

Chemical Analysis Report

WQAP-2017-05-03-05

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

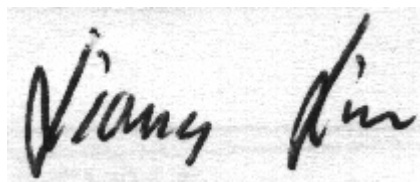
Event Description: **SMP 2016 Freshwater Kit A**
Request ID: **RQ-2017-03-20-29**
Customer: **WQAP**
Project ID: **SMP**

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
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 30-MAY-2017 13:54

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: Owens Spring @ Suwannee River

Collection Date/Time: 05/03/2017 12:15

Field ID: G1TLHR0036-2017-02

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1896129	EPA 180.1 Rev. 2.0	Turbidity	0.35		NTU	P324686	
	EPA 300.0 Rev. 2.1	Chloride	9.7		mg Cl/L	P324966	
	SM 2120 B	Color (true)	3.3	I	PCU	P324629	
	SM 2320 B-97	Total Alkalinity	184		mg CaCO3/L	P325400	
	SM 2540 C-97	TDS	241		mg/L	P325018	
	SM 2540 D-97	TSS	2	I	mg/L	P325259	
	SM 4500 F-C-97	Fluoride	0.11		mg F/L	P325739	RPD
1896132	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P324635	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P324764	
	EPA 353.2 Rev. 2.0	NO2NO3-N	6.4		mg N/L	P324677	
	EPA 365.1 Rev. 2.0	Total-P	0.046		mg P/L	P324697	
	SM 5310 B-00	Organic Carbon	0.98	I	mg C/L	P324627	
1896135	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.042		mg P/L	P324705	

Ref. Method and Comment:

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

Sample Location: G1TLHR0050-2017-02

Collection Date/Time: 05/03/2017 13:20

Field ID: G1TLHR0050-2017-02

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1896130	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P324686	
	EPA 300.0 Rev. 2.1	Chloride	6.5		mg Cl/L	P324966	
	SM 2120 B	Color (true)	7.4		PCU	P324629	
	SM 2320 B-97	Total Alkalinity	178	Q	mg CaCO3/L	P325520	
	SM 2540 C-97	TDS	208		mg/L	P325018	
	SM 2540 D-97	TSS	11		mg/L	P325259	
	SM 4500 F-C-97	Fluoride	0.19		mg F/L	P325739	RPD
1896133	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P324635	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.66		mg N/L	P324764	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.3		mg N/L	P324678	
	EPA 365.1 Rev. 2.0	Total-P	0.063		mg P/L	P324697	
	SM 5310 B-00	Organic Carbon	1.6		mg C/L	P324627	
1896136	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P324705	

Ref. Method and Comment:

SM 2320 B-97: Sample expired prior to analysis due to analytical difficulties.

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

Sample Location: G1TLHR0021-2017-02

Collection Date/Time: 05/03/2017 14:00

Field ID: G1TLHR0021-2017-02

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1896131	EPA 180.1 Rev. 2.0	Turbidity	0.30		NTU	P324686	
	EPA 300.0 Rev. 2.1	Chloride	6.4		mg Cl/L	P324966	
	SM 2120 B	Color (true)	4.2	I	PCU	P324629	
	SM 2320 B-97	Total Alkalinity	175		mg CaCO3/L	P325401	

Field ID: G1TLHR0021-2017-02

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1896131	SM 2540 C-97	TDS	220	A	mg/L	P325018	RPD
	SM 2540 D-97	TSS	3	IA	mg/L	P325259	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P325404	
1896134	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P324635	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P324764	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.9		mg N/L	P324678	
	EPA 365.1 Rev. 2.0	Total-P	0.051		mg P/L	P324697	
	SM 5310 B-00	Organic Carbon	1.1		mg C/L	P324627	
1896137	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.044		mg P/L	P324705	

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: P324686

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324966

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324635

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324764

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324677

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324678

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324697

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324705

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

Reference Method: SM 2120 B
Batch ID: P324629

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P325400

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

Reference Method: SM 2320 B-97
Batch ID: P325401

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

Reference Method: SM 2320 B-97
Batch ID: P325520

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

Reference Method: SM 2540 C-97
Batch ID: P325018

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P325259

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P325404

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P325739

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P324627

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: P324966

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324635

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324764

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: P324677

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: P324678

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324697

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324705

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324705

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

Reference Method: SM 2320 B-97
Batch ID: P325400

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

Reference Method: SM 2320 B-97
Batch ID: P325401

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

Reference Method: SM 2320 B-97
Batch ID: P325520

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

Reference Method: SM 4500 F-C-97
Batch ID: P325404

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

Reference Method: SM 4500 F-C-97
Batch ID: P325739

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P324627

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.0		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324966

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895773	Chloride	96.6		P	90 - 110
1896086	Chloride	97.3		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324635

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1896079	Ammonia-N	103	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324764

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1896180	Kjeldahl Nitrogen	97.2	97.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324677

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1896092	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324678

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895451	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324697

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1896088	Total-P	102	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324705

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1896093	O-Phosphate-P	98.9	99.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P325404

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1896397	Fluoride	97.0	101	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P325739

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1896078	Fluoride	99.7	104	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P324627

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1895743	Organic Carbon	98.8	97.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P324686

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1896083	Turbidity	8.59	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324966

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895773	Chloride	0.195	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P324635

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1896079	Ammonia-N	1.51	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P324764

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1896180	Kjeldahl Nitrogen	0.538	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324677

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1896092	NO2NO3-N	0.943	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P324678

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895451	NO2NO3-N	1.45	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324697

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1896088	Total-P	3.13	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324705

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1896093	O-Phosphate-P	0.404	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P324629

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1896085	Color (true)	4.78	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P325400

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1896144	Total Alkalinity	0.0829	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P325401

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1896397	Total Alkalinity	0.451	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P325520

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1898240	Total Alkalinity	0.00206	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P325018

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1896131	TDS	4.10	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P325404

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1896397	Fluoride	3.56	Spike	F	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P325739

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1896078	Fluoride	3.49	Spike	F	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P324627

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1895743	Organic Carbon	0.997	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: SM 5310 B-00

Run ID: A76189

Included Lab Sample IDs: 1896132, 1896133, 1896134

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.4	99.0	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A76192

Included Lab Sample IDs: 1896129, 1896130, 1896131

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.7	102	P/P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A76193

Included Lab Sample IDs: 1896132, 1896133, 1896134

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A76200

Included Lab Sample IDs: 1896132, 1896133, 1896134

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A76202

Included Lab Sample IDs: 1896129, 1896130, 1896131

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	101	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A76210

Included Lab Sample IDs: 1896135, 1896136, 1896137

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.1	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A76246

Included Lab Sample IDs: 1896133

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A76247

Included Lab Sample IDs: 1896132, 1896134

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.0	97.2	P/P	90 - 110
Total-P	97.5	97.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A76269

Included Lab Sample IDs: 1896129, 1896130, 1896131

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A76420

Included Lab Sample IDs: 1896132, 1896133, 1896134

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

Reference Method: SM 2320 B-97

Run ID: A76469

Included Lab Sample IDs: 1896129, 1896131

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110
Total Alkalinity	102	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A76469

Included Lab Sample IDs: 1896131

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	95.3	98.4	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A76528

Included Lab Sample IDs: 1896130

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

Reference Method: SM 4500 F-C-97

Run ID: A76633

Included Lab Sample IDs: 1896129, 1896130

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.0	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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					8.59	
EPA 300.0 Rev. 2.1	Chloride	99.5	96.6	97.3		0.195	
EPA 350.1 Rev. 2.0	Ammonia-N	99.9	103	101			1.51
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	97.2	97.8			0.538
EPA 353.2 Rev. 2.0	NO2NO3-N	104	102	103			0.943
	NO2NO3-N	104	104	103			1.45
EPA 365.1 Rev. 2.0	Total-P	99.5	102	98.4			3.13
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.8	98.9	99.3			0.404
SM 2120 B	Color (true)					4.78	
SM 2320 B-97	Total Alkalinity	103				0.0829	
	Total Alkalinity	103				0.451	
	Total Alkalinity	104				0.0020	
SM 2540 C-97	TDS					4.10	
SM 4500 F-C-97	Fluoride	94.3	97.0	101			3.56
	Fluoride	101	99.7	104			3.49
SM 5310 B-00	Organic Carbon	98.0	98.8	97.0			0.997

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1896129, 1896130, 1896131
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1896129, 1896130, 1896131
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1896132, 1896133, 1896134
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1896132, 1896133, 1896134
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1896132, 1896133, 1896134
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1896132, 1896133, 1896134
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1896135, 1896136, 1896137
SM 2120 B / E31780	True Color measured at 450 nm	1896129, 1896130, 1896131
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1896129, 1896130, 1896131
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1896129, 1896130, 1896131
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1896129, 1896130, 1896131
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1896129, 1896130, 1896131
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1896132, 1896133, 1896134

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	05/03/2017			05/04/2017 17:05	Sima Feizi	1896129, 1896130, 1896131
EPA 300.0 Rev. 2.1	05/03/2017			05/10/2017	Ping Hua	1896129, 1896130, 1896131
EPA 350.1 Rev. 2.0	05/03/2017			05/04/2017	Julie Michelle Frank	1896132, 1896133, 1896134
EPA 351.2 Rev. 2.0	05/03/2017	05/08/2017	Adrian Shelby	05/11/2017	Joseph Suarez	1896132, 1896133, 1896134
EPA 353.2 Rev. 2.0	05/03/2017			05/05/2017	Beverly Y. Sanders	1896132, 1896133, 1896134
EPA 365.1 Rev. 2.0	05/03/2017	05/05/2017	Vijayalakshmi Reddy	05/08/2017	Lipi Saha	1896132, 1896133, 1896134
EPA 365.1 Rev. 2.0 dissolved	05/03/2017			05/04/2017 15:40	Anthony C. Onicha	1896135, 1896136
	05/03/2017			05/04/2017 15:41	Anthony C. Onicha	1896137
SM 2120 B	05/03/2017			05/04/2017 15:16	Julia Storbeck	1896129
	05/03/2017			05/04/2017 15:17	Julia Storbeck	1896130
	05/03/2017			05/04/2017 15:18	Julia Storbeck	1896131
SM 2320 B-97	05/03/2017			05/16/2017	Dale L. Simmons	1896129, 1896131
	05/03/2017			05/18/2017	Dale L. Simmons	1896130
SM 2540 C-97	05/03/2017			05/05/2017	Yijie Li	1896129, 1896130, 1896131
SM 2540 D-97	05/03/2017			05/05/2017	Yijie Li	1896129, 1896130, 1896131
SM 4500 F-C-97	05/03/2017			05/16/2017	Dale L. Simmons	1896131
	05/03/2017			05/24/2017	Dale L. Simmons	1896129, 1896130
SM 5310 B-00	05/03/2017			05/04/2017	Julie Michelle Frank	1896132, 1896133, 1896134