

Chemical Analysis Report

WQAP-2017-06-16-04

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

Event Description: **Weeki & Mud**
Request ID: **RQ-2017-06-12-64**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Tampa, FL 33637
Attn: Judy Ashton

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

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 10-JUL-2017 14:46



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: MUD RIVER

Collection Date/Time: 06/15/2017 11:15

Field ID: G5SW0017

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1907018	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P327042	
	SM 2320 B-97	Total Alkalinity	147	A	mg CaCO3/L	P327372	
	SM 2540 D-97	TSS	3	U	mg/L	P327531	
	SM 4500 F-C-97	Fluoride	0.23		mg F/L	P327379	
1907022	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P326990	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.25	I	mg N/L	P327185	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.34		mg N/L	P327205	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P327212	
	SM 5310 B-00	Organic Carbon	2.6		mg C/L	P327584	
1907026	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P327003	

Ref. Method and Comment:

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

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: WEEKI WACHEE

Collection Date/Time: 06/15/2017 13:20

Field ID: G5SW0020

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1907019	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P327042	
	SM 2320 B-97	Total Alkalinity	154		mg CaCO3/L	P327451	
	SM 2540 D-97	TSS	2	I	mg/L	P327529	
	SM 4500 F-C-97	Fluoride	0.18		mg F/L	P327455	
1907023	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P326990	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33	I	mg N/L	P327185	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.42		mg N/L	P327383	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P327212	
	SM 5310 B-00	Organic Carbon	3.3		mg C/L	P327584	
1907027	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P327004	

Ref. Method and Comment:

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

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: WEEKI WACHEE DUP

Collection Date/Time: 06/15/2017 13:20

Field ID: G5SW0020 DUP

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1907020	EPA 180.1 Rev. 2.0	Turbidity	0.95		NTU	P327042	
	SM 2320 B-97	Total Alkalinity	154		mg CaCO3/L	P327451	
	SM 2540 D-97	TSS	2	I	mg/L	P327529	
	SM 4500 F-C-97	Fluoride	0.19		mg F/L	P327455	
1907024	EPA 350.1 Rev. 2.0	Ammonia-N	0.028		mg N/L	P326990	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32	I	mg N/L	P327185	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.40		mg N/L	P327383	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P327212	
	SM 5310 B-00	Organic Carbon	3.4		mg C/L	P327584	

Field ID: G5SW0020 DUP

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1907028	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P327004	

Ref. Method and Comment:

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

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: BLANK

Collection Date/Time: 06/15/2017 16:30

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1907021	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P327043	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P327451	
	SM 2540 D-97	TSS	2	U	mg/L	P327529	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P327455	
1907025	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P327175	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P327533	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327223	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P327208	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P327447	
1907029	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327004	

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: P327042

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P327043

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P326990

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

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P327175

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327185

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327533

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327205

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327223

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327383

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327208

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327212

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327003

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327004

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P327372

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

Reference Method: SM 2320 B-97
Batch ID: P327451

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

Reference Method: SM 2540 D-97
Batch ID: P327529

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P327531

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P327379

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P327455

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P327447

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Reference Method: SM 5310 B-00
Batch ID: P327584

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326990

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326990

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327175

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327185

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327533

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: P327205

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327223

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: P327383

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: P327208

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327212

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.4		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327003

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327004

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: P327372

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

Reference Method: SM 2320 B-97
Batch ID: P327451

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

Reference Method: SM 4500 F-C-97
Batch ID: P327379

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.7		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P327455

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.1		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P327447

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.5		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P327584

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326990

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326990

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906547	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327175

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906792	Ammonia-N	104	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327185

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907024	Kjeldahl Nitrogen	99.0	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327533

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906968	Kjeldahl Nitrogen	102	97.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327205

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907074	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327223

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906916	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327383

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907308	NO2NO3-N	106	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327208

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906966	Total-P	100	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327212

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907022	Total-P	100	97.4	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327003

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906986	O-Phosphate-P	91.6	94.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327004

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907027	O-Phosphate-P	91.6	93.3	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P327379

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907018	Fluoride	96.7	99.8	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P327455

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1907259	Fluoride	98.4	98.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P327447

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1906910	Organic Carbon	95.8	96.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P327042

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906963	Turbidity	11.6	Sample	P	0 - 15

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P327043

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907073	Turbidity	9.14	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P326990

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906547	Ammonia-N	1.34	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327175

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906792	Ammonia-N	1.75	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327185

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907024	Kjeldahl Nitrogen	1.84	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327533

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906968	Kjeldahl Nitrogen	2.45	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327205

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907074	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327223

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906916	NO2NO3-N	0.293	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327383

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907308	NO2NO3-N	0.716	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327208

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906966	Total-P	1.60	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327212

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907022	Total-P	2.94	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327003

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906986	O-Phosphate-P	2.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327004

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907027	O-Phosphate-P	1.76	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P327372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907018	Total Alkalinity	0.0601	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P327451

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907259	Total Alkalinity	0.698	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P327379

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907018	Fluoride	2.44	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P327455

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1907259	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P327447

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1906910	Organic Carbon	0.142	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P327584

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908500	Organic Carbon	0.0915	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: EPA 350.1 Rev. 2.0

Run ID: A77147

Included Lab Sample IDs: 1907022, 1907023, 1907024

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.0	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A77152

Included Lab Sample IDs: 1907026, 1907027, 1907028, 1907029

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.3	P/P	90 - 110
O-Phosphate-P	99.2	98.8	P/P	90 - 110
O-Phosphate-P	99.9	98.1	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A77166

Included Lab Sample IDs: 1907018, 1907019, 1907020, 1907021

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A77219

Included Lab Sample IDs: 1907025

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A77224

Included Lab Sample IDs: 1907022

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A77227

Included Lab Sample IDs: 1907025

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77267

Included Lab Sample IDs: 1907022, 1907023, 1907024

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77271

Included Lab Sample IDs: 1907025

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77287

Included Lab Sample IDs: 1907022, 1907023, 1907024

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.6	100	P/P	90 - 110
Kjeldahl Nitrogen	95.3	94.6	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A77291

Included Lab Sample IDs: 1907018

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

Reference Method: SM 4500 F-C-97

Run ID: A77291

Included Lab Sample IDs: 1907018

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	96.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A77296

Included Lab Sample IDs: 1907023, 1907024

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

Reference Method: SM 2320 B-97

Run ID: A77329

Included Lab Sample IDs: 1907019, 1907020, 1907021

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	103	P/P	90 - 110
Total Alkalinity	103	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A77329

Included Lab Sample IDs: 1907019, 1907020, 1907021

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A77329

Included Lab Sample IDs: 1907019, 1907020, 1907021

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	99.0	P/P	90 - 110
Fluoride	99.0	99.1	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A77330

Included Lab Sample IDs: 1907025

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.4	94.6	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A77378

Included Lab Sample IDs: 1907022, 1907023, 1907024

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.3	95.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77467

Included Lab Sample IDs: 1907025

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	106	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					11.6	RSD
	Turbidity					9.14	
EPA 350.1 Rev. 2.0	Ammonia-N	101	101	103			1.34
	Ammonia-N	105	104	102			1.75
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	99.0	101			1.84
	Kjeldahl Nitrogen	103	102	97.9			2.45
EPA 353.2 Rev. 2.0	NO2NO3-N	102	103	103			0.0
	NO2NO3-N	104	101	102			0.293
	NO2NO3-N	104	106	105			0.716
EPA 365.1 Rev. 2.0	Total-P	99.2	100	98.7			1.60
	Total-P	96.4	100	97.4			2.94
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.1	91.6	94.5			2.01
	O-Phosphate-P	97.5	91.6	93.3			1.76
SM 2320 B-97	Total Alkalinity	104				0.0601	
	Total Alkalinity	104				0.698	
SM 4500 F-C-97	Fluoride	94.7	96.7	99.8			2.44
	Fluoride	96.1	98.4	98.4			0.0

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
SM 5310 B-00	Organic Carbon	96.5	95.8 96.0			0.142
	Organic Carbon	94.6				0.0915

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1907018, 1907019, 1907020, 1907021
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1907022, 1907023, 1907024, 1907025
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1907022, 1907023, 1907024, 1907025
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1907022, 1907023, 1907024, 1907025
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1907022, 1907023, 1907024, 1907025
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1907026, 1907027, 1907028, 1907029
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1907018, 1907019, 1907020, 1907021
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1907018, 1907019, 1907020, 1907021
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1907018, 1907019, 1907020, 1907021
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1907022, 1907023, 1907024, 1907025

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	06/16/2017			06/16/2017 16:39	Blanca Fach	1907018, 1907019, 1907020, 1907021
EPA 350.1 Rev. 2.0	06/16/2017			06/16/2017	Sofia Elnemr	1907022, 1907023, 1907024
	06/16/2017			06/20/2017	Sofia Elnemr	1907025
EPA 351.2 Rev. 2.0	06/16/2017	06/21/2017	Adrian Shelby	06/22/2017	Tanya Welborn	1907022, 1907023, 1907024
	06/16/2017	06/27/2017	Adrian Shelby	06/30/2017	Joseph Suarez	1907025
EPA 353.2 Rev. 2.0	06/16/2017			06/20/2017	Beverly Y. Sanders	1907022
	06/16/2017			06/21/2017	Beverly Y. Sanders	1907025
	06/16/2017			06/23/2017	Beverly Y. Sanders	1907023, 1907024
EPA 365.1 Rev. 2.0	06/16/2017	06/21/2017	Vijayalakshmi Reddy	06/22/2017	Lipi Saha	1907022, 1907023, 1907024, 1907025
EPA 365.1 Rev. 2.0 dissolved	06/16/2017			06/16/2017 15:34	Anthony C. Onicha	1907027
	06/16/2017			06/16/2017 16:40	Anthony C. Onicha	1907026
	06/16/2017			06/16/2017 17:07	Anthony C. Onicha	1907028
	06/16/2017			06/16/2017 17:08	Anthony C. Onicha	1907029
SM 2320 B-97	06/16/2017			06/22/2017	Dale L. Simmons	1907018
	06/16/2017			06/24/2017	Dale L. Simmons	1907019, 1907020, 1907021
SM 2540 D-97	06/16/2017			06/21/2017	Yijie Li	1907018, 1907019, 1907020, 1907021
SM 4500 F-C-97	06/16/2017			06/22/2017	Dale L. Simmons	1907018
	06/16/2017			06/24/2017	Dale L. Simmons	1907019, 1907020, 1907021
SM 5310 B-00	06/16/2017			06/24/2017	Sofia Elnemr	1907025
	06/16/2017			06/27/2017	Ping Hua	1907022, 1907023, 1907024