Chemical Analysis Report

TLH-ROC-2017-09-21-01

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-2017-07-17-36**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
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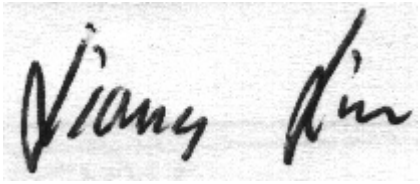
Certified by: Liang Lin, Environmental Administrator

Date Certified: 11-OCT-2017 14:39



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: New River @ 65 **Collection Date/Time: 09/21/2017 10:20**

Field ID: G2TLHR0030-2017-01 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1930850	EPA 180.1 Rev. 2.0	Turbidity	4.8		NTU	P332016	
	EPA 300.0 Rev. 2.1	Chloride	3.0		mg Cl/L	P332154	
	SM 2120 B	Color (true)	540		PCU	P332105	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P332130	
	SM 2540 C-97	TDS	28		mg/L	P332770	
	SM 2540 D-97	TSS	3	I	mg/L	P332223	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P332291	
1930851	EPA 350.1 Rev. 2.0	Ammonia-N	0.027		mg N/L	P332336	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.98		mg N/L	P332293	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P332457	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P332233	
	SM 5310 B-00	Organic Carbon	41		mg C/L	P332239	
1930852	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P332054	

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: P332016

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332154

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P332336

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332293

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332457

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: P332233

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332054

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

Reference Method: SM 2120 B
Batch ID: P332105

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P332130

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

Reference Method: SM 2540 C-97
Batch ID: P332770

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P332223

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P332291

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P332239

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: P332154

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332154

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	94.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P332336

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332293

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332457

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: P332233

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	93.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332054

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

Reference Method: SM 2320 B-97
Batch ID: P332130

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

Reference Method: SM 4500 F-C-97
Batch ID: P332291

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

Reference Method: SM 5310 B-00
Batch ID: P332239

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.8		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332154

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1930588	Chloride	97.2		P	90 - 110
1930643	Chloride	97.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P332336

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1930669	Ammonia-N	104	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332293

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1930671	Kjeldahl Nitrogen	97.5	94.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332457

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1930668	NO2NO3-N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332233

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1930669	Total-P	97.0	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332054

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1930852	O-Phosphate-P	95.5	95.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P332291

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1931180	Fluoride	95.9	96.5	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P332239

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1930644	Organic Carbon	95.2	97.2	P/P	85 - 115

Quality Assurance Report
Precision

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P332016

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1930643	Turbidity	1.77	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1930588	Chloride	1.28	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P332336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1930669	Ammonia-N	0.283	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332293

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1930671	Kjeldahl Nitrogen	1.86	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332457

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1930668	NO2NO3-N	0.579	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332233

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1930669	Total-P	4.35	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332054

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1930852	O-Phosphate-P	0.209	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P332105

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1930893	Color (true)	0.749	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2320 B-97
Batch ID: P332130

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1930666	Total Alkalinity	0.147	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P332770

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1930667	TDS	1.84	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P332291

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1931180	Fluoride	0.483	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P332239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1930644	Organic Carbon	1.50	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: A78987
Included Lab Sample IDs: 1930850

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	103	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A79066
Included Lab Sample IDs: 1930850

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A79079
Included Lab Sample IDs: 1930852

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	100	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 2120 B
Run ID: A79108
Included Lab Sample IDs: 1930850

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	105	P/P	85 - 115

Reference Method: SM 2320 B-97
Run ID: A79117
Included Lab Sample IDs: 1930850

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.9	102	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A79154
Included Lab Sample IDs: 1930851

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.8	97.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A79173
Included Lab Sample IDs: 1930850

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.0	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A79193
Included Lab Sample IDs: 1930851

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A79196
Included Lab Sample IDs: 1930851

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A79224
Included Lab Sample IDs: 1930851

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.4	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A79237
Included Lab Sample IDs: 1930851

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	103	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	MS
EPA 180.1 Rev. 2.0	Turbidity					1.77	
EPA 300.0 Rev. 2.1	Chloride	94.5	97.2	97.4		1.28	
EPA 350.1 Rev. 2.0	Ammonia-N	103	104	103			0.283
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	97.5	94.2			1.86
EPA 353.2 Rev. 2.0	NO2NO3-N	104	102				0.579
EPA 365.1 Rev. 2.0	Total-P	93.6	97.0	102			4.35
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.1	95.5	95.7			0.209
SM 2120 B	Color (true)					0.749	
SM 2320 B-97	Total Alkalinity	102				0.147	
SM 2540 C-97	TDS					1.84	
SM 4500 F-C-97	Fluoride	96.1	95.9	96.5			0.483
SM 5310 B-00	Organic Carbon	98.8	95.2	97.2			1.50

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1930850
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1930850
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1930851
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1930851
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1930851
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1930851
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1930852
SM 2120 B / E31780	True Color measured at 450 nm	1930850
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1930850
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1930850
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1930850
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1930850
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1930851

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	09/21/2017			09/21/2017 15:31	DeAsia Armster	1930850
EPA 300.0 Rev. 2.1	09/21/2017			09/22/2017	Julia Storbeck	1930850
EPA 350.1 Rev. 2.0	09/21/2017			09/26/2017	Sofia Elnemr	1930851
EPA 351.2 Rev. 2.0	09/21/2017	09/27/2017	Adrian Shelby	09/28/2017	Joseph Suarez	1930851
EPA 353.2 Rev. 2.0	09/21/2017			09/29/2017	Beverly Y. Sanders	1930851
EPA 365.1 Rev. 2.0	09/21/2017	09/26/2017	Sima Feizi	09/27/2017	Lipi Saha	1930851
EPA 365.1 Rev. 2.0 dissolved	09/21/2017			09/21/2017 19:00	Megan Treadwell	1930852
SM 2120 B	09/21/2017			09/22/2017 16:22	Julia Storbeck	1930850
SM 2320 B-97	09/21/2017			09/23/2017	Dale L. Simmons	1930850
SM 2540 C-97	09/21/2017			09/25/2017	DeAsia Armster	1930850
SM 2540 D-97	09/21/2017			09/25/2017	DeAsia Armster	1930850
SM 4500 F-C-97	09/21/2017			09/26/2017	Dale L. Simmons	1930850
SM 5310 B-00	09/21/2017			09/26/2017	Ping Hua	1930851