

Chemical Analysis Report

SO-DIST-2017-02-21-01

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

Event Description: **SMP: Highlands Lakes**
Request ID: **RQ-2017-02-06-30**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Corey Anderson

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 08-MAR-2017 15:12

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored 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: Huckleberry Lake @ Center

Collection Date/Time: 02/20/2017 11:25

Field ID: G4HL022017-6

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1873852	EPA 180.1 Rev. 2.0	Turbidity	14		NTU	P320210	
	EPA 300.0 Rev. 2.1	Chloride	13	A	mg Cl/L	P320916	
		Sulfate	3.7	A	mg SO4/L	P320821	
	SM 2120 B	Color (true)	100		PCU	P320224	
	SM 2320 B-97	Total Alkalinity	24		mg CaCO3/L	P320411	
	SM 2540 C-97	TDS	73		mg/L	P320671	
	SM 2540 D-97	TSS	13		mg/L	P320618	
	SM 4500 F-C-97	Fluoride	0.096	I	mg F/L	P320418	
1873855	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P320319	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P320255	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P320464	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P320295	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P320393	
1873858	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.10		mg P/L	P320204	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Hill Lake @ Center

Collection Date/Time: 02/20/2017 10:30

Field ID: G4HL022017-5

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1873853	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P320210	
	EPA 300.0 Rev. 2.1	Chloride	8.5		mg Cl/L	P320911	
		Sulfate	4.8		mg SO4/L	P320821	
	SM 2120 B	Color (true)	54	A	PCU	P320224	
	SM 2320 B-97	Total Alkalinity	4.4		mg CaCO3/L	P320411	
	SM 2540 C-97	TDS	39		mg/L	P320671	
	SM 2540 D-97	TSS	2	I	mg/L	P320618	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P320418	
1873856	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P320319	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.50		mg N/L	P320255	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.012		mg N/L	P320464	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P320295	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P320393	
1873859	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P320204	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Lake Henry @ Middle

Collection Date/Time: 02/20/2017 09:40

Field ID: G4HL022017-3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1873854	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P320210	

Field ID: G4HL022017-3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1873854	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P320911	
		Sulfate	21		mg SO4/L	P320821	
	SM 2120 B	Color (true)	17		PCU	P320224	
	SM 2320 B-97	Total Alkalinity	15		mg CaCO3/L	P320411	
	SM 2540 C-97	TDS	88		mg/L	P320671	
	SM 2540 D-97	TSS	5	I	mg/L	P320618	
	SM 4500 F-C-97	Fluoride	0.065	I	mg F/L	P320418	
1873857	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P320319	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.69		mg N/L	P320255	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P320464	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P320296	
	SM 5310 B-00	Organic Carbon	8.9		mg C/L	P320393	
1873860	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P320204	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P320210

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P320821

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P320911

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P320916

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P320319

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320255

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320464

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320295

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320296

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320204

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

Reference Method: SM 2120 B
Batch ID: P320224

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P320411

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

Reference Method: SM 2540 C-97
Batch ID: P320671

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P320618

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P320418

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P320393

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: P320821

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P320911

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	96.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P320916

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	96.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320319

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: P320255

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.3		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320464

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: P320295

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320295

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320296

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	90.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320204

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

Reference Method: SM 2320 B-97
Batch ID: P320411

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P320418

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P320393

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P320821

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873852	Sulfate	105		P	90 - 110
1873897	Sulfate	100		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P320911

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873397	Chloride	95.4		P	90 - 110
1873398	Chloride	97.1		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P320916

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873852	Chloride	92.3		P	90 - 110
1873897	Chloride	94.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320319

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873804	Ammonia-N	98.7	98.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320255

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873901	Kjeldahl Nitrogen	102	97.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320464

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873857	NO2NO3-N	102	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320295

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873856	Total-P	93.9	92.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320296

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873904	Total-P	97.8	95.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320204

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873860	O-Phosphate-P	96.5	97.4	P/P	90 - 110

Reference Method: SM 5310 B-00
Batch ID: P320393

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1873817	Organic Carbon	92.8	94.0	P/P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P320210

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873844	Turbidity	1.24	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P320821

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873852	Sulfate	0.310	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P320911

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873398	Chloride	0.163	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P320916

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873852	Chloride	0.0774	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P320319

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873804	Ammonia-N	0.429	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P320255

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873901	Kjeldahl Nitrogen	3.44	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P320464

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873857	NO2NO3-N	1.46	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320295

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873856	Total-P	1.49	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P320296

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873904	Total-P	1.85	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P320204

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873860	O-Phosphate-P	0.928	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P320224

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873853	Color (true)	1.78	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P320411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873822	Total Alkalinity	0.289	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P320671

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873816	TDS	3.06	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P320418

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873822	Fluoride	0.947	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P320393

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1873817	Organic Carbon	0.719	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A74619

Included Lab Sample IDs: 1873858, 1873859, 1873860

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A74620

Included Lab Sample IDs: 1873852, 1873853, 1873854

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

Reference Method: SM 2120 B

Run ID: A74622

Included Lab Sample IDs: 1873852, 1873853, 1873854

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	94.8	94.5	P/P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A74655

Included Lab Sample IDs: 1873855, 1873856, 1873857

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A74673

Included Lab Sample IDs: 1873855, 1873856, 1873857

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.6	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74675

Included Lab Sample IDs: 1873855

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A74682

Included Lab Sample IDs: 1873856, 1873857

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.8	98.8	P/P	90 - 110
Total-P	98.5	97.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A74683

Included Lab Sample IDs: 1873855, 1873856, 1873857

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.2	94.7	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A74690

Included Lab Sample IDs: 1873852, 1873853, 1873854

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	104	P/P	90 - 110
Total Alkalinity	104	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A74690

Included Lab Sample IDs: 1873852, 1873853, 1873854

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	103	97.5	P/P	90 - 110
Fluoride	97.5	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A74706

Included Lab Sample IDs: 1873855, 1873856, 1873857

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	98.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A74765

Included Lab Sample IDs: 1873852, 1873853, 1873854

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	105	98.4	P/P	90 - 110
Sulfate	98.3	105	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A74874

Included Lab Sample IDs: 1873852, 1873853, 1873854

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	93.8	96.9	P/P	90 - 110
Chloride	96.9	94.7	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	MS
				LCS	SMP

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					1.24	
EPA 300.0 Rev. 2.1	Chloride	96.6	97.1	95.4		0.163	
	Chloride	96.9	92.3	94.8		0.0774	
	Sulfate	103	105	100		0.310	
	Ammonia-N	102	98.7	98.0			0.429
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.3	102	97.9			3.44
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	102	104			1.46
EPA 365.1 Rev. 2.0	Total-P	97.8	93.9	92.5			1.49
	Total-P	90.6	97.8	95.9			1.85
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.1	96.5	97.4			0.928
SM 2120 B	Color (true)					1.78	
SM 2320 B-97	Total Alkalinity	103				0.289	
SM 2540 C-97	TDS					3.06	
SM 4500 F-C-97	Fluoride	95.6					0.947
SM 5310 B-00	Organic Carbon	97.0	92.8	94.0			0.719

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1873852, 1873853, 1873854
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1873852, 1873853, 1873854
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1873852, 1873853, 1873854
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1873855, 1873856, 1873857
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1873855, 1873856, 1873857
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1873855, 1873856, 1873857
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1873855, 1873856, 1873857
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1873858, 1873859, 1873860
SM 2120 B / E31780	True Color measured at 450 nm	1873852, 1873853, 1873854
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1873852, 1873853, 1873854
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1873852, 1873853, 1873854
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1873852, 1873853, 1873854
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1873852, 1873853, 1873854
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1873855, 1873856, 1873857

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	02/21/2017			02/21/2017 15:21	Sima Feizi	1873852, 1873853, 1873854
EPA 300.0 Rev. 2.1	02/21/2017			03/02/2017	Ping Hua	1873852, 1873853, 1873854
EPA 350.1 Rev. 2.0	02/21/2017			02/22/2017	Sofia Elnemr	1873855, 1873856, 1873857
EPA 351.2 Rev. 2.0	02/21/2017	02/22/2017	Adrian Shelby	02/23/2017	Joseph Suarez	1873855, 1873856, 1873857
EPA 353.2 Rev. 2.0	02/21/2017			02/24/2017	Beverly Y. Sanders	1873855, 1873856, 1873857
EPA 365.1 Rev. 2.0	02/21/2017	02/22/2017	Vijayalakshmi Reddy	02/23/2017	Lipi Saha	1873855, 1873856, 1873857
EPA 365.1 Rev. 2.0 dissolved	02/21/2017			02/21/2017 14:26	Julia Storbeck	1873860
	02/21/2017			02/21/2017 14:58	Julia Storbeck	1873859
	02/21/2017			02/21/2017 15:03	Julia Storbeck	1873858
	02/21/2017			02/21/2017 15:55	Julie Michelle Frank	1873852
SM 2120 B	02/21/2017			02/21/2017 15:57	Julie Michelle Frank	1873853
	02/21/2017			02/21/2017 15:58	Julie Michelle Frank	1873854
	02/21/2017			02/22/2017	Dale L. Simmons	1873852, 1873853, 1873854
SM 2320 B-97	02/21/2017			02/23/2017	Yijie Li	1873852, 1873853, 1873854
SM 2540 C-97	02/21/2017			02/23/2017	Yijie Li	1873852, 1873853, 1873854
SM 2540 D-97	02/21/2017			02/22/2017	Dale L. Simmons	1873852, 1873853, 1873854
SM 4500 F-C-97	02/21/2017			02/22/2017	Dale L. Simmons	1873852, 1873853, 1873854
SM 5310 B-00	02/21/2017			02/22/2017	Julie Michelle Frank	1873855, 1873856, 1873857