

Chemical Analysis Report

NE-DIST-2016-02-24-01

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

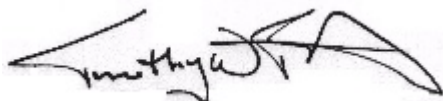
Event Description: **UEC NORTH**
Request ID: **RQ-2016-02-22-47**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 16-MAR-2016 11:02

A handwritten signature in black ink, appearing to read 'Timothy W. Fitzpatrick', with a stylized flourish at the end.

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 Crk @ Dixie Hw

Collection Date/Time: 02/23/2016 10:10

Field ID: 27010056 Oyster Crk @ Dixie Hw

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774215	EPA 180.1 Rev. 2.0	Turbidity	18		NTU	P299188	
	SM 2320 B-97	Total Alkalinity	172		mg CaCO3/L	P299662	
	SM 2540 D-97	TSS	26		mg/L	P299685	
	SM 4500 F-C-97	Fluoride	0.61		mg F/L	P299390	
1774216	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P299986	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P299645	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P299852	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P299565	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P299437	
1774217	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.033		mg P/L	P299180	

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: 27010181 Lake Vedra @ Corona R

Collection Date/Time: 02/23/2016 13:45

Field ID: 27010181 Lake Vedra @ Corona R

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774206	EPA 180.1 Rev. 2.0	Turbidity	4.8	A	NTU	P299188	
	EPA 300.0 Rev. 2.1	Chloride	110		mg Cl/L	P299554	
		Sulfate	79		mg SO4/L	P299559	
	SM 2120 B	Color (true)	57		PCU	P299210	
	SM 2320 B-97	Total Alkalinity	139		mg CaCO3/L	P299662	
	SM 2540 C-97	TDS	435		mg/L	P299758	
	SM 2540 D-97	TSS	6	I	mg/L	P299681	
	SM 4500 F-C-97	Fluoride	0.21		mg F/L	P299391	
1774209	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P299979	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P299574	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P299501	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P299568	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P299435	
1774212	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.039		mg P/L	P299178	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

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

Sample Location: 27010182 PON VED LK @ SAWGRASS

Collection Date/Time: 02/23/2016 13:20

Field ID: 27010182 PON VED LK @ SAWGRASS

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774207	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P299188	
	EPA 300.0 Rev. 2.1	Chloride	98		mg Cl/L	P299554	
		Sulfate	71		mg SO4/L	P299559	
	SM 2120 B	Color (true)	70		PCU	P299210	
	SM 2320 B-97	Total Alkalinity	136		mg CaCO3/L	P299662	
	SM 2540 C-97	TDS	417		mg/L	P299758	

Field ID: 27010182 PON VED LK @ SAWGRASS

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774207	SM 2540 D-97	TSS	2	I	mg/L	P299681	
	SM 4500 F-C-97	Fluoride	0.19		mg F/L	P299391	
1774210	EPA 350.1 Rev. 2.0	Ammonia-N	0.043		mg N/L	P299980	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P299574	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P299501	
	EPA 365.1 Rev. 2.0	Total-P	0.22		mg P/L	P299568	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P299435	
1774213	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.13		mg P/L	P299178	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

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

Sample Location: G5NE0017 Dp Crk 1.25m N Pine I

Collection Date/Time: 02/23/2016 11:35

Field ID: G5NE0017 Dp Crk 1.25m N Pine I

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774208	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P299188	
	EPA 300.0 Rev. 2.1	Chloride	30		mg Cl/L	P299554	
		Sulfate	4.3		mg SO4/L	P299559	
	SM 2120 B	Color (true)	300		PCU	P299210	
	SM 2320 B-97	Total Alkalinity	107		mg CaCO3/L	P299662	
	SM 2540 C-97	TDS	220		mg/L	P299758	
	SM 2540 D-97	TSS	6	I	mg/L	P299681	
	SM 4500 F-C-97	Fluoride	0.049	I	mg F/L	P299391	
1774211	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P299980	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P300266	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P299501	
	EPA 365.1 Rev. 2.0	Total-P	0.062		mg P/L	P299568	
	SM 5310 B-00	Organic Carbon	36		mg C/L	P299435	
1774214	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.045		mg P/L	P299178	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

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: P299188

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P299554

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299559

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299979

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299980

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299986

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299574

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299645

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300266

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299501

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299852

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299565

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299568

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299178

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299180

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

Reference Method: SM 2120 B
Batch ID: P299210

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P299662

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97
Batch ID: P299758

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P299681

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P299685

Component	Result	Code	Units
TSS	3	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P299390

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P299391

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P299435

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

Reference Method: SM 5310 B-00
Batch ID: P299437

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: P299554

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299559

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299979

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299980

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299986

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299986

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299574

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299645

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300266

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.3		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299501

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: P299852

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299565

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299568

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299178

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299180

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

Reference Method: SM 2320 B-97
Batch ID: P299662

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

Reference Method: SM 4500 F-C-97
Batch ID: P299390

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.3		P	94 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P299391

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.8		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P299435

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.4		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P299437

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299554

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774314	Chloride	103		P	90 - 110
1774315	Chloride	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299979

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774142	Ammonia-N	101	104	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299980

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774219	Ammonia-N	97.8	99.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299986

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774297	Ammonia-N	106	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299574

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774198	Kjeldahl Nitrogen	107	95.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299645

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774127	Kjeldahl Nitrogen	97.7	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299501

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774209	NO2NO3-N	99.5	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299852

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774382	NO2NO3-N	98.5	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299565

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1773797	Total-P	96.2	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299568

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774143	Total-P	103	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299178

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774109	O-Phosphate-P	102	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299180

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774217	O-Phosphate-P	99.8	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P299390

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774467	Fluoride	94.7	94.7	P/P	94 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P299391

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774012	Fluoride	96.0	96.7	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P299435

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774105	Organic Carbon	90.0	91.0	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P299437

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774216	Organic Carbon	89.7	88.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P299188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774206	Turbidity	2.94	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299554

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774315	Chloride	0.141	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299559

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774315	Sulfate	1.74	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299979

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774142	Ammonia-N	2.74	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299980

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774219	Ammonia-N	1.38	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299986

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774297	Ammonia-N	0.774	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299574

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774198	Kjeldahl Nitrogen	11.5	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299645

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774127	Kjeldahl Nitrogen	2.31	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300266

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776325	Kjeldahl Nitrogen	3.52	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299501

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774209	NO2NO3-N	1.99	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299852

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774382	NO2NO3-N	0.506	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299565

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773797	Total-P	1.36	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299568

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774143	Total-P	1.56	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299178

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774109	O-Phosphate-P	0.588	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299180

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774217	O-Phosphate-P	0.823	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P299210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774224	Color (true)	0.942	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P299662

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774196	Total Alkalinity	0.424	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P299758

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774139	TDS	1.59	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P299390

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774467	Fluoride	0.0	Spike	P	0 - 3.7

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P299391

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774012	Fluoride	0.473	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P299435

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774105	Organic Carbon	1.04	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P299437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774216	Organic Carbon	0.782	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: EPA 365.1 Rev. 2.0 dissolved
Run ID: A67800
Included Lab Sample IDs: 1774212, 1774213, 1774214, 1774217

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	99.5	P/P	90 - 110
O-Phosphate-P	99.5	99.4	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A67802
Included Lab Sample IDs: 1774206, 1774207, 1774208, 1774215

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

Reference Method: SM 2120 B
Run ID: A67818
Included Lab Sample IDs: 1774206, 1774207, 1774208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.4	98.0	P/P	85 - 115

Reference Method: SM 4500 F-C-97
Run ID: A67872
Included Lab Sample IDs: 1774206, 1774207, 1774208, 1774215

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A67872

Included Lab Sample IDs: 1774206, 1774207, 1774208, 1774215

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.5	99.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A67885

Included Lab Sample IDs: 1774209, 1774210, 1774211, 1774216

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.0	93.8	P/P	90 - 110
Organic Carbon	94.4	95.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A67914

Included Lab Sample IDs: 1774209, 1774210, 1774211

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: A67933

Included Lab Sample IDs: 1774206, 1774207, 1774208

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.3	100	P/P	90 - 110
Sulfate	101	97.8	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A67973

Included Lab Sample IDs: 1774206, 1774207, 1774208, 1774215

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	107	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A67996

Included Lab Sample IDs: 1774209, 1774210, 1774211

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A67999

Included Lab Sample IDs: 1774216

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A68043

Included Lab Sample IDs: 1774216

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A68043

Included Lab Sample IDs: 1774216

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68047

Included Lab Sample IDs: 1774209, 1774210

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A68091

Included Lab Sample IDs: 1774209, 1774210, 1774211, 1774216

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	98.6	P/P	90 - 110
Ammonia-N	100	101	P/P	90 - 110
Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68140

Included Lab Sample IDs: 1774216

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68210

Included Lab Sample IDs: 1774211

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	100	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				2.94	
EPA 300.0 Rev. 2.1	Chloride	103	103		0.141	
	Sulfate	99.7			1.74	
EPA 350.1 Rev. 2.0	Ammonia-N	96.8	101	104		2.74
	Ammonia-N	101	97.8	99.6		1.38
	Ammonia-N	99.7	106	105		0.774
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	94.8	107	95.0		11.5
	Kjeldahl Nitrogen	95.8	97.7	100		2.31
	Kjeldahl Nitrogen	94.3				3.52

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 353.2 Rev. 2.0	NO2NO3-N	102	99.5	102			1.99
	NO2NO3-N	98.5	98.5	99.0			0.506
EPA 365.1 Rev. 2.0	Total-P	99.6	96.2	97.5			1.36
	Total-P	102	103	101			1.56
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	102	102			0.588
	O-Phosphate-P	102	99.8	101			0.823
SM 2120 B	Color (true)					0.942	
SM 2320 B-97	Total Alkalinity	105				0.424	
SM 2540 C-97	TDS					1.59	
SM 4500 F-C-97	Fluoride	97.3	94.7	94.7			0.0
	Fluoride	96.8	96.0	96.7			0.473
SM 5310 B-00	Organic Carbon	94.4	90.0	91.0			1.04
	Organic Carbon	101	89.7	88.7			0.782

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1774206, 1774207, 1774208, 1774215
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1774206, 1774207, 1774208
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1774206, 1774207, 1774208
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1774209, 1774210, 1774211, 1774216
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1774209, 1774210, 1774211, 1774216
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1774209, 1774210, 1774211, 1774216
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1774209, 1774210, 1774211, 1774216
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1774212, 1774213, 1774214, 1774217
SM 2120 B / E31780	True Color measured at 450 nm	1774206, 1774207, 1774208
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1774206, 1774207, 1774208, 1774215
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1774206, 1774207, 1774208
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1774206, 1774207, 1774208, 1774215
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1774206, 1774207, 1774208, 1774215
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1774209, 1774210, 1774211, 1774216

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	02/24/2016			02/24/2016 15:24	Sima Feizi	1774206, 1774207, 1774208, 1774215
EPA 300.0 Rev. 2.1	02/24/2016			03/01/2016	Ping Hua	1774206, 1774207, 1774208
EPA 350.1 Rev. 2.0	02/24/2016			03/08/2016	Diana M. Turner	1774209, 1774210, 1774211, 1774216
EPA 351.2 Rev. 2.0	02/24/2016	03/02/2016	Christopher Armour	03/04/2016	Rochelle Y Jackson	1774209, 1774210
	02/24/2016	03/03/2016	Sofia Elnemr	03/07/2016	Rochelle Y Jackson	1774216
	02/24/2016	03/14/2016	Sofia Elnemr	03/15/2016	Rochelle Y Jackson	1774211
EPA 353.2 Rev. 2.0	02/24/2016			03/01/2016	Peter D. Kaus	1774209, 1774210, 1774211
	02/24/2016			03/07/2016	Diana M. Turner	1774216
EPA 365.1 Rev. 2.0	02/24/2016	03/02/2016	Christopher Armour	03/03/2016	Lipi Saha	1774216
	02/24/2016	03/02/2016	Christopher Armour	03/04/2016	Lipi Saha	1774209, 1774210, 1774211
EPA 365.1 Rev. 2.0 dissolved	02/24/2016			02/24/2016 15:04	Bryan A. Werth	1774217
	02/24/2016			02/24/2016 15:09	Bryan A. Werth	1774212
	02/24/2016			02/24/2016 15:10	Bryan A. Werth	1774213
	02/24/2016			02/24/2016 15:15	Bryan A. Werth	1774214
SM 2120 B	02/24/2016			02/24/2016 17:16	Blanca Fach	1774206, 1774207
	02/24/2016			02/24/2016 17:17	Blanca Fach	1774208
SM 2320 B-97	02/24/2016			03/03/2016	Dale L. Simmons	1774206, 1774207, 1774208, 1774215
SM 2540 C-97	02/24/2016			02/26/2016	Yijie Li	1774206, 1774207, 1774208
SM 2540 D-97	02/24/2016			02/26/2016	Yijie Li	1774206, 1774207, 1774208, 1774215
SM 4500 F-C-97	02/24/2016			02/26/2016	Dale L. Simmons	1774206, 1774207, 1774208, 1774215
SM 5310 B-00	02/24/2016			02/26/2016	Sofia Elnemr	1774209, 1774210, 1774211
	02/24/2016			02/27/2016	Sofia Elnemr	1774216