

Chemical Analysis Report

WQAP-2017-04-19-08

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

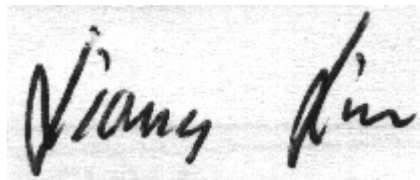
Event Description: **SMP 2016 Freshwater Kit A**
Request ID: **RQ-2016-12-19-24**
Customer: **WQAP**
Project ID: **SMP**

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

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 19-MAY-2017 11:25

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: Fort Gadsden Creek near SR 65

Collection Date/Time: 04/19/2017 10:25

Field ID: G2TLHR0012

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1890407	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P323705	
	EPA 300.0 Rev. 2.1	Chloride	5.4		mg Cl/L	P324478	
	SM 2120 B	Color (true)	150		PCU	P323672	
	SM 2320 B-97	Total Alkalinity	4.3		mg CaCO3/L	P324165	
	SM 2540 C-97	TDS	60		mg/L	P324031	
	SM 2540 D-97	TSS	5	I	mg/L	P324270	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P325403	
1890412	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P323684	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P323796	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P323966	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P323834	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P323790	
1890417	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P323666	

Ref. Method and Comment:

SM 2320 B-97: The result was confirmed on 04/28/2017.

EPA 353.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: The result was confirmed on 04/27/2017.

Sample Location: Fort Gadsden Creek near SR 65

Collection Date/Time: 04/19/2017 10:25

Field ID: G2TLHR0012 -DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1890408	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P323705	
	EPA 300.0 Rev. 2.1	Chloride	5.4		mg Cl/L	P324478	
	SM 2120 B	Color (true)	150		PCU	P323672	
	SM 2320 B-97	Total Alkalinity	2.8		mg CaCO3/L	P324165	
	SM 2540 C-97	TDS	55		mg/L	P324031	
	SM 2540 D-97	TSS	4	I	mg/L	P324270	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P325403	
1890413	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P323684	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P323796	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P323966	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P323834	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P323790	
1890418	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P323666	

Ref. Method and Comment:

SM 2320 B-97: The result was confirmed on 04/28/2017.

EPA 353.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: The result was confirmed on 04/27/2017.

Sample Location: Field Blank # 2

Collection Date/Time: 04/19/2017 10:15

Field ID: Field Blank # 2

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1890409	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P323705	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P324307	

Field ID: Field Blank # 2

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1890409	SM 2120 B	Color (true)	2.5	U	PCU	P323672	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P324165	
	SM 2540 C-97	TDS	15	U	mg/L	P324028	
	SM 2540 D-97	TSS	2	U	mg/L	P324267	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P325403	
1890414	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P323684	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P323796	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P323966	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P323834	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P323790	
1890419	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P323666	

Ref. Method and Comment:

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

EPA 353.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Brothers River @ Mouth

Collection Date/Time: 04/19/2017 11:15

Field ID: G2TLHR0013

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1890410	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P323705	
	EPA 300.0 Rev. 2.1	Chloride	6.2		mg Cl/L	P324307	
	SM 2120 B	Color (true)	71		PCU	P323672	
	SM 2320 B-97	Total Alkalinity	40	A	mg CaCO3/L	P324165	
	SM 2540 C-97	TDS	89		mg/L	P324032	
	SM 2540 D-97	TSS	6	I	mg/L	P324271	
	SM 4500 F-C-97	Fluoride	0.066	IQ	mg F/L	P325469	RPD
1890415	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P323684	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33		mg N/L	P323796	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.33		mg N/L	P323966	
	EPA 365.1 Rev. 2.0	Total-P	0.040		mg P/L	P323834	
	SM 5310 B-00	Organic Carbon	5.4		mg C/L	P323790	
1890420	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.010		mg P/L	P323666	

Ref. Method and Comment:

SM 4500 F-C-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample expired prior to analysis due to analytical difficulties.

EPA 353.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Saul Creek @ Mouth

Collection Date/Time: 04/19/2017 11:50

Field ID: G2TLHR0014

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1890411	EPA 180.1 Rev. 2.0	Turbidity	12		NTU	P323707	
	EPA 300.0 Rev. 2.1	Chloride	6.5	A	mg Cl/L	P324307	
	SM 2120 B	Color (true)	63		PCU	P323668	
	SM 2320 B-97	Total Alkalinity	40		mg CaCO3/L	P324165	
	SM 2540 C-97	TDS	81		mg/L	P324032	
	SM 2540 D-97	TSS	10	I	mg/L	P324271	

Field ID: G2TLHR0014

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1890411	SM 4500 F-C-97	Fluoride	0.065	I	mg F/L	P325403	
1890416	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P323684	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31		mg N/L	P323796	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.35		mg N/L	P323966	
	EPA 365.1 Rev. 2.0	Total-P	0.037		mg P/L	P323834	
	SM 5310 B-00	Organic Carbon	5.2		mg C/L	P323790	
1890421	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.01	I	mg P/L	P323666	

Ref. Method and Comment:
EPA 353.2 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: P323705

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P323707

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324307

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324478

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323684

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323796

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323966

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: P323834

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323666

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

Reference Method: SM 2120 B
Batch ID: P323668

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P323672

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P324165

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

Reference Method: SM 2540 C-97
Batch ID: P324028

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P324031

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P324032

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P324267

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P324270

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P324271

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P325403

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P325469

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P323790

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: P324307

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324478

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323684

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	106		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323796

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323796

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323966

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: P323834

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323666

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

Reference Method: SM 2320 B-97
Batch ID: P324165

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

Reference Method: SM 4500 F-C-97
Batch ID: P325403

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.3		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P325469

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P323790

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324307

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324307

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1890411	Chloride	99.6		P	90 - 110
1890443	Chloride	98.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324478

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1891993	Chloride	98.7		P	90 - 110
1892005	Chloride	94.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323684

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1890412	Ammonia-N	107	106	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323796

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1890415	Kjeldahl Nitrogen	99.2	99.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323834

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1890415	Total-P	104	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323666

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1890351	O-Phosphate-P	96.5	96.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P325403

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1890410	Fluoride	100	100	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P325469

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1892554	Fluoride	102	97.9	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P323790

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1890211	Organic Carbon	99.2	101	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P323705

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1890341	Turbidity	6.36	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P323707

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1890358	Turbidity	3.83	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324307

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1890411	Chloride	0.0834	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P324478

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1891993	Chloride	0.138	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P323684

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1890412	Ammonia-N	0.578	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P323796

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1890415	Kjeldahl Nitrogen	0.119	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P323966

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1890354	NO2NO3-N	0.328	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P323834

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1890415	Total-P	1.78	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P323666

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1890351	O-Phosphate-P	0.130	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P323668

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1889995	Color (true)	0.778	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P323672

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1890265	Color (true)	0.901	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P324165

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1890410	Total Alkalinity	0.0645	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P324028

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1889863	TDS	4.36	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P324031

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1890343	TDS	7.08	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P324032

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1890358	TDS	3.40	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P324270

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1890343	TSS	7.63	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 D-97
Batch ID: P324271

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1890358	TSS	5.18	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P325403

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1890410	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P325469

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1892554	Fluoride	3.65	Spike	F	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P323790

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1890211	Organic Carbon	1.78	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: A75883
Included Lab Sample IDs: 1890417, 1890418, 1890419, 1890420, 1890421

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	96.8	96.4	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A75886
Included Lab Sample IDs: 1890407, 1890408, 1890409, 1890410, 1890411

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	103	P/P	85 - 115
Color (true)	101	100	P/P	85 - 115
Color (true)	103	100	P/P	85 - 115
Color (true)	98.8	103	P/P	85 - 115

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A75889

Included Lab Sample IDs: 1890412, 1890413, 1890414, 1890415, 1890416

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	104	105	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A75900

Included Lab Sample IDs: 1890407, 1890408, 1890409, 1890410, 1890411

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

Reference Method: SM 5310 B-00

Run ID: A75924

Included Lab Sample IDs: 1890412, 1890413, 1890414, 1890415, 1890416

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.8	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A75957

Included Lab Sample IDs: 1890412, 1890413, 1890414, 1890415, 1890416

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A75967

Included Lab Sample IDs: 1890412, 1890413, 1890414, 1890415, 1890416

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A75983

Included Lab Sample IDs: 1890412, 1890413, 1890414, 1890415, 1890416

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A75999

Included Lab Sample IDs: 1890409, 1890410, 1890411

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	104	P/P	90 - 110
Chloride	104	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A76045

Included Lab Sample IDs: 1890407, 1890408, 1890409, 1890410, 1890411

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A76148

Included Lab Sample IDs: 1890407, 1890408

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

Reference Method: SM 4500 F-C-97

Run ID: A76469

Included Lab Sample IDs: 1890407, 1890408, 1890409, 1890411

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.7	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A76498

Included Lab Sample IDs: 1890410

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.0	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 SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				6.36	
	Turbidity				3.83	
EPA 300.0 Rev. 2.1	Chloride	101	99.6 98.6		0.0834	
	Chloride	99.2	98.7 94.7		0.138	
EPA 350.1 Rev. 2.0	Ammonia-N	106	107 106			0.578
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.0	99.2 99.1			0.119
EPA 353.2 Rev. 2.0	NO2NO3-N	105				0.328
EPA 365.1 Rev. 2.0	Total-P	102	104 102			1.78
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.6	96.5 96.3			0.130
SM 2120 B	Color (true)				0.778	
	Color (true)				0.901	
SM 2320 B-97	Total Alkalinity	103			0.0645	
SM 2540 C-97	TDS				4.36	
	TDS				7.08	
	TDS				3.40	
SM 2540 D-97	TSS				7.63	
	TSS				5.18	
SM 4500 F-C-97	Fluoride	96.3	100 100			0.0

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
SM 4500 F-C-97	Fluoride	102	102	97.9		3.65
SM 5310 B-00	Organic Carbon	100	99.2	101		1.78

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1890407, 1890408, 1890409, 1890410, 1890411
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1890407, 1890408, 1890409, 1890410, 1890411
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1890412, 1890413, 1890414, 1890415, 1890416
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1890412, 1890413, 1890414, 1890415, 1890416
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1890412, 1890413, 1890414, 1890415, 1890416
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1890412, 1890413, 1890414, 1890415, 1890416
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1890417, 1890418, 1890419, 1890420, 1890421
SM 2120 B / E31780	True Color measured at 450 nm	1890407, 1890408, 1890409, 1890410, 1890411
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1890407, 1890408, 1890409, 1890410, 1890411
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1890407, 1890408, 1890409, 1890410, 1890411
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1890407, 1890408, 1890409, 1890410, 1890411
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1890407, 1890408, 1890409, 1890410, 1890411
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1890412, 1890413, 1890414, 1890415, 1890416

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	04/19/2017			04/19/2017 16:06	Sima Feizi	1890407, 1890408, 1890409, 1890410, 1890411
EPA 300.0 Rev. 2.1	04/19/2017			04/28/2017	Ping Hua	1890409, 1890410, 1890411
	04/19/2017			05/02/2017	Ping Hua	1890407, 1890408
EPA 350.1 Rev. 2.0	04/19/2017			04/19/2017	Julie Michelle Frank	1890412, 1890413, 1890414, 1890415, 1890416
EPA 351.2 Rev. 2.0	04/19/2017	04/21/2017	Adrian Shelby	04/24/2017	Joseph Suarez	1890412, 1890413, 1890414, 1890415, 1890416
EPA 353.2 Rev. 2.0	04/19/2017			04/25/2017	Beverly Y. Sanders	1890412, 1890413, 1890414, 1890415, 1890416
EPA 365.1 Rev. 2.0	04/19/2017	04/21/2017	Vijayalakshmi Reddy	04/24/2017	Lipi Saha	1890412, 1890413, 1890414, 1890415, 1890416
EPA 365.1 Rev. 2.0 dissolved	04/19/2017			04/19/2017 15:15	Anthony C. Onicha	1890417, 1890418
	04/19/2017			04/19/2017 15:16	Anthony C. Onicha	1890419
	04/19/2017			04/19/2017 15:17	Anthony C. Onicha	1890420
	04/19/2017			04/19/2017 15:18	Anthony C. Onicha	1890421
SM 2120 B	04/19/2017			04/19/2017 15:48	Julia Storbeck	1890411
	04/19/2017			04/19/2017 16:24	Julia Storbeck	1890409
	04/19/2017			04/19/2017 16:25	Julia Storbeck	1890410
	04/19/2017			04/19/2017 16:36	Julia Storbeck	1890407
	04/19/2017			04/19/2017 16:43	Julia Storbeck	1890408
SM 2320 B-97	04/19/2017			04/27/2017	Dale L. Simmons	1890407, 1890408, 1890409, 1890410, 1890411
SM 2540 C-97	04/19/2017			04/21/2017	Yijie Li	1890407, 1890408, 1890409, 1890410, 1890411
SM 2540 D-97	04/19/2017			04/21/2017	Yijie Li	1890407, 1890408, 1890409, 1890410, 1890411
SM 4500 F-C-97	04/19/2017			05/16/2017	Dale L. Simmons	1890407, 1890408, 1890409, 1890411
	04/19/2017			05/18/2017	Dale L. Simmons	1890410
SM 5310 B-00	04/19/2017			04/20/2017	Julie Michelle Frank	1890412, 1890413, 1890414, 1890415, 1890416