Chemical Analysis Report

NW-DIST-2016-03-03-01

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

Event Description: **WBID 160A 30C**
Request ID: **RQ-2016-02-08-12**
Customer: **NW-DIST**
Project ID: **SMP**

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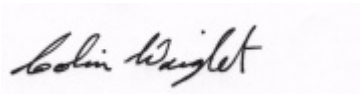
Certified by: Colin Wright, Environmental Administrator

Date Certified: 22-MAR-2016 10:32



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: Yellow River above Metts Creek **Collection Date/Time: 03/02/2016 11:00**

Field ID: G4NW0370 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776802	EPA 180.1 Rev. 2.0	Turbidity	9.3		NTU	P299701	
	EPA 300.0 Rev. 2.1	Chloride	3.1		mg Cl/L	P299993	
		Sulfate	1.3		mg SO4/L	P299995	
	SM 2120 B	Color (true)	67	A	PCU	P299716	
	SM 2320 B-97	Total Alkalinity	8.1		mg CaCO3/L	P300268	
	SM 2540 C-97	TDS	33		mg/L	P300232	
	SM 2540 D-97	TSS	6	I	mg/L	P300197	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P300254	
1776808	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P300433	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25		mg N/L	P300097	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P300166	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P300207	
	SM 5310 B-00	Organic Carbon	4.4		mg C/L	P300107	
1776814	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299688	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: The precision data is unavailable due to low 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: Yellow River **Collection Date/Time: 03/02/2016 11:15**

Field ID: G4NW0371 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776803	EPA 180.1 Rev. 2.0	Turbidity	8.6		NTU	P299701	
	EPA 300.0 Rev. 2.1	Chloride	3.1		mg Cl/L	P299993	
		Sulfate	1.3		mg SO4/L	P299995	
	SM 2120 B	Color (true)	66		PCU	P299716	
	SM 2320 B-97	Total Alkalinity	8.0		mg CaCO3/L	P300268	
	SM 2540 C-97	TDS	26		mg/L	P300233	
	SM 2540 D-97	TSS	6	I	mg/L	P300198	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P300254	
1776809	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P300433	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P300097	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P300166	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P300207	
	SM 5310 B-00	Organic Carbon	4.3		mg C/L	P300107	
1776815	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299688	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: The precision data is unavailable due to low 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: Yellow River **Collection Date/Time: 03/02/2016 11:25**

Field ID: G4NW0372 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776804	EPA 180.1 Rev. 2.0	Turbidity	8.9		NTU	P299701	

Field ID: G4NW0372 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776804	EPA 300.0 Rev. 2.1	Chloride	3.1		mg Cl/L	P299993	
		Sulfate	1.3		mg SO4/L	P299995	
	SM 2120 B	Color (true)	64		PCU	P299716	
	SM 2320 B-97	Total Alkalinity	8.2		mg CaCO3/L	P300268	
	SM 2540 C-97	TDS	37		mg/L	P300233	
	SM 2540 D-97	TSS	6	I	mg/L	P300198	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P300254	
1776810	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P300433	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26		mg N/L	P300097	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P300166	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P300207	
	SM 5310 B-00	Organic Carbon	4.2		mg C/L	P300107	
1776816	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299688	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: The precision data is unavailable due to low 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: Yellow River below Malone Creek **Collection Date/Time: 03/02/2016 11:40**

Field ID: G4NW0373 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776805	EPA 180.1 Rev. 2.0	Turbidity	8.8		NTU	P299701	
	EPA 300.0 Rev. 2.1	Chloride	3.1		mg Cl/L	P299993	
		Sulfate	1.3		mg SO4/L	P299995	
	SM 2120 B	Color (true)	66		PCU	P299716	
	SM 2320 B-97	Total Alkalinity	8.2		mg CaCO3/L	P300268	
	SM 2540 C-97	TDS	26		mg/L	P300233	
	SM 2540 D-97	TSS	7	I	mg/L	P300198	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P300254	
1776811	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P300433	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28		mg N/L	P300098	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P300166	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P300207	
	SM 5310 B-00	Organic Carbon	4.3		mg C/L	P300107	
1776817	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299688	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: The precision data is unavailable due to low 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: Shoal River @ Bill Dugger Park SR-85 **Collection Date/Time: 03/02/2016 13:15**

Field ID: G4NW0023 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776806	EPA 180.1 Rev. 2.0	Turbidity	7.3		NTU	P299701	
	EPA 300.0 Rev. 2.1	Chloride	2.8		mg Cl/L	P299993	
		Sulfate	1.3		mg SO4/L	P299995	

Field ID: G4NW0023 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776806	SM 2120 B	Color (true)	62		PCU	P299716	
	SM 2320 B-97	Total Alkalinity	2.5	I	mg CaCO3/L	P300268	
	SM 2540 C-97	TDS	22	I	mg/L	P300233	
	SM 2540 D-97	TSS	7	I	mg/L	P300198	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P300254	
1776812	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P300433	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26		mg N/L	P300098	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.23		mg N/L	P300166	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P300207	
	SM 5310 B-00	Organic Carbon	4.0		mg C/L	P300107	
1776818	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299688	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: The precision data is unavailable due to low 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: Shoal River below Juniper Creek **Collection Date/Time: 03/02/2016 12:55**

Field ID: G4NW0024 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1776807	EPA 180.1 Rev. 2.0	Turbidity	7.6		NTU	P299701	
	EPA 300.0 Rev. 2.1	Chloride	2.8		mg Cl/L	P299993	
		Sulfate	1.3		mg SO4/L	P299995	
	SM 2120 B	Color (true)	65		PCU	P299716	
	SM 2320 B-97	Total Alkalinity	2.4	I	mg CaCO3/L	P300269	
	SM 2540 C-97	TDS	23	I	mg/L	P300233	
	SM 2540 D-97	TSS	6	I	mg/L	P300198	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P300256	
1776813	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P300433	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26		mg N/L	P300098	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P300166	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P300207	
	SM 5310 B-00	Organic Carbon	4.2		mg C/L	P300107	
1776819	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299688	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Sulfate: The precision data is unavailable due to low 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.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P299701

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: P299993

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299995

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300433

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300097

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300098

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300166

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300207

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299688

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

Reference Method: SM 2120 B
Batch ID: P299716

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P300268

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

Reference Method: SM 2320 B-97
Batch ID: P300269

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

Reference Method: SM 2540 C-97
Batch ID: P300232

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P300233

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P300197

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P300198

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P300254

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P300256

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P300107

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: P299993

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299995

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300433

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300097

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300098

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.4		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300166

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300207

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299688

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

Reference Method: SM 2320 B-97
Batch ID: P300268

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 105

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P300269

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P300254

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	94 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P300256

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P300107

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.7		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299993

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776726	Chloride	103		P	90 - 110
1776795	Chloride	102		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299995

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776726	Sulfate	100		P	90 - 110
1776795	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300433

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776812	Ammonia-N	98.3	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300097

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776732	Kjeldahl Nitrogen	99.9	105	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300098

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776811	Kjeldahl Nitrogen	103	91.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300166

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776796	NO2NO3-N	98.0	97.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300207

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776796	Total-P	99.2	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299688

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776814	O-Phosphate-P	102	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P300254

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777174	Fluoride	97.8	97.2	P/P	94 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P300256

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777102	Fluoride	98.0	98.6	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P300107

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1776778	Organic Carbon	93.6	93.4	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P299701

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776775	Turbidity	10.0	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P299993

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776726	Chloride	0.0255	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300433

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776812	Ammonia-N	0.175	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300097

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776732	Kjeldahl Nitrogen	3.50	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300098

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776811	Kjeldahl Nitrogen	9.43	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300166

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776796	NO2NO3-N	0.426	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300207

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776796	Total-P	0.339	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299688

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776814	O-Phosphate-P	1.07	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P299716

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776802	Color (true)	3.65	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-97
Batch ID: P300268

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777174	Total Alkalinity	0.524	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P300269

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777102	Total Alkalinity	0.347	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P300232

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776722	TDS	1.27	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P300233

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776838	TDS	1.43	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P300254

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777174	Fluoride	0.467	Spike	P	0 - 3.7

Reference Method: SM 4500 F-C-97
Batch ID: P300256

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777102	Fluoride	0.467	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P300107

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1776778	Organic Carbon	0.0605	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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A67978
Included Lab Sample IDs: 1776814, 1776815, 1776816, 1776817, 1776818, 1776819

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.7	98.9	P/P	90 - 110
O-Phosphate-P	98.8	99.0	P/P	90 - 110
O-Phosphate-P	98.9	98.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A67983
Included Lab Sample IDs: 1776802, 1776803, 1776804, 1776805, 1776806, 1776807

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

Reference Method: SM 2120 B
Run ID: A67985
Included Lab Sample IDs: 1776802, 1776803, 1776804, 1776805, 1776806, 1776807

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	95.5	93.3	P/P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A68089
Included Lab Sample IDs: 1776802, 1776803, 1776804, 1776805, 1776806, 1776807

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.9	100	P/P	90 - 110
Chloride	99.9	98.9	P/P	90 - 110
Sulfate	97.7	99.1	P/P	90 - 110
Sulfate	98.8	97.7	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A68126
Included Lab Sample IDs: 1776808, 1776809, 1776810, 1776811, 1776812, 1776813

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.5	95.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A68145
Included Lab Sample IDs: 1776808, 1776809, 1776810, 1776811, 1776812, 1776813

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A68180
Included Lab Sample IDs: 1776802, 1776803, 1776804, 1776805, 1776806, 1776807

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A68185
Included Lab Sample IDs: 1776802, 1776803, 1776804, 1776805, 1776806, 1776807

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	98.7	P/P	90 - 110
Total Alkalinity	98.0	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A68203
Included Lab Sample IDs: 1776808, 1776809, 1776810, 1776811, 1776812, 1776813

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	100	P/P	90 - 110
Total-P	100	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A68211
Included Lab Sample IDs: 1776808, 1776809, 1776810, 1776811, 1776812, 1776813

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.7	94.2	P/P	90 - 110
Kjeldahl Nitrogen	96.2	94.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A68230
Included Lab Sample IDs: 1776808, 1776809, 1776810, 1776811, 1776812, 1776813

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.8	99.5	P/P	90 - 110
Ammonia-N	99.5	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		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					10.0	
EPA 300.0 Rev. 2.1	Chloride	104	103	102		0.0255	
	Sulfate	100	100	100			
EPA 350.1 Rev. 2.0	Ammonia-N	97.5	98.3	98.5			0.175
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.3	99.9	105			3.50
	Kjeldahl Nitrogen	96.4	103	91.4			9.43
EPA 353.2 Rev. 2.0	NO2NO3-N	102	98.0	97.6			0.426
EPA 365.1 Rev. 2.0	Total-P	103	99.2	98.8			0.339
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	102	103			1.07
SM 2120 B	Color (true)					3.65	
SM 2320 B-97	Total Alkalinity	102				0.524	
	Total Alkalinity	102				0.347	
SM 2540 C-97	TDS					1.27	
	TDS					1.43	

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
SM 4500 F-C-97	Fluoride	100	97.8	97.2			0.467
	Fluoride	101	98.0	98.6			0.467
SM 5310 B-00	Organic Carbon	94.7	93.6	93.4			0.0605

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1776802, 1776803, 1776804, 1776805, 1776806, 1776807
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1776802, 1776803, 1776804, 1776805, 1776806, 1776807
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1776802, 1776803, 1776804, 1776805, 1776806, 1776807
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1776808, 1776809, 1776810, 1776811, 1776812, 1776813
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1776808, 1776809, 1776810, 1776811, 1776812, 1776813
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1776808, 1776809, 1776810, 1776811, 1776812, 1776813
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1776808, 1776809, 1776810, 1776811, 1776812, 1776813
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1776814, 1776815, 1776816, 1776817, 1776818, 1776819
SM 2120 B / E31780	True Color measured at 450 nm	1776802, 1776803, 1776804, 1776805, 1776806, 1776807
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1776802, 1776803, 1776804, 1776805, 1776806, 1776807
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1776802, 1776803, 1776804, 1776805, 1776806, 1776807
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1776802, 1776803, 1776804, 1776805, 1776806, 1776807
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1776802, 1776803, 1776804, 1776805, 1776806, 1776807
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1776808, 1776809, 1776810, 1776811, 1776812, 1776813

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	03/03/2016			03/03/2016 14:38	Sima Feizi	1776802, 1776803, 1776804, 1776805, 1776806, 1776807
EPA 300.0 Rev. 2.1	03/03/2016			03/08/2016	Julia Storbeck	1776802, 1776803, 1776804, 1776805, 1776806
	03/03/2016			03/09/2016	Julia Storbeck	1776807
EPA 350.1 Rev. 2.0	03/03/2016			03/15/2016	Diana M. Turner	1776808, 1776809, 1776810, 1776811, 1776812, 1776813
EPA 351.2 Rev. 2.0	03/03/2016	03/10/2016	Christopher Armour	03/14/2016	Rochelle Y Jackson	1776808, 1776809, 1776810, 1776811, 1776812, 1776813
EPA 353.2 Rev. 2.0	03/03/2016			03/10/2016	Peter D. Kaus	1776808, 1776809, 1776810, 1776811, 1776812, 1776813
EPA 365.1 Rev. 2.0	03/03/2016	03/11/2016	Christopher Armour	03/14/2016	Lipi Saha	1776808, 1776809, 1776810, 1776811, 1776812, 1776813
EPA 365.1 Rev. 2.0 dissolved	03/03/2016			03/03/2016 13:39	Julia Storbeck	1776814
	03/03/2016			03/03/2016 14:30	Julia Storbeck	1776815
	03/03/2016			03/03/2016 14:31	Julia Storbeck	1776816, 1776817
	03/03/2016			03/03/2016 14:36	Julia Storbeck	1776818
	03/03/2016			03/03/2016 14:37	Julia Storbeck	1776819
SM 2120 B	03/03/2016			03/03/2016 15:31	Blanca Fach	1776802
	03/03/2016			03/03/2016 15:33	Blanca Fach	1776803
	03/03/2016			03/03/2016 15:34	Blanca Fach	1776804, 1776805
	03/03/2016			03/03/2016 15:35	Blanca Fach	1776806
	03/03/2016			03/03/2016 15:36	Blanca Fach	1776807
SM 2320 B-97	03/03/2016			03/13/2016	Dale L. Simmons	1776802, 1776803, 1776804, 1776805, 1776806, 1776807
SM 2540 C-97	03/03/2016			03/07/2016	Sima Feizi	1776802, 1776803, 1776804, 1776805, 1776806, 1776807
SM 2540 D-97	03/03/2016			03/07/2016	Sima Feizi	1776802, 1776803, 1776804, 1776805, 1776806, 1776807
SM 4500 F-C-97	03/03/2016			03/10/2016	Dale L. Simmons	1776802, 1776803, 1776804, 1776805, 1776806, 1776807
SM 5310 B-00	03/03/2016			03/09/2016	Sofia Elnemr	1776808, 1776809, 1776810, 1776811, 1776812, 1776813