Chemical Analysis Report

WQAP-2018-10-31-02

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

Event Description: **2017 SMP Kit Template 1**
Request ID: **RQ-2018-10-15-05**
Customer: **WQAP**
Project ID: **SMP**

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Certified by: Colin Wright, Program Administrator

Date Certified: 19-NOV-2018 11:07

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: ImperialRiver(Marine)CM **Collection Date/Time: 10/30/2018 09:50**

Field ID: G1SD0069 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2037659	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P354004	
	SM 2320 B-97	Total Alkalinity	199		mg CaCO3/L	P354355	
	SM 2540 D-97	TSS	3	I	mg/L	P354499	
	SM 4500 F-C-97	Fluoride	0.17		mg F/L	P354361	
2037661	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P354388	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.87		mg N/L	P354287	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P354292	
	EPA 365.1 Rev. 2.0	Total-P	0.032		mg P/L	P354159	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P354204	
2037663	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P354007	

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: Billy Creek CM **Collection Date/Time: 10/30/2018 11:15**

Field ID: G3SD0127 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2037660	EPA 180.1 Rev. 2.0	Turbidity	4.1		NTU	P354004	
	SM 2320 B-97	Total Alkalinity	240		mg CaCO3/L	P354355	
	SM 2540 D-97	TSS	6	I	mg/L	P354499	
	SM 4500 F-C-97	Fluoride	0.32		mg F/L	P354361	
2037662	EPA 350.1 Rev. 2.0	Ammonia-N	0.068		mg N/L	P354388	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P354287	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.058		mg N/L	P354292	
	EPA 365.1 Rev. 2.0	Total-P	0.26		mg P/L	P354159	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P354204	
2037664	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.18		mg P/L	P354007	

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.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P354004

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P354388

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354287

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P354292

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P354159

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P354007

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

Reference Method: SM 2320 B-97
Batch ID: P354355

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

Reference Method: SM 2540 D-97
Batch ID: P354499

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P354361

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P354204

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: P354388

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354287

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P354292

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P354159

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P354007

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

Reference Method: SM 2320 B-97
Batch ID: P354355

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P354361

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

Reference Method: SM 5310 B-00
Batch ID: P354204

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	91.8		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P354388

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2037627	Ammonia-N	99.8	99.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354287

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2037670	Kjeldahl Nitrogen	100	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P354292

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2037625	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P354159

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2037633	Total-P	99.8	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P354007

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2037629	O-Phosphate-P	99.4	100	P/P	90 - 110

Reference Method: SM 5310 B-00
Batch ID: P354204

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2037456	Organic Carbon	93.9	92.9	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P354004

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037631	Turbidity	6.64	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P354388

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037627	Ammonia-N	0.409	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354287

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037670	Kjeldahl Nitrogen	0.920	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P354292

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037625	NO2NO3-N	0.976	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P354159

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037633	Total-P	0.792	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P354007

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037629	O-Phosphate-P	0.702	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P354355

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2038201	Total Alkalinity	0.633	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P354361

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2038201	Fluoride	0.0	Spike	P	0 - 3.5

Quality Assurance Report
Precision

Reference Method: SM 5310 B-00
Batch ID: P354204

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2037456	Organic Carbon	0.777	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 180.1 Rev. 2.0
Run ID: A87427
Included Lab Sample IDs: 2037659, 2037660

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A87428
Included Lab Sample IDs: 2037663, 2037664

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.4	96.8	P/P	90 - 110
O-Phosphate-P	99.6	98.4	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A87523
Included Lab Sample IDs: 2037661, 2037662

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.8	93.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A87528
Included Lab Sample IDs: 2037662

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A87544
Included Lab Sample IDs: 2037661

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A87560
Included Lab Sample IDs: 2037661, 2037662

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

Reference Method: SM 2320 B-97
Run ID: A87599
Included Lab Sample IDs: 2037659, 2037660

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A87599
Included Lab Sample IDs: 2037659, 2037660

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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A87606
Included Lab Sample IDs: 2037661, 2037662

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A87612
Included Lab Sample IDs: 2037661, 2037662

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.3	102	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					6.64	
EPA 350.1 Rev. 2.0	Ammonia-N	100	99.8	99.3			0.409
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	100	102			0.920
EPA 353.2 Rev. 2.0	NO2NO3-N	100	102	103			0.976
EPA 365.1 Rev. 2.0	Total-P	101	99.8	98.9			0.792
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.3	99.4	100			0.702
SM 2320 B-97	Total Alkalinity	101				0.633	
SM 4500 F-C-97	Fluoride	99.8					0.0
SM 5310 B-00	Organic Carbon	91.8	93.9	92.9			0.777

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2037659, 2037660
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2037661, 2037662
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2037661, 2037662
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2037661, 2037662
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2037661, 2037662
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2037663, 2037664
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2037659, 2037660
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2037659, 2037660
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2037659, 2037660
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2037661, 2037662

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	10/31/2018			10/31/2018 15:58	Megan Treadwell	2037659, 2037660
EPA 350.1 Rev. 2.0	10/31/2018			11/07/2018 14:43	Ping Hua	2037661
	10/31/2018			11/07/2018 14:44	Ping Hua	2037662
EPA 351.2 Rev. 2.0	10/31/2018	11/06/2018 12:30	Adrian Shelby	11/07/2018 12:10	Virginia P. Brown	2037661
	10/31/2018	11/06/2018 12:30	Adrian Shelby	11/07/2018 12:11	Virginia P. Brown	2037662
EPA 353.2 Rev. 2.0	10/31/2018			11/06/2018 11:24	Lauren Bottorf	2037661
	10/31/2018			11/06/2018 11:26	Lauren Bottorf	2037662
EPA 365.1 Rev. 2.0	10/31/2018	11/02/2018 12:40	Sima Feizi	11/05/2018 12:14	Beverly Y. Sanders	2037662
	10/31/2018	11/02/2018 12:40	Sima Feizi	11/05/2018 15:26	Beverly Y. Sanders	2037661
EPA 365.1 Rev. 2.0 dissolved	10/31/2018			10/31/2018 16:12	Julia Storbeck	2037663
	10/31/2018			10/31/2018 16:25	Julia Storbeck	2037664
SM 2320 B-97	10/31/2018			11/06/2018 23:13	Dale L. Simmons	2037660
	10/31/2018			11/06/2018 23:25	Dale L. Simmons	2037659
SM 2540 D-97	10/31/2018			11/02/2018 16:03	Yijie Li	2037659, 2037660
SM 4500 F-C-97	10/31/2018			11/06/2018 23:13	Dale L. Simmons	2037660
	10/31/2018			11/06/2018 23:25	Dale L. Simmons	2037659
SM 5310 B-00	10/31/2018			11/03/2018 08:03	Megan Treadwell	2037661
	10/31/2018			11/03/2018 08:17	Megan Treadwell	2037662