

Chemical Analysis Report

NW-DIST-2016-08-26-02

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

Event Description: **WBID 167 167A 160 30G**

Request ID: **RQ-2016-08-22-22**

Customer: **NW-DIST**

Project ID: **SMP**

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Date Certified: 19-SEP-2016 17:28



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: Shoal River off Old Dorcas Rd. Walton Co.

Collection Date/Time: 08/25/2016 10:20

Field ID: G4NW0375

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1827400	EPA 180.1 Rev. 2.0	Turbidity	7.5		NTU	P310421	
	EPA 300.0 Rev. 2.1	Chloride	3.7		mg Cl/L	P311121	
		Sulfate	1.0		mg SO4/L	P311124	
	SM 2120 B	Color (true)	78		PCU	P310424	
	SM 2320 B-97	Total Alkalinity	2.6		mg CaCO3/L	P310504	
	SM 2540 C-97	TDS	36		mg/L	P311040	
	SM 2540 D-97	TSS	12		mg/L	P310853	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P310506	
1827406	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P310451	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50		mg N/L	P310608	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.37		mg N/L	P310826	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P310968	
	SM 5310 B-00	Organic Carbon	7.0		mg C/L	P310905	
1827412	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P310427	

Sample Location: Shoal River Hinote Rd.

Collection Date/Time: 08/25/2016 10:50

Field ID: G4NW0376

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1827401	EPA 180.1 Rev. 2.0	Turbidity	7.1		NTU	P310421	
	EPA 300.0 Rev. 2.1	Chloride	3.6		mg Cl/L	P311121	
		Sulfate	1.0		mg SO4/L	P311124	
	SM 2120 B	Color (true)	77		PCU	P310424	
	SM 2320 B-97	Total Alkalinity	2.7		mg CaCO3/L	P310504	
	SM 2540 C-97	TDS	47		mg/L	P311040	
	SM 2540 D-97	TSS	8	I	mg/L	P310853	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P310506	
1827407	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P310451	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50		mg N/L	P310608	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.38		mg N/L	P310827	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P310968	
	SM 5310 B-00	Organic Carbon	6.9		mg C/L	P310905	
1827413	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P310427	

Sample Location: Shoal River CR-1087

Collection Date/Time: 08/25/2016 11:10

Field ID: G4NW0377

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1827402	EPA 180.1 Rev. 2.0	Turbidity	7.0		NTU	P310421	
	EPA 300.0 Rev. 2.1	Chloride	3.8		mg Cl/L	P311121	
		Sulfate	0.92		mg SO4/L	P311124	
	SM 2120 B	Color (true)	86		PCU	P310424	
	SM 2320 B-97	Total Alkalinity	2.4	I	mg CaCO3/L	P310505	

Field ID: G4NW0377

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1827402	SM 2540 C-97	TDS	41		mg/L	P311040	
	SM 2540 D-97	TSS	9	I	mg/L	P310853	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P310507	
1827408	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P310451	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40		mg N/L	P310608	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.36		mg N/L	P310827	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P310968	
	SM 5310 B-00	Organic Carbon	7.8		mg C/L	P310905	
1827414	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P310427	

Sample Location: Shoal River Big Swamp CR FLA 187

Collection Date/Time: 08/25/2016 11:35

Field ID: G4NW0378

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1827403	EPA 180.1 Rev. 2.0	Turbidity	4.4		NTU	P310421	
	EPA 300.0 Rev. 2.1	Chloride	5.3		mg Cl/L	P311121	
		Sulfate	1.0		mg SO4/L	P311124	
	SM 2120 B	Color (true)	210		PCU	P310424	
	SM 2320 B-97	Total Alkalinity	0.81	I	mg CaCO3/L	P310505	
	SM 2540 C-97	TDS	51		mg/L	P311040	
	SM 2540 D-97	TSS	7	I	mg/L	P310853	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P310507	
1827409	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P310451	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.61		mg N/L	P310608	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.54		mg N/L	P310827	
	EPA 365.1 Rev. 2.0	Total-P	0.025		mg P/L	P310968	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P310905	
1827415	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.010		mg P/L	P310427	

Sample Location: Gum Creek Abv Bartlett Rd.

Collection Date/Time: 08/25/2016 12:05

Field ID: G4NW0323

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1827404	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P310421	
	EPA 300.0 Rev. 2.1	Chloride	3.5		mg Cl/L	P311121	
		Sulfate	0.20	U	mg SO4/L	P311124	
	SM 2120 B	Color (true)	240		PCU	P310425	
	SM 2320 B-97	Total Alkalinity	0.66	I	mg CaCO3/L	P310505	
	SM 2540 C-97	TDS	59		mg/L	P311041	
	SM 2540 D-97	TSS	3	I	mg/L	P310854	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P310507	
1827410	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P310451	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.85		mg N/L	P310608	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.075		mg N/L	P310827	
	EPA 365.1 Rev. 2.0	Total-P	0.036		mg P/L	P310968	

Field ID: G4NW0323

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1827410	SM 5310 B-00	Organic Carbon	24		mg C/L	P310905	
1827416	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P310428	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Gum Creek Hwy 83

Collection Date/Time: 08/25/2016 12:20

Field ID: G4NW0322

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1827405	EPA 180.1 Rev. 2.0	Turbidity	2.8		NTU	P310421	
	EPA 300.0 Rev. 2.1	Chloride	3.6		mg Cl/L	P311121	
		Sulfate	0.20	U	mg SO4/L	P311124	
	SM 2120 B	Color (true)	230		PCU	P310425	
	SM 2320 B-97	Total Alkalinity	0.80	I	mg CaCO3/L	P310505	
	SM 2540 C-97	TDS	46		mg/L	P311041	
	SM 2540 D-97	TSS	4	I	mg/L	P310854	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P310507	
1827411	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P310451	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P310608	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.089		mg N/L	P310827	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P310968	
	SM 5310 B-00	Organic Carbon	24		mg C/L	P310905	
1827417	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.010		mg P/L	P310428	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P310421

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P311121

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P311124

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310451

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310608

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310826

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310827

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310968

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310427

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310428

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

Reference Method: SM 2120 B
Batch ID: P310424

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P310425

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P310504

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

Reference Method: SM 2320 B-97
Batch ID: P310505

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

Reference Method: SM 2540 C-97
Batch ID: P311040

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P311041

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P310853

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P310854

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P310506

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P310507

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P310905

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: P311121

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311124

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310451

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310608

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310826

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310827

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310968

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	94.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310427

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310428

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P310504

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P310505

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P310506

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.7		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P310507

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P310905

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	104		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311121

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1827339	Chloride	101		P	90 - 110
1827360	Chloride	98.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311124

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1827339	Sulfate	100		P	90 - 110
1827360	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310451

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1827316	Ammonia-N	103	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310608

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1827441	Kjeldahl Nitrogen	97.7	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310826

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1827340	NO2NO3-N	90.5	90.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310827

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1827407	NO2NO3-N	93.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310968

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1827406	Total-P	95.6	96.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310427

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1827317	O-Phosphate-P	98.0	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310428

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1827416	O-Phosphate-P	95.7	96.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P310506

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1827360	Fluoride	97.4	97.4	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P310507

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1827381	Fluoride	99.5	100	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P310905

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1827355	Organic Carbon	106		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P310421

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827390	Turbidity	0.966	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311121

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827339	Chloride	0.672	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P311124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827339	Sulfate	5.06	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310451

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827316	Ammonia-N	1.45	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310608

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827441	Kjeldahl Nitrogen	4.75	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310826

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827340	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310827

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827407	NO2NO3-N	0.521	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310968

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827406	Total-P	0.996	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310427

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827317	O-Phosphate-P	1.22	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310428

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827416	O-Phosphate-P	0.931	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P310424

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827353	Color (true)	4.02	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P310425

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827437	Color (true)	3.81	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P310504

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827360	Total Alkalinity	0.203	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P310505

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827381	Total Alkalinity	0.660	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P311040

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827294	TDS	4.74	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P311041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827769	TDS	4.79	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 D-97
Batch ID: P310853

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827294	TSS	8.00	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P310506

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827360	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P310507

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827381	Fluoride	0.484	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P310905

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827355	Organic Carbon	0.582	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A71351
Included Lab Sample IDs: 1827400, 1827401, 1827402, 1827403, 1827404, 1827405

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

Reference Method: SM 2120 B
Run ID: A71352
Included Lab Sample IDs: 1827400, 1827401, 1827402, 1827403, 1827404, 1827405

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	92.1	94.2	P/P	85 - 115
Color (true)	94.6	95.8	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A71353
Included Lab Sample IDs: 1827412, 1827413, 1827414, 1827415, 1827416, 1827417

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.3	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A71353

Included Lab Sample IDs: 1827412, 1827413, 1827414, 1827415, 1827416, 1827417

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.4	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A71364

Included Lab Sample IDs: 1827406, 1827407, 1827408, 1827409, 1827410, 1827411

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

Reference Method: SM 2320 B-97

Run ID: A71389

Included Lab Sample IDs: 1827400, 1827401, 1827402, 1827403, 1827404, 1827405

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

Reference Method: SM 4500 F-C-97

Run ID: A71389

Included Lab Sample IDs: 1827400, 1827401, 1827402, 1827403, 1827404, 1827405

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.5	P/P	90 - 110
Fluoride	101	100	P/P	90 - 110
Fluoride	99.0	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A71447

Included Lab Sample IDs: 1827406, 1827407, 1827408, 1827409, 1827410, 1827411

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	95.1	P/P	90 - 110
Kjeldahl Nitrogen	97.6	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A71490

Included Lab Sample IDs: 1827406, 1827407, 1827408, 1827409, 1827410, 1827411

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110
NO2NO3-N	99.0	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A71508

Included Lab Sample IDs: 1827406, 1827407, 1827408, 1827409, 1827410, 1827411

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	104	105	P/P	90 - 110
Organic Carbon	105	106	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A71574

Included Lab Sample IDs: 1827406, 1827407, 1827408, 1827409, 1827410, 1827411

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.8	P/P	90 - 110
Total-P	99.8	100	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A71576

Included Lab Sample IDs: 1827400, 1827401, 1827402, 1827403, 1827404, 1827405

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Chloride	101	101	P/P	90 - 110
Sulfate	101	98.9	P/P	90 - 110
Sulfate	99.7	101	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					0.966	
EPA 300.0 Rev. 2.1	Chloride	101	101	98.6		0.672	
	Sulfate	99.6	100	100		5.06	
EPA 350.1 Rev. 2.0	Ammonia-N	101	103	102			1.45
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.0	97.7	104			4.75
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	90.5	90.5			0.0
	NO2NO3-N	100	93.0				0.521
EPA 365.1 Rev. 2.0	Total-P	94.4	95.6	96.6			0.996
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.2	98.0	99.2			1.22
	O-Phosphate-P	102	95.7	96.7			0.931
SM 2120 B	Color (true)					4.02	
	Color (true)					3.81	
SM 2320 B-97	Total Alkalinity	104				0.203	
	Total Alkalinity	104				0.660	
SM 2540 C-97	TDS					4.74	
	TDS					4.79	
SM 2540 D-97	TSS					8.00	
SM 4500 F-C-97	Fluoride	96.7	97.4	97.4			0.0
	Fluoride	99.1	99.5	100			0.484
SM 5310 B-00	Organic Carbon	104	106				0.582

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1827400, 1827401, 1827402, 1827403, 1827404, 1827405
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1827400, 1827401, 1827402, 1827403, 1827404, 1827405

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1827400, 1827401, 1827402, 1827403, 1827404, 1827405
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1827406, 1827407, 1827408, 1827409, 1827410, 1827411
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1827406, 1827407, 1827408, 1827409, 1827410, 1827411
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1827406, 1827407, 1827408, 1827409, 1827410, 1827411
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1827406, 1827407, 1827408, 1827409, 1827410, 1827411
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1827412, 1827413, 1827414, 1827415, 1827416, 1827417
SM 2120 B / E31780	True Color measured at 450 nm	1827400, 1827401, 1827402, 1827403, 1827404, 1827405
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1827400, 1827401, 1827402, 1827403, 1827404, 1827405
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1827400, 1827401, 1827402, 1827403, 1827404, 1827405
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1827400, 1827401, 1827402, 1827403, 1827404, 1827405
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1827400, 1827401, 1827402, 1827403, 1827404, 1827405
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1827406, 1827407, 1827408, 1827409, 1827410, 1827411

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	08/26/2016			08/26/2016 15:08	Sima Feizi	1827400, 1827401, 1827402, 1827403, 1827404, 1827405
EPA 300.0 Rev. 2.1	08/26/2016			09/14/2016	Ping Hua	1827400, 1827401, 1827402, 1827403, 1827404, 1827405
EPA 350.1 Rev. 2.0	08/26/2016			08/26/2016	Julie Michelle Frank	1827406, 1827407, 1827408, 1827409, 1827410, 1827411
EPA 351.2 Rev. 2.0	08/26/2016	08/31/2016	Adrian Shelby	09/01/2016	Christopher Armour	1827406, 1827407, 1827408, 1827409, 1827410, 1827411
EPA 353.2 Rev. 2.0	08/26/2016			09/08/2016	Beverly Y. Sanders	1827406, 1827407, 1827408, 1827409, 1827410, 1827411
EPA 365.1 Rev. 2.0	08/26/2016	09/12/2016	Vijayalakshmi Reddy	09/13/2016	Lipi Saha	1827406, 1827407, 1827408, 1827409, 1827410, 1827411
EPA 365.1 Rev. 2.0 dissolved	08/26/2016			08/26/2016 16:32	Julia Storbeck	1827416
	08/26/2016			08/26/2016 16:52	Julia Storbeck	1827412
	08/26/2016			08/26/2016 16:53	Julia Storbeck	1827413
	08/26/2016			08/26/2016 16:54	Julia Storbeck	1827414
	08/26/2016			08/26/2016 16:55	Julia Storbeck	1827415, 1827417
SM 2120 B	08/26/2016			08/26/2016 14:49	Blanca Fach	1827400
	08/26/2016			08/26/2016 14:50	Blanca Fach	1827401, 1827402
	08/26/2016			08/26/2016 15:04	Blanca Fach	1827404
	08/26/2016			08/26/2016 15:06	Blanca Fach	1827403
	08/26/2016			08/26/2016 15:07	Blanca Fach	1827405
SM 2320 B-97	08/26/2016			08/29/2016	Dale L. Simmons	1827400, 1827401
	08/26/2016			08/30/2016	Dale L. Simmons	1827402, 1827403, 1827404, 1827405
SM 2540 C-97	08/26/2016			08/31/2016	Yijie Li	1827400, 1827401, 1827402, 1827403, 1827404, 1827405
SM 2540 D-97	08/26/2016			08/31/2016	Yijie Li	1827400, 1827401, 1827402, 1827403, 1827404, 1827405
SM 4500 F-C-97	08/26/2016			08/29/2016	Dale L. Simmons	1827400, 1827401
	08/26/2016			08/30/2016	Dale L. Simmons	1827402, 1827403, 1827404, 1827405
SM 5310 B-00	08/26/2016			09/09/2016	Sofia Elnemr	1827406, 1827407, 1827408, 1827409, 1827410, 1827411