

Chemical Analysis Report

NE-DIST-2016-02-19-02

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

Event Description: **Nassau Middle**
Request ID: **RQ-2016-02-08-47**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
Attn: Jeremy Parrish

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Certified by: Colin Wright, Environmental Administrator

Date Certified: 10-MAR-2016 16:28

A handwritten signature in black ink, appearing to read "Colin Wright", is written on a light-colored rectangular 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: 19010127 UNNAMED STR@ CR121

Collection Date/Time: 02/18/2016 10:40

Field ID: 19010127 UNNAMED STR@ CR121

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1773191	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P298938	
	EPA 300.0 Rev. 2.1	Chloride	10		mg Cl/L	P299228	
		Sulfate	2.6		mg SO4/L	P299230	
	SM 2120 B	Color (true)	430		PCU	P298925	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P299659	
	SM 2540 C-97	TDS	62		mg/L	P299490	
	SM 2540 D-97	TSS	7	I	mg/L	P299427	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P299323	
1773195	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P299630	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.98		mg N/L	P299399	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P299465	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P299418	
	SM 5310 B-00	Organic Carbon	36		mg C/L	P299307	
1773199	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P298929	

Ref. Method and Comment:

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

EPA 353.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: UNNAMED STREAM @ CRAWFORD RD. (SR2E) Collection Date/Time: 02/18/2016 11:00

Field ID: UNNAMED STREAM @ CRAWFORD RD.

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1773192	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P298938	
	EPA 300.0 Rev. 2.1	Chloride	10	A	mg Cl/L	P299229	
		Sulfate	1.9	A	mg SO4/L	P299231	
	SM 2120 B	Color (true)	520		PCU	P298925	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P299659	
	SM 2540 C-97	TDS	64		mg/L	P299490	
	SM 2540 D-97	TSS	2	I	mg/L	P299427	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P299323	
1773196	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P299630	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P299400	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P299465	
	EPA 365.1 Rev. 2.0	Total-P	0.039		mg P/L	P299418	
	SM 5310 B-00	Organic Carbon	43		mg C/L	P299307	
1773200	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P298929	

Ref. Method and Comment:

SM 2540 C-97: The reported result is consistent with the laboratory conductivity, 67 umhos/cm.

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

EPA 353.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: 19010159UNMDTRB MILLCR@CR108

Collection Date/Time: 02/18/2016 12:00

Field ID: 19010159UNMDTRB MILLCR@CR108

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1773193	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P298938	

Field ID: 19010159UNMDTRB MILLCR@CR108

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1773193	EPA 300.0 Rev. 2.1	Chloride	9.2		mg Cl/L	P299229	
		Sulfate	2.5		mg SO4/L	P299231	
	SM 2120 B	Color (true)	180		PCU	P298925	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P299659	
	SM 2540 C-97	TDS	55		mg/L	P299490	
	SM 2540 D-97	TSS	2	U	mg/L	P299427	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P299323	
1773197	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P299630	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.70		mg N/L	P299400	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P299465	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P299418	
	SM 5310 B-00	Organic Carbon	27		mg C/L	P299308	
1773201	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P298929	

Ref. Method and Comment:

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

EPA 353.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: FIELD BLANK

Collection Date/Time: 02/18/2016 12:45

Field ID: FIELD BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1773194	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P298939	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P299228	
		Sulfate	0.20	U	mg SO4/L	P299230	
	SM 2120 B	Color (true)	2.5	U	PCU	P298925	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P299659	
	SM 2540 C-97	TDS	15	U	mg/L	P299490	
	SM 2540 D-97	TSS	2	U	mg/L	P299427	
1773198	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P299323	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P299630	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P299400	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P299465	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P299570	
1773202	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P299308	
		O-Phosphate-P	0.004	U	mg P/L	P298929	

Ref. Method and Comment:

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

EPA 353.2 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: P298938

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P298939

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299228

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299229

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299230

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299231

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299630

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299399

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299400

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299465

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: P299418

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299570

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298929

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

Reference Method: SM 2120 B
Batch ID: P298925

Component	Result	Code	Units
Color (true)	2.5		PCU
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P299659

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

Reference Method: SM 2540 C-97
Batch ID: P299490

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P299427

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P299323

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P299307

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

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P299308

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: P299228

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299229

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299230

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299231

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299630

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: P299399

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299400

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299465

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299465

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	105		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299418

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299570

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298929

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	104		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P299659

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

Reference Method: SM 4500 F-C-97
Batch ID: P299323

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P299307

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P299308

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299228

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299228

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1773152	Chloride	101		P	90 - 110
1773153	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299229

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1773192	Chloride	104		P	90 - 110
1773193	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299230

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1773152	Sulfate	97.5		P	90 - 110
1773153	Sulfate	97.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299231

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1773192	Sulfate	103		P	90 - 110
1773193	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299630

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1773160	Ammonia-N	98.9	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299399

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1773117	Kjeldahl Nitrogen	106	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299400

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1773197	Kjeldahl Nitrogen	102	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299418

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1773157	Total-P	99.7	99.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299570

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299570

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1774322	Total-P	99.3	96.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298929

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1773239	O-Phosphate-P	100	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P299323

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1773220	Fluoride	98.7	98.7	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P299307

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1773117	Organic Carbon	99.6		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P299308

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1773197	Organic Carbon	99.0		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P298938

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773072	Turbidity	2.91	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P298939

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773217	Turbidity	11.9	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299228

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773152	Chloride	0.0751	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299229

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773192	Chloride	0.0195	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299230

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773152	Sulfate	0.578	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299231

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773192	Sulfate	2.85	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P299630

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773160	Ammonia-N	1.62	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299399

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773117	Kjeldahl Nitrogen	0.502	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P299400

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773197	Kjeldahl Nitrogen	2.86	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P299465

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773159	NO2NO3-N	0.576	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299418

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773157	Total-P	0.176	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P299570

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774322	Total-P	2.42	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P298929

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773239	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P298925

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773154	Color (true)	0.0903	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P299659

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773220	Total Alkalinity	0.775	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P299490

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773132	TDS	2.34	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P299323

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773220	Fluoride	0.0	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P299307

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773117	Organic Carbon	0.560	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P299308

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773197	Organic Carbon	1.67	Spike	P	0 - 20

Quality Assurance Report Precision

* 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: A67701

Included Lab Sample IDs: 1773191, 1773192, 1773193, 1773194

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	90 - 115
Color (true)	101	97.6	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A67702

Included Lab Sample IDs: 1773199, 1773200, 1773201, 1773202

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.2	98.7	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A67706

Included Lab Sample IDs: 1773191, 1773192, 1773193, 1773194

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A67740

Included Lab Sample IDs: 1773191, 1773192, 1773193, 1773194

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Chloride	102	103	P/P	90 - 110
Sulfate	95.3	99.9	P/P	90 - 110
Sulfate	99.9	97.4	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A67849

Included Lab Sample IDs: 1773195, 1773196, 1773197, 1773198

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	96.4	P/P	90 - 110
Organic Carbon	96.7	95.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A67854

Included Lab Sample IDs: 1773191, 1773192, 1773193, 1773194

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A67899

Included Lab Sample IDs: 1773195, 1773196, 1773197, 1773198

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: A67920

Included Lab Sample IDs: 1773195, 1773196, 1773197

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A67955

Included Lab Sample IDs: 1773195, 1773196, 1773197, 1773198

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.4	99.7	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A67973

Included Lab Sample IDs: 1773191, 1773192, 1773193, 1773194

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.5	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68003

Included Lab Sample IDs: 1773198

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: A68015

Included Lab Sample IDs: 1773195, 1773196, 1773197, 1773198

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.3	93.2	P/P	90 - 110
Kjeldahl Nitrogen	97.7	93.8	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				2.91	
	Turbidity				11.9	
EPA 300.0 Rev. 2.1	Chloride	102	101 101		0.0751	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 300.0 Rev. 2.1	Chloride	104	104	103		0.0195	
	Sulfate	98.9	97.5	97.1		0.578	
	Sulfate	101	103	101		2.85	
EPA 350.1 Rev. 2.0	Ammonia-N	100	98.9	101			1.62
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.7	106	107			0.502
	Kjeldahl Nitrogen	94.0	102	97.5			2.86
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	105					0.576
EPA 365.1 Rev. 2.0	Total-P	95.8	99.7	99.9			0.176
	Total-P	104	99.3	96.8			2.42
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	104	100	100			0.0
SM 2120 B	Color (true)					0.0903	
SM 2320 B-97	Total Alkalinity	105				0.775	
SM 2540 C-97	TDS					2.34	
SM 4500 F-C-97	Fluoride	97.1	98.7	98.7			0.0
SM 5310 B-00	Organic Carbon	97.6	99.6				0.560
	Organic Carbon	97.0	99.0				1.67

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1773191, 1773192, 1773193, 1773194
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1773191, 1773192, 1773193, 1773194
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1773191, 1773192, 1773193, 1773194
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1773195, 1773196, 1773197, 1773198
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1773195, 1773196, 1773197, 1773198
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1773195, 1773196, 1773197, 1773198
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1773195, 1773196, 1773197, 1773198
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1773199, 1773200, 1773201, 1773202
SM 2120 B / E31780	True Color measured at 450 nm	1773191, 1773192, 1773193, 1773194
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1773191, 1773192, 1773193, 1773194
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1773191, 1773192, 1773193, 1773194
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1773191, 1773192, 1773193, 1773194
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1773191, 1773192, 1773193, 1773194
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1773195, 1773196, 1773197, 1773198

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	02/19/2016			02/19/2016 15:35	Sima Feizi	1773191, 1773192, 1773193, 1773194
EPA 300.0 Rev. 2.1	02/19/2016			02/24/2016	Julia Storbeck	1773191, 1773192, 1773194
	02/19/2016			02/25/2016	Julia Storbeck	1773193
EPA 350.1 Rev. 2.0	02/19/2016			03/02/2016	Diana M. Turner	1773195, 1773196, 1773197, 1773198
EPA 351.2 Rev. 2.0	02/19/2016	02/29/2016	Christopher Armour	03/02/2016	Rochelle Y Jackson	1773195, 1773196, 1773197, 1773198
EPA 353.2 Rev. 2.0	02/19/2016			02/29/2016	Diana M. Turner	1773195, 1773196, 1773197, 1773198
EPA 365.1 Rev. 2.0	02/19/2016	02/29/2016	Christopher Armour	03/01/2016	Lipi Saha	1773195, 1773196, 1773197
	02/19/2016	03/02/2016	Christopher Armour	03/03/2016	Lipi Saha	1773198
EPA 365.1 Rev. 2.0 dissolved	02/19/2016			02/19/2016 14:51	Bryan A. Werth	1773199
	02/19/2016			02/19/2016 14:52	Bryan A. Werth	1773200
	02/19/2016			02/19/2016 14:53	Bryan A. Werth	1773201, 1773202
SM 2120 B	02/19/2016			02/19/2016 14:43	Rochelle Y Jackson	1773191
	02/19/2016			02/19/2016 14:44	Rochelle Y Jackson	1773192
	02/19/2016			02/19/2016 14:45	Rochelle Y Jackson	1773193
	02/19/2016			02/19/2016 14:49	Rochelle Y Jackson	1773194
SM 2320 B-97	02/19/2016			03/02/2016	Dale L. Simmons	1773191, 1773192, 1773193, 1773194
SM 2540 C-97	02/19/2016			02/24/2016	Yijie Li	1773191, 1773192, 1773193, 1773194
SM 2540 D-97	02/19/2016			02/24/2016	Yijie Li	1773191, 1773192, 1773193, 1773194
SM 4500 F-C-97	02/19/2016			02/23/2016	Dale L. Simmons	1773191, 1773192, 1773193, 1773194
SM 5310 B-00	02/19/2016			02/25/2016	Sofia Elnemr	1773195, 1773196, 1773197, 1773198