

Chemical Analysis Report

WQAP-2016-12-08-01

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

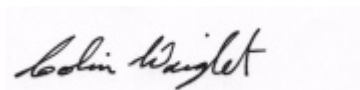
Event Description: **Soapstone Branch, Central Drainage Ditch, Lake Lafayette
Drain and Black Creek**
Request ID: **RQ-2016-12-05-67**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
MS #3560
Tallahassee, FL 32399-2400
Attn: Benjamin Ralys

For additional information please contact
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Certified by: Colin Wright, Program Administrator

Date Certified: 30-DEC-2016 14:27

A handwritten signature in black ink, appearing to read "Colin Wright", is placed over a light blue rectangular background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical group are included in this report: Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: CENTRAL DRAINAGE DITCH DOWNSTREAM OF ORANGE AVE.

Collection Date/Time: 12/08/2016 09:05

Field ID: G1WA0026-12062016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1856322	EPA 180.1 Rev. 2.0	Turbidity	5.3		NTU	P316445	
	EPA 300.0 Rev. 2.1	Chloride	5.7		mg Cl/L	P316980	
	SM 2120 B	Color (true)	32		PCU	P316453	
	SM 2320 B-97	Total Alkalinity	63		mg CaCO3/L	P316897	
	SM 2540 C-97	TDS	92		mg/L	P317008	
	SM 2540 D-97	TSS	8	I	mg/L	P317031	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P316900	
1856326	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P316866	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P316743	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P316942	
	EPA 365.1 Rev. 2.0	Total-P	0.21		mg P/L	P316698	
	SM 5310 B-00	Organic Carbon	6.4		mg C/L	P316540	
1856330	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.088		mg P/L	P316529	

Sample Location: LAKE LAFAYETTE DRAIN 250 METERS DOWNSTREAM OF WEEMS RD.

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

Field ID: G1WA0007-12062016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1856323	EPA 180.1 Rev. 2.0	Turbidity	8.0	A	NTU	P316446	
	EPA 300.0 Rev. 2.1	Chloride	3.7		mg Cl/L	P316980	
	SM 2120 B	Color (true)	20		PCU	P316453	
	SM 2320 B-97	Total Alkalinity	21		mg CaCO3/L	P316897	
	SM 2540 C-97	TDS	53		mg/L	P317008	
	SM 2540 D-97	TSS	8	I	mg/L	P317031	
	SM 4500 F-C-97	Fluoride	0.058	I	mg F/L	P316900	
1856327	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P316866	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27		mg N/L	P316746	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.035		mg N/L	P316942	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P316698	
	SM 5310 B-00	Organic Carbon	4.3		mg C/L	P316540	
1856331	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P316529	

Sample Location: BLACK CREEK UPSTREAM OF BLOXHAM CUTOFF

Collection Date/Time: 12/08/2016 11:00

Field ID: G1WA0023-12062016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1856324	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P316446	
	EPA 300.0 Rev. 2.1	Chloride	4.9		mg Cl/L	P316979	
	SM 2120 B	Color (true)	320		PCU	P316453	
	SM 2320 B-97	Total Alkalinity	25		mg CaCO3/L	P316897	
	SM 2540 C-97	TDS	90		mg/L	P317008	

Field ID: G1WA0023-12062016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1856324	SM 2540 D-97	TSS	2	U	mg/L	P317031	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P316900	
1856328	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P316866	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.78		mg N/L	P316746	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P316943	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P316698	
	SM 5310 B-00	Organic Carbon	35		mg C/L	P316540	
1856332	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P316529	

Sample Location: TANYARD BRANCH 100 METERS UPSTREAM OF RALPH STRONG RD. Collection Date/Time: 12/08/2016 12:20

Field ID: G1WA0005-12062016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1856325	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P316446	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P316979	
	SM 2120 B	Color (true)	38	A	PCU	P316453	
	SM 2320 B-97	Total Alkalinity	48		mg CaCO3/L	P316897	
	SM 2540 C-97	TDS	107		mg/L	P317009	
	SM 2540 D-97	TSS	4	I	mg/L	P317032	
	SM 4500 F-C-97	Fluoride	0.17		mg F/L	P316900	
1856329	EPA 350.1 Rev. 2.0	Ammonia-N	0.028		mg N/L	P316866	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.37		mg N/L	P316746	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.32		mg N/L	P316943	
	EPA 365.1 Rev. 2.0	Total-P	0.22		mg P/L	P316698	
	SM 5310 B-00	Organic Carbon	5.3		mg C/L	P316540	
1856333	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.15		mg P/L	P316529	

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: P316445

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P316446

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P316979

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316979

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316980

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316866

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316743

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316746

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316942

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316943

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316698

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316529

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P316453

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P316897

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

Reference Method: SM 2540 C-97
Batch ID: P317008

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P317009

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P317031

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P317032

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P316900

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P316540

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: P316979

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316979

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316980

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316866

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316743

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316746

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316942

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316943

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	103		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316698

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.1		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316529

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: P316897

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.4		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P316900

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P316540

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316979

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856324	Chloride	98.9		P	90 - 110
1856798	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316980

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856156	Chloride	102		P	90 - 110
1856295	Chloride	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316866

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856296	Ammonia-N	104	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316743

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856210	Kjeldahl Nitrogen	106	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316746

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856444	Kjeldahl Nitrogen	95.1	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316942

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856296	NO2NO3-N	99.5	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316943

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856328	NO2NO3-N	98.5	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316698

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856329	Total-P	101	96.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316529

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856185	O-Phosphate-P	101	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P316900

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856655	Fluoride	97.9	99.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P316540

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1856208	Organic Carbon	96.4	96.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P316445

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856203	Turbidity	2.12	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P316446

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856323	Turbidity	0.251	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316979

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856798	Chloride	0.323	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316980

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856156	Chloride	0.973	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316866

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856296	Ammonia-N	1.06	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316743

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856210	Kjeldahl Nitrogen	5.19	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316746

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856444	Kjeldahl Nitrogen	6.10	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316942

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856296	NO2NO3-N	1.50	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856328	NO2NO3-N	1.53	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316698

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856329	Total-P	3.07	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316529

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856185	O-Phosphate-P	0.957	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P316453

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856325	Color (true)	1.69	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P316897

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856655	Total Alkalinity	0.179	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P317008

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856202	TDS	1.79	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P317009

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856443	TDS	0.388	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P317031

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856202	TSS	2.74	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P316900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856655	Fluoride	0.946	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P316540

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1856208	Organic Carbon	0.171	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: A73258

Included Lab Sample IDs: 1856322, 1856323, 1856324, 1856325

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	100	P/P	95 - 105
Turbidity	99.5	99.0	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A73259

Included Lab Sample IDs: 1856322, 1856323, 1856324, 1856325

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	102	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A73280

Included Lab Sample IDs: 1856330, 1856331, 1856332, 1856333

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.0	95.4	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A73284

Included Lab Sample IDs: 1856326, 1856327, 1856328, 1856329

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.0	99.0	P/P	90 - 110
Organic Carbon	99.0	97.4	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A73375

Included Lab Sample IDs: 1856322, 1856323, 1856324, 1856325

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A73402

Included Lab Sample IDs: 1856326, 1856327, 1856328, 1856329

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A73405

Included Lab Sample IDs: 1856326

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.3	94.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A73410

Included Lab Sample IDs: 1856328

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A73411

Included Lab Sample IDs: 1856327, 1856328, 1856329

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	92.6	91.4	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A73415

Included Lab Sample IDs: 1856322, 1856323, 1856324, 1856325

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.3	99.3	P/P	90 - 110
Total Alkalinity	98.9	97.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A73415

Included Lab Sample IDs: 1856322, 1856323, 1856324, 1856325

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A73417

Included Lab Sample IDs: 1856326, 1856327, 1856328, 1856329

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A73418

Included Lab Sample IDs: 1856326, 1856327, 1856329

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	102	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	MS
EPA 180.1 Rev. 2.0	Turbidity				2.12	
	Turbidity				0.251	
EPA 300.0 Rev. 2.1	Chloride	102	101	98.9	0.323	
	Chloride	104	102	98.7	0.973	
EPA 350.1 Rev. 2.0	Ammonia-N	103	104	103		1.06
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	106	99.4		5.19
	Kjeldahl Nitrogen	101	95.1	102		6.10
EPA 353.2 Rev. 2.0	NO2NO3-N	104	99.5	101		1.50
	NO2NO3-N	103	98.5	97.0		1.53
EPA 365.1 Rev. 2.0	Total-P	96.1	101	96.7		3.07
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	101	102		0.957
SM 2120 B	Color (true)				1.69	
SM 2320 B-97	Total Alkalinity	98.4			0.179	
SM 2540 C-97	TDS				1.79	
	TDS				0.388	
SM 2540 D-97	TSS				2.74	
SM 4500 F-C-97	Fluoride	98.9	97.9	99.7		0.946
SM 5310 B-00	Organic Carbon	101	96.4	96.2		0.171

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1856322, 1856323, 1856324, 1856325
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1856322, 1856323, 1856324, 1856325
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1856326, 1856327, 1856328, 1856329
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1856326, 1856327, 1856328, 1856329
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1856326, 1856327, 1856328, 1856329
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1856326, 1856327, 1856328, 1856329
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1856330, 1856331, 1856332, 1856333
SM 2120 B / E31780	True Color measured at 450 nm	1856322, 1856323, 1856324, 1856325
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1856322, 1856323, 1856324, 1856325
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1856322, 1856323, 1856324, 1856325
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1856322, 1856323, 1856324, 1856325
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1856322, 1856323, 1856324, 1856325
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1856326, 1856327, 1856328, 1856329

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	12/08/2016			12/08/2016 16:30	Sima Feizi	1856322, 1856323, 1856324, 1856325
EPA 300.0 Rev. 2.1	12/08/2016			12/16/2016	Ping Hua	1856322, 1856323, 1856324
	12/08/2016			12/17/2016	Ping Hua	1856325
EPA 350.1 Rev. 2.0	12/08/2016			12/14/2016	Sofia Elnemr	1856326, 1856327, 1856328, 1856329
EPA 351.2 Rev. 2.0	12/08/2016	12/14/2016	Adrian Shelby	12/15/2016	Joseph Suarez	1856326, 1856327, 1856328, 1856329
EPA 353.2 Rev. 2.0	12/08/2016			12/15/2016	Beverly Y. Sanders	1856326, 1856327, 1856328, 1856329
EPA 365.1 Rev. 2.0	12/08/2016	12/13/2016	Vijayalakshmi Reddy	12/14/2016	Beverly Y. Sanders	1856326, 1856327, 1856329
	12/08/2016	12/13/2016	Vijayalakshmi Reddy	12/14/2016	Lipi Saha	1856328
EPA 365.1 Rev. 2.0 dissolved	12/08/2016			12/09/2016 13:17	Julia Storbeck	1856330, 1856331
	12/08/2016			12/09/2016 13:18	Julia Storbeck	1856332
	12/08/2016			12/09/2016 13:19	Julia Storbeck	1856333
SM 2120 B	12/08/2016			12/08/2016 16:35	Jared I. Manley	1856322, 1856325
	12/08/2016			12/08/2016 16:36	Jared I. Manley	1856323
	12/08/2016			12/08/2016 16:42	Jared I. Manley	1856324
SM 2320 B-97	12/08/2016			12/15/2016	Dale L. Simmons	1856322, 1856323, 1856324, 1856325
SM 2540 C-97	12/08/2016			12/12/2016	Sima Feizi	1856322, 1856323, 1856324, 1856325
SM 2540 D-97	12/08/2016			12/12/2016	Sima Feizi	1856322, 1856323, 1856324, 1856325
SM 4500 F-C-97	12/08/2016			12/15/2016	Dale L. Simmons	1856322, 1856323, 1856324, 1856325
SM 5310 B-00	12/08/2016			12/09/2016	Julie Michelle Frank	1856326, 1856327, 1856328, 1856329