

Chemical Analysis Report

WQAP-2017-03-30-02

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

Event Description: **SMP 2017 Freshwater Kit A**
Request ID: **RQ-2017-02-20-28**
Customer: **WQAP**
Project ID: **SMP**

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

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: 21-APR-2017 11:45



NON-CONFORMANCE REPORT INCLUDED

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: UNNAMED BRANCH 500M NORTH OF SW FR 13 **Collection Date/Time: 03/29/2017 12:30**

Field ID: G2TLHR00005-2017-01

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1884426	EPA 180.1 Rev. 2.0	Turbidity	2.5	A	NTU	P322541	
	EPA 300.0 Rev. 2.1	Chloride	5.3		mg Cl/L	P323032	
	SM 2120 B	Color (true)	230		PCU	P322521	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P322916	
	SM 2540 C-97	TDS	29		mg/L	P323098	
	SM 2540 D-97	TSS	2	I	mg/L	P322875	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P322919	
1884429	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P322500	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P322564	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P322571	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P322669	
	SM 5310 B-00	Organic Carbon	22		mg C/L	P322582	
1884432	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P322534	

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: UNNAMED BRANCH 500M NORTH OF SW FR 13 DUP **Collection Date/Time: 03/29/2017 12:30**

Field ID: G2TLHR00005-2017-01 DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1884427	EPA 180.1 Rev. 2.0	Turbidity	2.5		NTU	P322541	
	EPA 300.0 Rev. 2.1	Chloride	5.3		mg Cl/L	P323032	
	SM 2120 B	Color (true)	230		PCU	P322521	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P322916	
	SM 2540 C-97	TDS	31		mg/L	P323098	
	SM 2540 D-97	TSS	2	U	mg/L	P322875	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P322919	
1884430	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P322500	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P322564	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P322571	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P322670	
	SM 5310 B-00	Organic Carbon	23		mg C/L	P322582	
1884433	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P322534	

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: FIELD BLANK #1 **Collection Date/Time: 03/29/2017 16:20**

Field ID: FIELD BLANK #1

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1884428	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P322541	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P323032	

Field ID: FIELD BLANK #1

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1884428	SM 2120 B	Color (true)	2.5	U	PCU	P322521	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P323074	
	SM 2540 C-97	TDS	15	U	mg/L	P323098	
	SM 2540 D-97	TSS	2	U	mg/L	P322875	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P323006	
1884431	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	UY	mg N/L	P322500	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	UY	mg N/L	P322564	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	UY	mg N/L	P322570	
	EPA 365.1 Rev. 2.0	Total-P	0.002	UY	mg P/L	P322670	
	SM 5310 B-00	Organic Carbon	0.50	UY	mg C/L	P322582	
1884434	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P322534	

Ref. Method and Comment:

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

EPA 350.1 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 351.2 Rev. 2.0: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 353.2 Rev. 2.0: NO2NO3-N: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

EPA 365.1 Rev. 2.0: Total-P: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

SM 5310 B-00: The sample was received unpreserved: pH > 2. Sample preserved in laboratory.

Non-Conformance Report

NCR ID: 6327

Event(s)

WQAP-2017-03-30-02

Job(s)

TLH-2017-03-30-05

Sample(s)

1884431

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Preservation Not Intact

Observation: Sample not preserved to pH<2.

Resolution: Sample preserved in lab on 3/30/2017 with sulfuric acid at 9:20.

Authorized by/Date: Ramsey K. White 4/6/2017

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
 Please address questions to:

Chemistry Colin Wright (850) 245-8085
 Biology Cheryl Swanson (850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P322541

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P323032

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322500

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322564

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322570

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322571

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322669

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322670

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322534

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

Reference Method: SM 2120 B
Batch ID: P322521

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P322916

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P323074

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

Reference Method: SM 2540 C-97
Batch ID: P323098

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P322875

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P322919

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P323006

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P322582

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: P323032

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322500

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: P322564

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322564

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322570

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322571

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322669

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322670

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322534

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.5		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P322916

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

Reference Method: SM 2320 B-97
Batch ID: P323074

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

Reference Method: SM 4500 F-C-97
Batch ID: P322919

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.5		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P323006

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P322582

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.9		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323032

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884258	Chloride	101		P	90 - 110
1884348	Chloride	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322500

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884343	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322564

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884349	Kjeldahl Nitrogen	101	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322570

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884261	NO2NO3-N	96.2		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322571

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884328	NO2NO3-N	102	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322669

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884328	Total-P	106	105	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322670

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884511	Total-P	106	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322534

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884421	O-Phosphate-P	96.8	98.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P323006

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884504	Fluoride	101	101	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P322582

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1884420	Organic Carbon	99.6		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P322541

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884426	Turbidity	8.28	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P323032

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884258	Chloride	0.0733	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P322500

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884343	Ammonia-N	1.98	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P322564

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884349	Kjeldahl Nitrogen	3.60	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322570

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884261	NO2NO3-N	0.393	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P322571

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884328	NO2NO3-N	1.49	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322669

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884328	Total-P	0.653	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P322670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884511	Total-P	0.801	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P322534

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884421	O-Phosphate-P	1.54	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P322521

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884470	Color (true)	0.271	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P322916

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884321	Total Alkalinity	0.157	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P323074

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884625	Total Alkalinity	0.172	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
Batch ID: P323098

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884505	TDS	0.0	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P322919

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884321	Fluoride	0.520	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P323006

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884504	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P322582

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1884420	Organic Carbon	0.0206	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 350.1 Rev. 2.0
Run ID: A75470
Included Lab Sample IDs: 1884429, 1884430, 1884431

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

Reference Method: SM 2120 B
Run ID: A75477
Included Lab Sample IDs: 1884426, 1884427, 1884428

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	102	P/P	85 - 115
Color (true)	104	103	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A75479
Included Lab Sample IDs: 1884432, 1884433, 1884434

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.7	98.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A75482

Included Lab Sample IDs: 1884426, 1884427, 1884428

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75490

Included Lab Sample IDs: 1884429, 1884430, 1884431

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	97.5	96.5	P/P	90 - 110
NO2NO3-N	98.0	97.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A75496

Included Lab Sample IDs: 1884429, 1884430, 1884431

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.4	96.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75524

Included Lab Sample IDs: 1884429, 1884430, 1884431

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75554

Included Lab Sample IDs: 1884429, 1884430, 1884431

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

Reference Method: SM 2320 B-97

Run ID: A75625

Included Lab Sample IDs: 1884426, 1884427

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	105	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A75625

Included Lab Sample IDs: 1884426, 1884427

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.6	95.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A75665

Included Lab Sample IDs: 1884428

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A75672

Included Lab Sample IDs: 1884426, 1884427, 1884428

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

Reference Method: SM 2320 B-97

Run ID: A75710

Included Lab Sample IDs: 1884428

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	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 SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				8.28	
EPA 300.0 Rev. 2.1	Chloride	101	101 101		0.0733	
EPA 350.1 Rev. 2.0	Ammonia-N	103	101 103			1.98
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	101 106			3.60
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	96.2			0.393
	NO2NO3-N	101	102 100			1.49
EPA 365.1 Rev. 2.0	Total-P	105	106 105			0.653
	Total-P	97.8	106 105			0.801
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.5	96.8 98.3			1.54
SM 2120 B	Color (true)				0.271	
SM 2320 B-97	Total Alkalinity	104			0.157	
	Total Alkalinity	104			0.172	
SM 2540 C-97	TDS				0.0	
SM 4500 F-C-97	Fluoride	94.5				0.520
	Fluoride	96.4	101 101			0.0
SM 5310 B-00	Organic Carbon	99.9	99.6			0.0206

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1884426, 1884427, 1884428
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1884426, 1884427, 1884428
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1884429, 1884430, 1884431
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1884429, 1884430, 1884431
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1884429, 1884430, 1884431
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1884429, 1884430, 1884431

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1884432, 1884433, 1884434
SM 2120 B / E31780	True Color measured at 450 nm	1884426, 1884427, 1884428
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1884426, 1884427, 1884428
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1884426, 1884427, 1884428
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1884426, 1884427, 1884428
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1884426, 1884427, 1884428
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1884429, 1884430, 1884431

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	03/30/2017			03/30/2017 15:54	Blanca Fach	1884426, 1884427, 1884428
EPA 300.0 Rev. 2.1	03/30/2017			04/07/2017	Ping Hua	1884426, 1884427, 1884428
EPA 350.1 Rev. 2.0	03/30/2017			03/30/2017	Julie Michelle Frank	1884429, 1884430, 1884431
EPA 351.2 Rev. 2.0	03/30/2017	03/31/2017	Adrian Shelby	04/03/2017	Joseph Suarez	1884429, 1884430, 1884431
EPA 353.2 Rev. 2.0	03/30/2017			03/31/2017	Beverly Y. Sanders	1884429, 1884430, 1884431
EPA 365.1 Rev. 2.0	03/30/2017	04/03/2017	Vijayalakshmi Reddy	04/04/2017	Lipi Saha	1884429, 1884430, 1884431
EPA 365.1 Rev. 2.0 dissolved	03/30/2017			03/30/2017 16:01	Anthony C. Onicha	1884432
	03/30/2017			03/30/2017 16:02	Anthony C. Onicha	1884433
	03/30/2017			03/30/2017 16:03	Anthony C. Onicha	1884434
	03/30/2017			03/30/2017 19:04	Julie Michelle Frank	1884428
SM 2120 B	03/30/2017			03/30/2017 19:52	Julie Michelle Frank	1884426
	03/30/2017			03/30/2017 19:53	Julie Michelle Frank	1884427
	03/30/2017			04/06/2017	Dale L. Simmons	1884426, 1884427
SM 2320 B-97	03/30/2017			04/10/2017	Dale L. Simmons	1884428
	03/30/2017			04/03/2017	Sima Feizi	1884426, 1884427, 1884428
SM 2540 C-97	03/30/2017			04/03/2017	Sima Feizi	1884426, 1884427, 1884428
SM 2540 D-97	03/30/2017			04/06/2017	Dale L. Simmons	1884426, 1884427
SM 4500 F-C-97	03/30/2017			04/07/2017	Dale L. Simmons	1884428
	03/30/2017			03/30/2017	Julie Michelle Frank	1884429, 1884430, 1884431
SM 5310 B-00	03/30/2017					