Chemical Analysis Report

NW-DIST-2016-04-22-01

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

Event Description: **WBID19 21 271 179**
Request ID: **RQ-2016-04-18-52**
Customer: **NW-DIST**
Project ID: **SMP**

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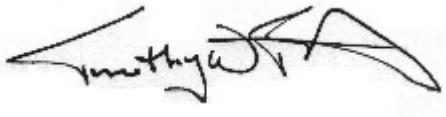
Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 17-MAY-2016 09:09



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: ATES CREEK BRYANT BRIDGE RD **Collection Date/Time: 04/21/2016 10:45**

Field ID: G4NW0332 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1792261	EPA 180.1 Rev. 2.0	Turbidity	2.2	A	NTU	P302800	
	EPA 300.0 Rev. 2.1	Chloride	3.5		mg Cl/L	P303319	
		Sulfate	1.2		mg SO4/L	P303322	
	SM 2120 B	Color (true)	21		PCU	P302806	
	SM 2320 B-97	Total Alkalinity	15		mg CaCO3/L	P303265	
	SM 2540 C-97	TDS	23	I	mg/L	P303441	
	SM 2540 D-97	TSS	2	I	mg/L	P303308	
	SM 4500 F-C-97	Fluoride	0.039	I	mg F/L	P303269	
1792270	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P303595	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.14	I	mg N/L	P303873	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022		mg N/L	P303849	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P303612	
	SM 5310 B-00	Organic Carbon	1.6		mg C/L	P303738	
1792279	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P302902	

Ref. Method and Comment:
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: BEAR CREEK @ FOREST RD. **Collection Date/Time: 04/21/2016 11:45**

Field ID: G4NW0380 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1792262	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P302800	
	EPA 300.0 Rev. 2.1	Chloride	2.4		mg Cl/L	P303319	
		Sulfate	0.60		mg SO4/L	P303322	
	SM 2120 B	Color (true)	38	A	PCU	P302806	
	SM 2320 B-97	Total Alkalinity	6.3		mg CaCO3/L	P303265	
	SM 2540 C-97	TDS	16	I	mg/L	P303441	
	SM 2540 D-97	TSS	2	I	mg/L	P303308	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P303269	
1792271	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P303595	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20	I	mg N/L	P303873	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.023		mg N/L	P303849	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P303612	
	SM 5310 B-00	Organic Carbon	3.3		mg C/L	P303738	
1792280	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302902	

Ref. Method and Comment:
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: SWEETWATER CREEK UPSTREAM OF HWY 4 **Collection Date/Time: 04/21/2016 12:05**

Field ID: G4NW0293 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1792263	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P302800	

Field ID: G4NW0293 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1792263	EPA 300.0 Rev. 2.1	Chloride	2.5		mg Cl/L	P303319	
		Sulfate	0.79		mg SO4/L	P303322	
	SM 2120 B	Color (true)	40		PCU	P302806	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P303265	
	SM 2540 C-97	TDS	15	U	mg/L	P303441	
	SM 2540 D-97	TSS	5	I	mg/L	P303308	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P303269	
1792272	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P303595	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.15	I	mg N/L	P303874	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.054		mg N/L	P303849	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P303612	
	SM 5310 B-00	Organic Carbon	3.4		mg C/L	P303738	
1792281	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302902	

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: SWEETWATER CREEK GREEN RD. **Collection Date/Time: 04/21/2016 12:30**

Field ID: G4NW0294 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1792264	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P302800	
	EPA 300.0 Rev. 2.1	Chloride	2.5		mg Cl/L	P303319	
		Sulfate	0.81		mg SO4/L	P303322	
	SM 2120 B	Color (true)	42		PCU	P302806	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P303265	
	SM 2540 C-97	TDS	15	U	mg/L	P303441	
	SM 2540 D-97	TSS	2	I	mg/L	P303308	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P303269	
1792273	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P303595	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	I	mg N/L	P303874	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.049		mg N/L	P303849	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P303612	
	SM 5310 B-00	Organic Carbon	3.7		mg C/L	P303738	
1792282	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302902	

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: BIG JUNIPER CREEK MUNSON HWY OF HWY 4 **Collection Date/Time: 04/21/2016 12:50**

Field ID: G4NW0290 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1792265	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P302800	
	EPA 300.0 Rev. 2.1	Chloride	2.7		mg Cl/L	P303319	
		Sulfate	0.51		mg SO4/L	P303322	
	SM 2120 B	Color (true)	33		PCU	P302806	

Field ID: G4NW0290 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1792265	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P303265	
	SM 2540 C-97	TDS	15	U	mg/L	P303441	
	SM 2540 D-97	TSS	2	U	mg/L	P303308	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P303269	
1792274	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P303595	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.12	I	mg N/L	P303874	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.084		mg N/L	P303850	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P303612	
	SM 5310 B-00	Organic Carbon	2.9		mg C/L	P303738	
1792283	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302902	

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: BIG JUNIPER CREEK AMOS CABNISS RD. **Collection Date/Time: 04/21/2016 13:20**

Field ID: G4NW0289 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1792266	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P302800	
	EPA 300.0 Rev. 2.1	Chloride	2.7		mg Cl/L	P303319	
		Sulfate	0.56		mg SO4/L	P303322	
	SM 2120 B	Color (true)	35		PCU	P302806	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P303265	
	SM 2540 C-97	TDS	15	U	mg/L	P303441	
	SM 2540 D-97	TSS	2	U	mg/L	P303308	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P303269	
1792275	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P303595	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.15	I	mg N/L	P303874	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.072		mg N/L	P303850	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P303612	
	SM 5310 B-00	Organic Carbon	3.0		mg C/L	P303738	
1792284	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302902	

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: SWEETWATER CREEK SANDY LANDING RD **Collection Date/Time: 04/21/2016 13:40**

Field ID: G4NW0292 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1792267	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P302800	
	EPA 300.0 Rev. 2.1	Chloride	2.5		mg Cl/L	P303319	
		Sulfate	0.80		mg SO4/L	P303322	
	SM 2120 B	Color (true)	36		PCU	P302806	
	SM 2320 B-97	Total Alkalinity	0.74	I	mg CaCO3/L	P303265	
	SM 2540 C-97	TDS	19	I	mg/L	P303440	
	SM 2540 D-97	TSS	4	I	mg/L	P303307	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P303269	

Field ID: G4NW0292 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1792276	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P303595	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.087	I	mg N/L	P303874	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.061		mg N/L	P303850	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P303612	
	SM 5310 B-00	Organic Carbon	3.2		mg C/L	P303738	
1792285	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302902	

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: BIG JUNIPER CREEK MUNSON HWY SOUTH OF HWY 4 **Collection Date/Time: 04/21/2016 13:55**

Field ID: G4NW0287 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1792268	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P302800	
	EPA 300.0 Rev. 2.1	Chloride	2.8		mg Cl/L	P303319	
		Sulfate	0.77		mg SO4/L	P303322	
	SM 2120 B	Color (true)	31		PCU	P302806	
	SM 2320 B-97	Total Alkalinity	0.74	I	mg CaCO3/L	P303265	
	SM 2540 C-97	TDS	15	U	mg/L	P303442	
	SM 2540 D-97	TSS	3	I	mg/L	P303309	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P303269	
1792277	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P303595	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.12	I	mg N/L	P303874	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.086		mg N/L	P303850	
	EPA 365.1 Rev. 2.0	Total-P	0.005		mg P/L	P303612	
	SM 5310 B-00	Organic Carbon	2.9		mg C/L	P303738	
1792286	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302902	

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: BIG JUNIPER CREEK UPSTREAM OF RED ROCK ROAD **Collection Date/Time: 04/21/2016 14:15**

Field ID: G4NW0286 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1792269	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P302800	
	EPA 300.0 Rev. 2.1	Chloride	2.7		mg Cl/L	P303319	
		Sulfate	0.82		mg SO4/L	P303322	
	SM 2120 B	Color (true)	30	A	PCU	P302807	
	SM 2320 B-97	Total Alkalinity	0.82	I	mg CaCO3/L	P303265	
	SM 2540 C-97	TDS	15	U	mg/L	P303442	
	SM 2540 D-97	TSS	2	I	mg/L	P303309	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P303269	
1792278	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P303596	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.13	I	mg N/L	P303874	

Field ID: G4NW0286 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1792278	EPA 353.2 Rev. 2.0	NO2NO3-N	0.074		mg N/L	P303850	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P303612	
	SM 5310 B-00	Organic Carbon	2.9		mg C/L	P303738	
1792287	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302902	

Ref. Method and Comment:
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: P302800

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303319

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303322

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303595

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303596

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303873

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303874

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303849

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303850

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303612

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302902

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

Reference Method: SM 2120 B
Batch ID: P302806

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P302807

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P303265

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

Reference Method: SM 2540 C-97
Batch ID: P303440

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P303441

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P303442

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P303307

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P303308

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P303309

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P303269

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P303738

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: P303319

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303322

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	95.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303595

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303595

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303596

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303873

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303874

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.1		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303849

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303850

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303612

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302902

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

Reference Method: SM 2320 B-97
Batch ID: P303265

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.9		P	95 - 105

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P303269

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P303738

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.8		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303319

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792242	Chloride	97.2		P	90 - 110
1792261	Chloride	99.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303322

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792242	Sulfate	94.9		P	90 - 110
1792261	Sulfate	96.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303595

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792243	Ammonia-N	99.3	99.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303596

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792278	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303874

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792272	Kjeldahl Nitrogen	94.8	97.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303849

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792243	NO2NO3-N	100	98.0	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303850

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792274	NO2NO3-N	99.2	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303612

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792270	Total-P	100	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302902

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792232	O-Phosphate-P	99.8	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P303269

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792321	Fluoride	97.0	97.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P303738

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1792225	Organic Carbon	95.0	95.6	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P302800

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792261	Turbidity	7.11	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303319

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792242	Chloride	0.543	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P303322

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792242	Sulfate	1.03	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303595

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792243	Ammonia-N	0.189	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303596

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792278	Ammonia-N	0.735	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303873

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792175	Kjeldahl Nitrogen	1.43	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303874

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792272	Kjeldahl Nitrogen	2.78	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303849

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792243	NO2NO3-N	2.02	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P303850

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792274	NO2NO3-N	0.709	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P303612

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792270	Total-P	4.06	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302902

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792232	O-Phosphate-P	0.830	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B
Batch ID: P302806

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792262	Color (true)	0.187	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P302807

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792269	Color (true)	1.80	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P303265

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792321	Total Alkalinity	1.91	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P303440

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792162	TDS	4.84	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P303441

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792169	TDS	3.80	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P303442

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792321	TDS	4.58	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P303269

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792321	Fluoride	0.528	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P303738

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1792225	Organic Carbon	0.560	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: EPA 180.1 Rev. 2.0
Run ID: A69046
Included Lab Sample IDs: 1792261, 1792262, 1792263, 1792264, 1792265, 1792266, 1792267, 1792268, 1792269

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	100	P/P	95 - 105

Reference Method: SM 2120 B
Run ID: A69048
Included Lab Sample IDs: 1792261, 1792262, 1792263, 1792264, 1792265, 1792266, 1792267, 1792268, 1792269

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	90 - 115
Color (true)	101	102	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A69080
Included Lab Sample IDs: 1792279, 1792280, 1792281, 1792282, 1792283, 1792284, 1792285, 1792286, 1792287

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.0	P/P	90 - 110
O-Phosphate-P	99.8	101	P/P	90 - 110
O-Phosphate-P	99.8	99.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A69144
Included Lab Sample IDs: 1792261, 1792262, 1792263, 1792264, 1792265, 1792266, 1792267, 1792268, 1792269

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Chloride	101	101	P/P	90 - 110
Sulfate	97.2	100	P/P	90 - 110
Sulfate	99.4	97.2	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A69186
Included Lab Sample IDs: 1792261, 1792262, 1792263, 1792264, 1792265, 1792266, 1792267, 1792268, 1792269

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.2	101	P/P	90 - 110
Total Alkalinity	98.5	97.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A69186
Included Lab Sample IDs: 1792261, 1792262, 1792263, 1792264, 1792265, 1792266, 1792267, 1792268, 1792269

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A69277
Included Lab Sample IDs: 1792270, 1792271, 1792272, 1792273, 1792274, 1792275, 1792276, 1792277, 1792278

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A69319
Included Lab Sample IDs: 1792270, 1792271, 1792272, 1792273, 1792274, 1792275, 1792276, 1792277, 1792278

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	99.0	P/P	90 - 110
Total-P	97.5	99.0	P/P	90 - 110
Total-P	99.0	102	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A69322
Included Lab Sample IDs: 1792270, 1792271, 1792272, 1792273, 1792274, 1792275, 1792276, 1792277, 1792278

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.8	95.0	P/P	90 - 110
Organic Carbon	95.0	95.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A69340
Included Lab Sample IDs: 1792270, 1792271, 1792272, 1792273, 1792274, 1792275, 1792276, 1792277, 1792278

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A69419
Included Lab Sample IDs: 1792270, 1792271, 1792272, 1792273, 1792274, 1792275, 1792276, 1792277, 1792278

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.9	93.4	P/P	90 - 110
Kjeldahl Nitrogen	96.4	96.3	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					7.11	
EPA 300.0 Rev. 2.1	Chloride	97.8	97.2	99.6		0.543	
	Sulfate	95.3	94.9	96.3		1.03	
EPA 350.1 Rev. 2.0	Ammonia-N	99.7	99.3	99.1			0.189
	Ammonia-N	102	101	101			0.735

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100					1.43
	Kjeldahl Nitrogen	99.1	94.8	97.9			2.78
EPA 353.2 Rev. 2.0	NO2NO3-N	100	100	98.0			2.02
	NO2NO3-N	99.0	99.2	98.2			0.709
EPA 365.1 Rev. 2.0	Total-P	98.0	100	96.4			4.06
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	99.8	101			0.830
SM 2120 B	Color (true)					0.187	
	Color (true)					1.80	
SM 2320 B-97	Total Alkalinity	99.9				1.91	
SM 2540 C-97	TDS					4.84	
	TDS					3.80	
	TDS					4.58	
SM 4500 F-C-97	Fluoride	97.1	97.0	97.7			0.528
SM 5310 B-00	Organic Carbon	93.8	95.0	95.6			0.560

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1792261, 1792262, 1792263, 1792264, 1792265, 1792266, 1792267, 1792268, 1792269
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1792261, 1792262, 1792263, 1792264, 1792265, 1792266, 1792267, 1792268, 1792269
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1792261, 1792262, 1792263, 1792264, 1792265, 1792266, 1792267, 1792268, 1792269
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1792270, 1792271, 1792272, 1792273, 1792274, 1792275, 1792276, 1792277, 1792278
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1792270, 1792271, 1792272, 1792273, 1792274, 1792275, 1792276, 1792277, 1792278
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1792270, 1792271, 1792272, 1792273, 1792274, 1792275, 1792276, 1792277, 1792278
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1792270, 1792271, 1792272, 1792273, 1792274, 1792275, 1792276, 1792277, 1792278
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1792279, 1792280, 1792281, 1792282, 1792283, 1792284, 1792285, 1792286, 1792287
SM 2120 B / E31780	True Color measured at 450 nm	1792261, 1792262, 1792263, 1792264, 1792265, 1792266, 1792267, 1792268, 1792269
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1792261, 1792262, 1792263, 1792264, 1792265, 1792266, 1792267, 1792268, 1792269
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1792261, 1792262, 1792263, 1792264, 1792265, 1792266, 1792267, 1792268, 1792269
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1792261, 1792262, 1792263, 1792264, 1792265, 1792266, 1792267, 1792268, 1792269
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1792261, 1792262, 1792263, 1792264, 1792265, 1792266, 1792267, 1792268, 1792269

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1792270, 1792271, 1792272, 1792273, 1792274, 1792275, 1792276, 1792277, 1792278

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	04/22/2016			04/22/2016 15:02	Sima Feizi	1792261, 1792262, 1792263, 1792264, 1792265, 1792266, 1792267, 1792268, 1792269
EPA 300.0 Rev. 2.1	04/22/2016			04/30/2016	Elisa J Lutz	1792261, 1792262, 1792263, 1792264, 1792265, 1792266, 1792267, 1792268, 1792269
EPA 350.1 Rev. 2.0	04/22/2016			05/04/2016	Diana M. Turner	1792270, 1792271, 1792272, 1792273, 1792274, 1792275, 1792276, 1792277, 1792278
EPA 351.2 Rev. 2.0	04/22/2016	05/10/2016	Sofia Elnemr	05/11/2016	Christopher Armour	1792270, 1792271, 1792272, 1792273, 1792274, 1792275, 1792276, 1792277, 1792278
EPA 353.2 Rev. 2.0	04/22/2016			05/06/2016	Virginia P. Brown	1792270, 1792271, 1792272, 1792273, 1792274, 1792275, 1792276, 1792277, 1792278
EPA 365.1 Rev. 2.0	04/22/2016	05/05/2016	Vijayalakshmi Reddy	05/06/2016	Lipi Saha	1792270, 1792271, 1792272, 1792273, 1792274, 1792275, 1792276, 1792277, 1792278
EPA 365.1 Rev. 2.0 dissolved	04/22/2016			04/22/2016 15:41	Ping Hua	1792279
	04/22/2016			04/22/2016 15:45	Ping Hua	1792283
	04/22/2016			04/22/2016 15:46	Ping Hua	1792284
	04/22/2016			04/22/2016 15:51	Ping Hua	1792285
	04/22/2016			04/22/2016 15:52	Ping Hua	1792286
	04/22/2016			04/22/2016 15:53	Ping Hua	1792287
	04/22/2016			04/22/2016 16:07	Ping Hua	1792280
	04/22/2016			04/22/2016 16:08	Ping Hua	1792281
	04/22/2016			04/22/2016 16:09	Ping Hua	1792282
SM 2120 B	04/22/2016			04/22/2016 15:13	Chrisoulla Rakowski	1792261
	04/22/2016			04/22/2016 15:14	Chrisoulla Rakowski	1792262
	04/22/2016			04/22/2016 15:15	Chrisoulla Rakowski	1792263
	04/22/2016			04/22/2016 15:16	Chrisoulla Rakowski	1792264, 1792265
	04/22/2016			04/22/2016 15:17	Chrisoulla Rakowski	1792266
	04/22/2016			04/22/2016 15:18	Chrisoulla Rakowski	1792267
	04/22/2016			04/22/2016 15:19	Chrisoulla Rakowski	1792268
	04/22/2016			04/22/2016 15:23	Chrisoulla Rakowski	1792269
SM 2320 B-97	04/22/2016			04/29/2016	Dale L. Simmons	1792261, 1792262, 1792263, 1792264, 1792265, 1792266, 1792267, 1792268, 1792269
SM 2540 C-97	04/22/2016			04/27/2016	Yijie Li	1792261, 1792262, 1792263, 1792264, 1792265, 1792266, 1792267, 1792268, 1792269

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2540 D-97	04/22/2016			04/27/2016	Yijie Li	1792261, 1792262, 1792263, 1792264, 1792265, 1792266, 1792267, 1792268, 1792269
SM 4500 F-C-97	04/22/2016			04/29/2016	Dale L. Simmons	1792261, 1792262, 1792263, 1792264, 1792265, 1792266, 1792267, 1792268, 1792269
SM 5310 B-00	04/22/2016			05/06/2016	Sofia Elnemr	1792270, 1792271, 1792272, 1792273, 1792274, 1792275, 1792276, 1792277, 1792278