

Chemical Analysis Report

WQAP-2017-09-28-04

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

Event Description: **SMP 2016 Freshwater Kit A**
Request ID: **RQ-2017-06-26-38**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 16-OCT-2017 11:23



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: Rocky Creek @ SR51

Collection Date/Time: 09/28/2017 10:50

Field ID: G1TLHR0004-2017-03

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1932701	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P332420	
	EPA 300.0 Rev. 2.1	Chloride	8.2		mg Cl/L	P332575	
	SM 2120 B	Color (true)	240		PCU	P332416	
	SM 2320 B-97	Total Alkalinity	168		mg CaCO3/L	P332668	
	SM 2540 C-97	TDS	248	A	mg/L	P332765	
	SM 2540 D-97	TSS	4	IA	mg/L	P332546	
	SM 4500 F-C-97	Fluoride	0.063	I	mg F/L	P332671	MS
1932702	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P332823	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P332595	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P333051	
	EPA 365.1 Rev. 2.0	Total-P	0.044		mg P/L	P332620	
	SM 5310 B-00	Organic Carbon	33		mg C/L	P332872	
1932703	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P332410	

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: P332420

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P332575

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P332823

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P332595

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P333051

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: P332620

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332410

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

Reference Method: SM 2120 B
Batch ID: P332416

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P332668

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

Reference Method: SM 2540 C-97
Batch ID: P332765

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P332546

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P332671

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P332872

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: P332575

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: P332575

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P332823

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332595

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	92.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333051

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332620

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	96.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332410

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

Reference Method: SM 2320 B-97
Batch ID: P332668

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P332671

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P332872

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332575

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932317	Chloride	96.7		P	90 - 110
1932712	Chloride	98.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P332823

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932573	Ammonia-N	101	98.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332595

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932573	Kjeldahl Nitrogen	89.0	91.9	F/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333051

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932506	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332620

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932574	Total-P	97.2	97.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332410

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932200	O-Phosphate-P	96.3	98.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P332671

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932743	Fluoride	106	106	F/F	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P332872

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932492	Organic Carbon	99.1		P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P332420

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932655	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332575

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932317	Chloride	0.396	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P332823

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932573	Ammonia-N	1.81	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332595

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932573	Kjeldahl Nitrogen	2.14	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333051

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932506	NO2NO3-N	0.468	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332620

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932574	Total-P	0.164	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332410

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932200	O-Phosphate-P	1.95	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P332416

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932571	Color (true)	2.99	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P332668

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932743	Total Alkalinity	0.548	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P332765

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932701	TDS	0.806	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P332671

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932743	Fluoride	0.492	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P332872

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932492	Organic Carbon	0.0952	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 300.0 Rev. 2.1
Run ID: A79203
Included Lab Sample IDs: 1932701

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A79216
Included Lab Sample IDs: 1932703

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

Reference Method: SM 2120 B
Run ID: A79219
Included Lab Sample IDs: 1932701

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	104	103	P/P	85 - 115

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A79220

Included Lab Sample IDs: 1932701

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: SM 2320 B-97

Run ID: A79318

Included Lab Sample IDs: 1932701

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.5	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A79318

Included Lab Sample IDs: 1932701

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A79342

Included Lab Sample IDs: 1932702

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.0	97.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A79355

Included Lab Sample IDs: 1932702

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	98.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A79368

Included Lab Sample IDs: 1932702

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

Reference Method: SM 5310 B-00

Run ID: A79389

Included Lab Sample IDs: 1932702

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.8	97.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A79454

Included Lab Sample IDs: 1932702

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	102	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		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					0.0	
EPA 300.0 Rev. 2.1	Chloride	98.7	96.7	98.3		0.396	
EPA 350.1 Rev. 2.0	Ammonia-N	104	101	98.9			1.81
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	92.0	89.0	91.9			2.14
EPA 353.2 Rev. 2.0	NO2NO3-N	102	101	100			0.468
EPA 365.1 Rev. 2.0	Total-P	96.2	97.2	97.1			0.164
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	96.3	98.2			1.95
SM 2120 B	Color (true)					2.99	
SM 2320 B-97	Total Alkalinity	102				0.548	
SM 2540 C-97	TDS					0.806	
SM 4500 F-C-97	Fluoride	98.3	106	106			0.492
SM 5310 B-00	Organic Carbon	95.7	99.1				0.0952

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1932701
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1932701
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1932702
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1932702
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1932702
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1932702
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1932703
SM 2120 B / E31780	True Color measured at 450 nm	1932701
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1932701
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1932701
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1932701
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1932701
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1932702

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	09/28/2017			09/28/2017 16:22	DeAsia Armster	1932701
EPA 300.0 Rev. 2.1	09/28/2017			09/29/2017	Julia Storbeck	1932701
EPA 350.1 Rev. 2.0	09/28/2017			10/05/2017	Sofia Elnemr	1932702
EPA 351.2 Rev. 2.0	09/28/2017	10/03/2017	Adrian Shelby	10/04/2017	Tanya Welborn	1932702
EPA 353.2 Rev. 2.0	09/28/2017			10/10/2017	Beverly Y. Sanders	1932702
EPA 365.1 Rev. 2.0	09/28/2017	10/03/2017	Sima Feizi	10/05/2017	Lipi Saha	1932702
EPA 365.1 Rev. 2.0 dissolved	09/28/2017			09/28/2017 14:56	Megan Treadwell	1932703
SM 2120 B	09/28/2017			09/28/2017 16:13	Tanya Welborn	1932701
SM 2320 B-97	09/28/2017			10/04/2017	Dale L. Simmons	1932701
SM 2540 C-97	09/28/2017			09/29/2017	DeAsia Armster	1932701
SM 2540 D-97	09/28/2017			09/29/2017	DeAsia Armster	1932701
SM 4500 F-C-97	09/28/2017			10/04/2017	Dale L. Simmons	1932701
SM 5310 B-00	09/28/2017			10/05/2017	Ping Hua	1932702