

Chemical Analysis Report

NE-DIST-2016-06-10-01

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

Event Description: **UEC North**
Request ID: **RQ-2016-06-06-20**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 06-JUL-2016 14:22

A handwritten signature in black ink, appearing to read "Liang Lin", is written on a light-colored, textured background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical group are included in this report: Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: 27010056 OYSTER CR @ DIXIE HWY

Collection Date/Time: 06/09/2016 09:10

Field ID: 27010056 OYSTER CR @ DIXIE HWY

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1807468	EPA 180.1 Rev. 2.0	Turbidity	8.1		NTU	P306019	
	SM 2320 B-97	Total Alkalinity	133		mg CaCO3/L	P306032	
	SM 2540 D-97	TSS	13		mg/L	P306467	
	SM 4500 F-C-97	Fluoride	0.27		mg F/L	P306178	
1807469	EPA 350.1 Rev. 2.0	Ammonia-N	0.15		mg N/L	P306423	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P306098	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.049		mg N/L	P306434	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P306321	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P306404	
1807470	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.095		mg P/L	P306001	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: G5NE0017 DEEP CR 1.25m n PINE

Collection Date/Time: 06/09/2016 10:25

Field ID: G5NE0017 DEEP CR 1.25m n PINE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1807459	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P306018	
	EPA 300.0 Rev. 2.1	Chloride	32		mg Cl/L	P306617	
		Sulfate	33		mg SO4/L	P306620	
	SM 2120 B	Color (true)	440		PCU	P305974	
	SM 2320 B-97	Total Alkalinity	21		mg CaCO3/L	P306171	
	SM 2540 C-97	TDS	250		mg/L	P306553	
	SM 2540 D-97	TSS	2	I	mg/L	P306465	
	SM 4500 F-C-97	Fluoride	0.039	I	mg F/L	P306175	
1807462	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P306426	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P306192	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P306341	
	EPA 365.1 Rev. 2.0	Total-P	0.044		mg P/L	P306315	
	SM 5310 B-00	Organic Carbon	49		mg C/L	P306390	
1807465	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.053		mg P/L	P306000	

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: 27010182 ponte verda@sawgrass

Collection Date/Time: 06/09/2016 11:11

Field ID: 27010182 ponte verda@sawgrass

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1807460	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P306019	
	EPA 300.0 Rev. 2.1	Chloride	100		mg Cl/L	P307242	
		Sulfate	75		mg SO4/L	P307243	
	SM 2120 B	Color (true)	110		PCU	P305974	
	SM 2320 B-97	Total Alkalinity	116		mg CaCO3/L	P306171	
	SM 2540 C-97	TDS	438		mg/L	P306554	
	SM 2540 D-97	TSS	7	I	mg/L	P306466	

Field ID: 27010182 ponte verda@sawgrass

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1807460	SM 4500 F-C-97	Fluoride	0.19		mg F/L	P306175	
1807463	EPA 350.1 Rev. 2.0	Ammonia-N	0.035		mg N/L	P306426	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P306192	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P306341	
	EPA 365.1 Rev. 2.0	Total-P	0.25		mg P/L	P306315	
	SM 5310 B-00	Organic Carbon	23		mg C/L	P306390	
1807466	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.18		mg P/L	P306000	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: 27010181 LAKE VERDA@ CORONA RD

Collection Date/Time: 06/09/2016 11:30

Field ID: 27010181 LAKE VERDA@ CORONA RD

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1807461	EPA 180.1 Rev. 2.0	Turbidity	6.7	A	NTU	P306019	
	EPA 300.0 Rev. 2.1	Chloride	110		mg Cl/L	P307242	
		Sulfate	88		mg SO4/L	P307243	
	SM 2120 B	Color (true)	55	A	PCU	P305974	
	SM 2320 B-97	Total Alkalinity	140		mg CaCO3/L	P306171	
	SM 2540 C-97	TDS	517	A	mg/L	P306554	
	SM 2540 D-97	TSS	8	I	mg/L	P306466	
	SM 4500 F-C-97	Fluoride	0.23		mg F/L	P306175	
1807464	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P306426	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P306192	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P306341	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P306315	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P306390	
1807467	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.018		mg P/L	P306000	

Ref. Method and Comment:

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P306018

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P306019

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P306617

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P306620

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307242

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307243

Component	Result	Code	Units
Sulfate	0.2	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306423

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306426

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306098

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306192

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306341

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306434

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306315

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306321

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306000

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306001

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

Reference Method: SM 2120 B
Batch ID: P305974

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P306032

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

Reference Method: SM 2320 B-97
Batch ID: P306171

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

Reference Method: SM 2540 C-97
Batch ID: P306553

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P306554

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P306465

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P306466

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P306467

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P306175

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P306178

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P306390

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Reference Method: SM 5310 B-00
Batch ID: P306404

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: P306617

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P306617

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P306620

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307242

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307243

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306423

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306426

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: P306098

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306192

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306341

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.0		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306434

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306315

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.3		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306321

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306000

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306001

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

Reference Method: SM 2320 B-97
Batch ID: P306032

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 105

Reference Method: SM 2320 B-97
Batch ID: P306171

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P306175

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P306178

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.5		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P306390

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.8		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P306404

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P306617

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1807449	Chloride	99.1		P	90 - 110
1807797	Chloride	99.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P306620

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1807449	Sulfate	97.7		P	90 - 110
1807797	Sulfate	98.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307242

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1807448	Chloride	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307243

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1807448	Sulfate	98.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306423

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1807648	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306426

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1807647	Ammonia-N	100	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306098

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1807058	Kjeldahl Nitrogen	99.4	97.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306341

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1807452	NO2NO3-N	96.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306434

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1807059	NO2NO3-N	96.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306315

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1807423	Total-P	99.8	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306321

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1806761	Total-P	101	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306000

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1807412	O-Phosphate-P	100	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306001

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1807484	O-Phosphate-P	100	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P306175

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1807383	Fluoride	97.6	97.6	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P306178

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1807643	Fluoride	97.4	98.0	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P306390

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1807440	Organic Carbon	98.5	100	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P306404

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1804853	Organic Carbon	86.6	87.5	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P306018

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807346	Turbidity	9.28	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P306019

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807461	Turbidity	2.10	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P306617

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807449	Chloride	0.0189	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P306620

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807449	Sulfate	0.731	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807448	Chloride	0.0898	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307243

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P307243

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807448	Sulfate	0.244	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306423

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807648	Ammonia-N	0.383	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306426

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807647	Ammonia-N	0.330	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306098

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807058	Kjeldahl Nitrogen	1.80	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306192

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807463	Kjeldahl Nitrogen	4.69	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306341

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807452	NO2NO3-N	1.11	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306434

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807059	NO2NO3-N	1.78	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306315

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807423	Total-P	2.33	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306321

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806761	Total-P	4.65	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306000

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807412	O-Phosphate-P	0.167	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306001

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807484	O-Phosphate-P	1.58	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P305974

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807461	Color (true)	0.663	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P306032

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1806961	Total Alkalinity	0.0484	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P306171

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807383	Total Alkalinity	0.227	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P306553

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807346	TDS	6.90	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P306554

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807461	TDS	3.87	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 D-97
Batch ID: P306465

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807346	TSS	5.41	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P306175

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807383	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P306178

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807643	Fluoride	0.470	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P306390

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807440	Organic Carbon	1.53	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P306404

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1804853	Organic Carbon	0.941	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: A69967
Included Lab Sample IDs: 1807459, 1807460, 1807461

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.2	99.5	P/P	90 - 115
Color (true)	99.5	102	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A69977
Included Lab Sample IDs: 1807465, 1807466, 1807467, 1807470

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	97.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A69982

Included Lab Sample IDs: 1807459, 1807460, 1807461, 1807468

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.5	P/P	95 - 105
Turbidity	99.5	99.0	P/P	95 - 105

Reference Method: SM 2320 B-97

Run ID: A69989

Included Lab Sample IDs: 1807468

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	103	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A70028

Included Lab Sample IDs: 1807459, 1807460, 1807461

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A70028

Included Lab Sample IDs: 1807459, 1807460, 1807461, 1807468

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	98.6	P/P	90 - 110
Fluoride	99.5	98.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A70045

Included Lab Sample IDs: 1807459

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.8	100	P/P	90 - 110
Sulfate	98.4	96.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A70075

Included Lab Sample IDs: 1807469

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.1	98.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A70085

Included Lab Sample IDs: 1807462, 1807463, 1807464

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO ₂ NO ₃ -N	100	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A70094

Included Lab Sample IDs: 1807462, 1807463, 1807464

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.4	93.1	P/P	90 - 110
Kjeldahl Nitrogen	97.1	93.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70098

Included Lab Sample IDs: 1807463, 1807464

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70099

Included Lab Sample IDs: 1807469

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	99.7	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A70101

Included Lab Sample IDs: 1807462, 1807463, 1807464

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.4	97.6	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A70103

Included Lab Sample IDs: 1807469

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	92.4	93.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A70105

Included Lab Sample IDs: 1807462, 1807463, 1807464, 1807469

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A70106

Included Lab Sample IDs: 1807469

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70120

Included Lab Sample IDs: 1807462

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70120

Included Lab Sample IDs: 1807462

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A70313

Included Lab Sample IDs: 1807460, 1807461

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.2	100	P/P	90 - 110
Sulfate	96.7	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	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				9.28	
	Turbidity				2.10	
EPA 300.0 Rev. 2.1	Chloride	99.5	99.1 99.4		0.0189	
	Chloride	100	100		0.0898	
	Sulfate	97.5	97.7 98.3		0.731	
	Sulfate	100	98.5		0.244	
EPA 350.1 Rev. 2.0	Ammonia-N	99.6	101 102			0.383
	Ammonia-N	100	100 100			0.330
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	99.4 97.4			1.80
	Kjeldahl Nitrogen	95.5				4.69
EPA 353.2 Rev. 2.0	NO2NO3-N	98.0	96.8			1.11
	NO2NO3-N	99.0	96.5 99.5			1.78
EPA 365.1 Rev. 2.0	Total-P	99.3	99.8 102			2.33
	Total-P	98.6	101 96.5			4.65
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	106	100 100			0.167
	O-Phosphate-P	103	100 102			1.58
SM 2120 B	Color (true)				0.663	
SM 2320 B-97	Total Alkalinity	103			0.0484	
	Total Alkalinity	104			0.227	
SM 2540 C-97	TDS				6.90	
	TDS				3.87	
SM 2540 D-97	TSS				5.41	
SM 4500 F-C-97	Fluoride	97.9	97.6 97.6			0.0
	Fluoride	97.5	97.4 98.0			0.470
SM 5310 B-00	Organic Carbon	98.8	98.5 100			1.53
	Organic Carbon	95.8	86.6 87.5			0.941

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
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Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1807459, 1807460, 1807461, 1807468
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1807459, 1807460, 1807461
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1807459, 1807460, 1807461
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1807462, 1807463, 1807464, 1807469
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1807462, 1807463, 1807464, 1807469
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1807462, 1807463, 1807464, 1807469
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1807462, 1807463, 1807464, 1807469
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1807465, 1807466, 1807467, 1807470
SM 2120 B / E31780	True Color measured at 450 nm	1807459, 1807460, 1807461
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1807459, 1807460, 1807461, 1807468
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1807459, 1807460, 1807461
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1807459, 1807460, 1807461, 1807468
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1807459, 1807460, 1807461, 1807468
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1807462, 1807463, 1807464, 1807469

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	06/10/2016			06/10/2016 15:18	Rochelle Y Jackson	1807459, 1807460, 1807461, 1807468
EPA 300.0 Rev. 2.1	06/10/2016			06/16/2016	Elisa J Lutz	1807459
	06/10/2016			07/01/2016	Ping Hua	1807460, 1807461
EPA 350.1 Rev. 2.0	06/10/2016			06/17/2016	Diana M. Turner	1807462, 1807463, 1807464, 1807469
EPA 351.2 Rev. 2.0	06/10/2016	06/14/2016	Sofia Elnemr	06/15/2016	Christopher Armour	1807469
	06/10/2016	06/15/2016	Sofia Elnemr	06/16/2016	Christopher Armour	1807462, 1807463, 1807464
EPA 353.2 Rev. 2.0	06/10/2016			06/16/2016	Beverly Y. Sanders	1807462, 1807463, 1807464
	06/10/2016			06/17/2016	Beverly Y. Sanders	1807469
EPA 365.1 Rev. 2.0	06/10/2016	06/16/2016	Vijayalakshmi Reddy	06/17/2016	Lipi Saha	1807462, 1807463, 1807464, 1807469
EPA 365.1 Rev. 2.0 dissolved	06/10/2016			06/10/2016 15:25	Julia Storbeck	1807465
	06/10/2016			06/10/2016 15:26	Julia Storbeck	1807467
	06/10/2016			06/10/2016 15:27	Julia Storbeck	1807470
	06/10/2016			06/10/2016 15:32	Julia Storbeck	1807466
SM 2120 B	06/10/2016			06/10/2016 12:14	Rochelle Y Jackson	1807460
	06/10/2016			06/10/2016 12:15	Rochelle Y Jackson	1807461
	06/10/2016			06/10/2016 12:24	Rochelle Y Jackson	1807459
SM 2320 B-97	06/10/2016			06/11/2016	Dale L. Simmons	1807468
	06/10/2016			06/14/2016	Dale L. Simmons	1807459, 1807460, 1807461
SM 2540 C-97	06/10/2016			06/14/2016	Yijie Li	1807459, 1807460, 1807461
SM 2540 D-97	06/10/2016			06/14/2016	Yijie Li	1807459, 1807460, 1807461, 1807468
SM 4500 F-C-97	06/10/2016			06/14/2016	Dale L. Simmons	1807459, 1807460, 1807461, 1807468
SM 5310 B-00	06/10/2016			06/17/2016	Diana M. Turner	1807462, 1807463, 1807464, 1807469