Tanya Welborn	2011174
SM 2320 B-97	07/26/2018			08/01/2018 02:04	Dale L. Simmons	2011171
	07/26/2018			08/01/2018 02:14	Dale L. Simmons	2011172
	07/26/2018			08/01/2018 02:24	Dale L. Simmons	2011173
	07/26/2018			08/01/2018 02:34	Dale L. Simmons	2011174
	07/26/2018			08/01/2018 03:14	Dale L. Simmons	2011183

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2540 C-97	07/26/2018			07/27/2018 14:45	William L. Brown IV	2011171, 2011172, 2011173, 2011174, 2011183
SM 2540 D-97	07/26/2018			07/27/2018 14:57	William L. Brown IV	2011171, 2011172, 2011173, 2011174, 2011183
SM 4500 F-C-97	07/26/2018			08/01/2018 02:04	Dale L. Simmons	2011171
	07/26/2018			08/01/2018 02:14	Dale L. Simmons	2011172
	07/26/2018			08/01/2018 02:24	Dale L. Simmons	2011173
	07/26/2018			08/01/2018 02:34	Dale L. Simmons	2011174
	07/26/2018			08/01/2018 03:14	Dale L. Simmons	2011183
SM 5310 B-00	07/26/2018			08/03/2018 15:30	Julia Storbeck	2011175
	07/26/2018			08/03/2018 18:37	Julia Storbeck	2011176
	07/26/2018			08/03/2018 18:51	Julia Storbeck	2011177
	07/26/2018			08/03/2018 19:04	Julia Storbeck	2011178
	07/26/2018			08/03/2018 19:45	Julia Storbeck	2011184