

Chemical Analysis Report

WQAP-2017-11-01-04

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

Event Description: **kit A w/ bacteria (WBIDs 3318, 878E & 376A)**

Request ID: **RQ-2017-05-22-43**

Customer: **WQAP**

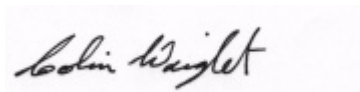
Project ID: **SMP**

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

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: Colin Wright, Program Administrator

Date Certified: 22-NOV-2017 14:44

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray rectangular 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: Mosquito Creek @ SR 269

Collection Date/Time: 11/01/2017 13:15

Field ID: G2TLHR0015-2017-03

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1941940	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P334495	
	EPA 300.0 Rev. 2.1	Chloride	5.5		mg Cl/L	P334715	
	SM 2120 B	Color (true)	30	A	PCU	P334649	
	SM 2320 B-97	Total Alkalinity	31		mg CaCO3/L	P335154	
	SM 2540 C-97	TDS	59		mg/L	P334921	
	SM 2540 D-97	TSS	2	I	mg/L	P334786	
	SM 4500 F-C-97	Fluoride	0.063	I	mg F/L	P335157	
1941941	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P335281	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31		mg N/L	P335636	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.0		mg N/L	P334941	
	EPA 365.1 Rev. 2.0	Total-P	0.037		mg P/L	P334562	
	SM 5310 B-00	Organic Carbon	3.1		mg C/L	P335076	
1941942	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.022		mg P/L	P334598	

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: P334495

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P334715

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P335281

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P335636

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P334941

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: P334562

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334598

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

Reference Method: SM 2120 B
Batch ID: P334649

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P335154

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

Reference Method: SM 2540 C-97
Batch ID: P334921

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P334786

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P335157

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P335076

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: P334715

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P334715

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	94.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335281

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335636

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: P334941

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334562

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: P334598

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

Reference Method: SM 2320 B-97
Batch ID: P335154

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

Reference Method: SM 4500 F-C-97
Batch ID: P335157

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P335076

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P334715

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1941739	Chloride	96.0		P	90 - 110
1941940	Chloride	95.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335281

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1941941	Ammonia-N	97.0	99.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335636

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1944275	Kjeldahl Nitrogen	95.8	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P334941

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1941852	NO2NO3-N	98.7	97.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334562

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1941956	Total-P	98.0	96.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334598

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1941942	O-Phosphate-P	93.1	95.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P335157

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1941802	Fluoride	97.8	98.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P335076

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1941734	Organic Carbon	93.7	94.3	P/P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P334495

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1941918	Turbidity	0.277	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P334715

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1941739	Chloride	0.388	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P335281

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1941941	Ammonia-N	2.38	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P335636

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1944275	Kjeldahl Nitrogen	2.72	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P334941

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1941852	NO2NO3-N	1.17	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334562

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1941956	Total-P	0.788	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334598

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1941942	O-Phosphate-P	1.81	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P334649

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1941940	Color (true)	6.04	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P335154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1941802	Total Alkalinity	0.694	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P334921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1941951	TDS	0.803	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P335157

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1941802	Fluoride	0.484	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P335076

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1941734	Organic Carbon	0.458	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: A79968
Included Lab Sample IDs: 1941940

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: A80009
Included Lab Sample IDs: 1941942

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	95.5	95.7	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A80027
Included Lab Sample IDs: 1941940

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.7	101	P/P	85 - 115

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A80033

Included Lab Sample IDs: 1941941

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.0	100	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A80039

Included Lab Sample IDs: 1941940

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.0	99.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A80129

Included Lab Sample IDs: 1941941

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

Reference Method: SM 5310 B-00

Run ID: A80188

Included Lab Sample IDs: 1941941

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.6	97.5	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A80221

Included Lab Sample IDs: 1941940

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: A80221

Included Lab Sample IDs: 1941940

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A80262

Included Lab Sample IDs: 1941941

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.7	99.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A80407

Included Lab Sample IDs: 1941941

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

Quality Assurance Report Calibration Verification

* 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
EPA 180.1 Rev. 2.0	Turbidity					0.277
EPA 300.0 Rev. 2.1	Chloride	94.3	96.0	95.1		0.388
EPA 350.1 Rev. 2.0	Ammonia-N	97.6	97.0	99.8		
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	95.8	98.8		2.38
EPA 353.2 Rev. 2.0	NO2NO3-N	103	98.7	97.2		2.72
EPA 365.1 Rev. 2.0	Total-P	101	98.0	96.7		1.17
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.4	93.1	95.2		0.788
SM 2120 B	Color (true)					1.81
SM 2320 B-97	Total Alkalinity	103			6.04	
SM 2540 C-97	TDS				0.694	
SM 4500 F-C-97	Fluoride	94.9	97.8	98.4	0.803	
SM 5310 B-00	Organic Carbon	97.0	93.7	94.3		0.484
						0.458

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1941940
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1941940
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1941941
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1941941
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1941941
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1941941
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1941942
SM 2120 B / E31780	True Color measured at 450 nm	1941940
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1941940
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1941940
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1941940
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1941940
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1941941

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	11/01/2017			11/01/2017 16:13	DeAsia Armster	1941940
EPA 300.0 Rev. 2.1	11/01/2017			11/03/2017	Irina Carbone	1941940
EPA 350.1 Rev. 2.0	11/01/2017			11/14/2017	Sofia Elnemr	1941941
EPA 351.2 Rev. 2.0	11/01/2017	11/20/2017	Adrian Shelby	11/20/2017	Joseph Suarez	1941941
EPA 353.2 Rev. 2.0	11/01/2017			11/08/2017	Beverly Y. Sanders	1941941
EPA 365.1 Rev. 2.0	11/01/2017	11/02/2017	Sima Feizi	11/03/2017	Lipi Saha	1941941
EPA 365.1 Rev. 2.0 dissolved	11/01/2017			11/02/2017 13:36	Megan Treadwell	1941942
SM 2120 B	11/01/2017			11/02/2017 14:48	Tanya Welborn	1941940
SM 2320 B-97	11/01/2017			11/09/2017	Dale L. Simmons	1941940
SM 2540 C-97	11/01/2017			11/03/2017	DeAsia Armster	1941940
SM 2540 D-97	11/01/2017			11/03/2017	DeAsia Armster	1941940
SM 4500 F-C-97	11/01/2017			11/09/2017	Dale L. Simmons	1941940
SM 5310 B-00	11/01/2017			11/10/2017	Ping Hua	1941941