Chemical Analysis Report

SW-DIST-2017-02-08-01

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

Event Description: **SMP RUN 9**
Request ID: **RQ-2017-02-06-27**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Judy Ashton

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: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 03-MAR-2017 13:45

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: Bellows Lk **Collection Date/Time: 02/07/2017 09:15**

Field ID: G1SW0044 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1870712	EPA 180.1 Rev. 2.0	Turbidity	30		NTU	P319535	
	EPA 300.0 Rev. 2.1	Chloride	8.1		mg Cl/L	P319982	
		Sulfate	6.1		mg SO4/L	P319985	
	SM 2120 B	Color (true)	61		PCU	P319542	
	SM 2320 B-97	Total Alkalinity	61		mg CaCO3/L	P319871	
	SM 2540 C-97	TDS	106		mg/L	P320249	
	SM 2540 D-97	TSS	40		mg/L	P319888	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P319875	
1870715	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P319695	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	5.4		mg N/L	P319644	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P319814	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P319753	MS
	SM 5310 B-00	Organic Carbon	32		mg C/L	P319673	
1870718	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P319532	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Rocky Crk **Collection Date/Time: 02/07/2017 12:00**

Field ID: G1SW0053 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1870713	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P319535	
	EPA 300.0 Rev. 2.1	Chloride	54		mg Cl/L	P319982	
		Sulfate	19		mg SO4/L	P319985	
	SM 2120 B	Color (true)	37		PCU	P319539	
	SM 2320 B-97	Total Alkalinity	116		mg CaCO3/L	P319871	
	SM 2540 C-97	TDS	236		mg/L	P320249	
	SM 2540 D-97	TSS	2	U	mg/L	P319888	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P319875	
1870716	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P319695	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.51		mg N/L	P319644	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.066		mg N/L	P319899	
	EPA 365.1 Rev. 2.0	Total-P	0.035		mg P/L	P319753	MS
	SM 5310 B-00	Organic Carbon	8.7		mg C/L	P319673	
1870719	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.017		mg P/L	P319532	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Armistead **Collection Date/Time: 02/07/2017 12:50**

Field ID: G1SW0030 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1870714	EPA 180.1 Rev. 2.0	Turbidity	1.3	A	NTU	P319535	
	EPA 300.0 Rev. 2.1	Chloride	32		mg Cl/L	P319982	
		Sulfate	5.5		mg SO4/L	P319985	
	SM 2120 B	Color (true)	90		PCU	P319539	
	SM 2320 B-97	Total Alkalinity	24	A	mg CaCO3/L	P319871	
	SM 2540 C-97	TDS	115		mg/L	P320249	
	SM 2540 D-97	TSS	2	U	mg/L	P319888	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P319875	
1870717	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P319695	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.73		mg N/L	P319644	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P319899	
	EPA 365.1 Rev. 2.0	Total-P	0.033		mg P/L	P319753	MS
	SM 5310 B-00	Organic Carbon	14		mg C/L	P319673	
1870720	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P319532	

Ref. Method and Comment:
EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
EPA 351.2 Rev. 2.0: 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: P319535

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319982

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319985

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319695

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319644

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: P319814

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319899

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319753

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319532

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

Reference Method: SM 2120 B
Batch ID: P319539

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P319542

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P319871

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

Reference Method: SM 2540 C-97
Batch ID: P320249

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P319888

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P319875

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P319673

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: P319982

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	105		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319985

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	97.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319695

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: P319644

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319814

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: P319899

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	105		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319753

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: P319753

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	93.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319532

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

Reference Method: SM 2320 B-97
Batch ID: P319871

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

Reference Method: SM 4500 F-C-97
Batch ID: P319875

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P319673

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319982

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870790	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319985

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870714	Sulfate	98.8		P	90 - 110
1870790	Sulfate	99.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319695

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870715	Ammonia-N	98.6	98.3	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319814

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870377	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319899

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870716	NO2NO3-N	102	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319753

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870666	Total-P	88.7	92.8	F/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319532

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870814	O-Phosphate-P	98.3	97.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P319875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870714	Fluoride	96.5	95.9	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P319673

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870730	Organic Carbon	89.7	92.4	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P319535

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870714	Turbidity	4.69	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319982

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870790	Chloride	0.347	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P319985

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870790	Sulfate	0.276	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P319695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870715	Ammonia-N	0.220	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P319644

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870666	Kjeldahl Nitrogen	0.836	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319814

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870377	NO2NO3-N	0.976	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P319899

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870716	NO2NO3-N	1.83	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P319753

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870666	Total-P	4.20	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P319532

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870814	O-Phosphate-P	1.05	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P319539

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870778	Color (true)	1.60	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B
Batch ID: P319542

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870812	Color (true)	5.45	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P319871

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870714	Total Alkalinity	0.209	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P320249

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870665	TDS	3.84	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P319875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870714	Fluoride	0.487	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P319673

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1870730	Organic Carbon	2.08	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 365.1 Rev. 2.0 dissolved
Run ID: A74352
Included Lab Sample IDs: 1870718, 1870719, 1870720

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A74353
Included Lab Sample IDs: 1870712, 1870713, 1870714

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	96.0	P/P	95 - 105

Quality Assurance Report
Calibration Verification

Reference Method: SM 2120 B
Run ID: A74354
Included Lab Sample IDs: 1870712, 1870713, 1870714

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	85 - 115
Color (true)	104	103	P/P	85 - 115

Reference Method: SM 5310 B-00
Run ID: A74405
Included Lab Sample IDs: 1870715, 1870716, 1870717

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A74413
Included Lab Sample IDs: 1870715, 1870716, 1870717

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A74434
Included Lab Sample IDs: 1870715, 1870716, 1870717

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	105	P/P	90 - 110
Kjeldahl Nitrogen	94.3	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A74455
Included Lab Sample IDs: 1870715

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	97.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A74457
Included Lab Sample IDs: 1870715

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

Reference Method: SM 2320 B-97
Run ID: A74479
Included Lab Sample IDs: 1870712, 1870713, 1870714

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	105	102	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A74479
Included Lab Sample IDs: 1870712, 1870713, 1870714

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	94.2	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A74487
Included Lab Sample IDs: 1870716, 1870717

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A74493
Included Lab Sample IDs: 1870716, 1870717

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A74527
Included Lab Sample IDs: 1870712, 1870713, 1870714

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	104	P/P	90 - 110
Sulfate	97.2	91.4	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					4.69	
EPA 300.0 Rev. 2.1	Chloride	105	104			0.347	
	Sulfate	97.6	99.0	98.8		0.276	
EPA 350.1 Rev. 2.0	Ammonia-N	103	98.6	98.3			0.220
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103					0.836
EPA 353.2 Rev. 2.0	NO2NO3-N	104	102	103			0.976
	NO2NO3-N	105	102	105			1.83
EPA 365.1 Rev. 2.0	Total-P	93.5	88.7	92.8			4.20
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	98.3	97.0			1.05
SM 2120 B	Color (true)					1.60	
	Color (true)					5.45	
SM 2320 B-97	Total Alkalinity	104				0.209	
SM 2540 C-97	TDS					3.84	
SM 4500 F-C-97	Fluoride	94.3	96.5	95.9			0.487
SM 5310 B-00	Organic Carbon	97.4	89.7	92.4			2.08

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1870712, 1870713, 1870714
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1870712, 1870713, 1870714
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1870712, 1870713, 1870714
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1870715, 1870716, 1870717
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1870715, 1870716, 1870717
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1870715, 1870716, 1870717
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1870715, 1870716, 1870717
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1870718, 1870719, 1870720
SM 2120 B / E31780	True Color measured at 450 nm	1870712, 1870713, 1870714
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1870712, 1870713, 1870714
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1870712, 1870713, 1870714
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1870712, 1870713, 1870714
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1870712, 1870713, 1870714
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1870715, 1870716, 1870717

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	02/08/2017			02/08/2017 16:31	Julie Michelle Frank	1870712, 1870713, 1870714
EPA 300.0 Rev. 2.1	02/08/2017			02/15/2017	Ping Hua	1870712, 1870713, 1870714
EPA 350.1 Rev. 2.0	02/08/2017			02/10/2017	Sofia Elnemr	1870715, 1870716, 1870717
EPA 351.2 Rev. 2.0	02/08/2017	02/10/2017	Adrian Shelby	02/13/2017	Joseph Suarez	1870715, 1870716, 1870717
EPA 353.2 Rev. 2.0	02/08/2017			02/14/2017	Beverly Y. Sanders	1870715
	02/08/2017			02/15/2017	Beverly Y. Sanders	1870716, 1870717
EPA 365.1 Rev. 2.0	02/08/2017	02/13/2017	Vijayalakshmi Reddy	02/14/2017	Lipi Saha	1870715
	02/08/2017	02/13/2017	Vijayalakshmi Reddy	02/15/2017	Lipi Saha	1870716, 1870717
EPA 365.1 Rev. 2.0 dissolved	02/08/2017			02/08/2017 16:04	Julie Michelle Frank	1870718, 1870719
	02/08/2017			02/08/2017 16:05	Julie Michelle Frank	1870720
SM 2120 B	02/08/2017			02/08/2017 18:09	Julie Michelle Frank	1870713
	02/08/2017			02/08/2017 18:10	Julie Michelle Frank	1870714
	02/08/2017			02/08/2017 18:51	Julie Michelle Frank	1870712
SM 2320 B-97	02/08/2017			02/15/2017	Dale L. Simmons	1870712, 1870713, 1870714
SM 2540 C-97	02/08/2017			02/10/2017	Sima Feizi	1870712, 1870713, 1870714
SM 2540 D-97	02/08/2017			02/10/2017	Sima Feizi	1870712, 1870713, 1870714
SM 4500 F-C-97	02/08/2017			02/15/2017	Dale L. Simmons	1870712, 1870713, 1870714
SM 5310 B-00	02/08/2017			02/09/2017	Julie Michelle Frank	1870715, 1870716, 1870717