

Chemical Analysis Report

TLH-ROC-2018-04-03-01

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

Event Description: **kit B-b (WBIDs 8029, 3473A1, 3402A)**

Request ID: **RQ-2018-03-12-46**

Customer: **TLH-ROC**

Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
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: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 20-APR-2018 11:41



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: WACCASASSARIVER@BOATRAMP

Collection Date/Time: 04/03/2018 11:55

Field ID: G1TLHR0032

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1980318	EPA 180.1 Rev. 2.0	Turbidity	4.0	A	NTU	P342783	
	SM 2320 B-97	Total Alkalinity	136		mg CaCO3/L	P343370	
	SM 2540 D-97	TSS	6	I	mg/L	P343456	
	SM 4500 F-C-97	Fluoride	0.12		mg F/L	P343375	
1980319	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P343232	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P342816	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.19		mg N/L	P342941	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P343188	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P343191	
1980320	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.028		mg P/L	P342698	

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: P342783

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P343232

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P342816

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P342941

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

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P343188

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P342698

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: P343370

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

Reference Method: SM 2540 D-97
Batch ID: P343456

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P343375

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P343191

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: P343232

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342816

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342941

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: P343188

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342698

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342698

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

Reference Method: SM 2320 B-97
Batch ID: P343370

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P343375

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.6		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P343191

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	104		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343232

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1979968	Ammonia-N	97.2	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342816

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980267	Kjeldahl Nitrogen	102	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342941

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980176	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343188

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1981545	Total-P	105	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342698

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342698

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980247	O-Phosphate-P	95.4	96.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P343375

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1980245	Fluoride	96.9	98.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P343191

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1979921	Organic Carbon	97.6	95.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P342783

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980318	Turbidity	4.53	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P343232

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979968	Ammonia-N	0.204	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P342816

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980267	Kjeldahl Nitrogen	4.06	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P342941

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980176	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P343188

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1981545	Total-P	3.99	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P342698

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980247	O-Phosphate-P	0.487	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P343370

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980245	Total Alkalinity	0.247	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P343375

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1980245	Fluoride	1.49	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P343191

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979921	Organic Carbon	1.16	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 365.1 Rev. 2.0 dissolved
Run ID: A83021
Included Lab Sample IDs: 1980320

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A83045
Included Lab Sample IDs: 1980318

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.0	99.0	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A83084
Included Lab Sample IDs: 1980319

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 351.2 Rev. 2.0

Run ID: A83109

Included Lab Sample IDs: 1980319

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.2	95.9	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A83162

Included Lab Sample IDs: 1980319

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	92.8	96.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A83174

Included Lab Sample IDs: 1980319

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A83210

Included Lab Sample IDs: 1980319

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

Reference Method: SM 2320 B-97

Run ID: A83225

Included Lab Sample IDs: 1980318

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

Reference Method: SM 4500 F-C-97

Run ID: A83225

Included Lab Sample IDs: 1980318

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	100	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				4.53	
EPA 350.1 Rev. 2.0	Ammonia-N	97.3	97.2	97.4		0.204
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	95.8	102	108		4.06
EPA 353.2 Rev. 2.0	NO2NO3-N	102	103	103		0.0

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 365.1 Rev. 2.0	Total-P	102	105 98.7			3.99
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	95.4 96.0			0.487
SM 2320 B-97	Total Alkalinity	102			0.247	
SM 4500 F-C-97	Fluoride	95.6	96.9 98.6			1.49
SM 5310 B-00	Organic Carbon	104	97.6 95.8			1.16

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1980318
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1980319
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1980319
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1980319
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1980319
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1980320
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1980318
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1980318
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1980318
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1980319

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	04/03/2018			04/04/2018 17:53	William L. Brown IV	1980318
EPA 350.1 Rev. 2.0	04/03/2018			04/11/2018 12:37	Ping Hua	1980319
EPA 351.2 Rev. 2.0	04/03/2018	04/05/2018 13:30	Adrian Shelby	04/09/2018 09:39	Joseph Suarez	1980319
EPA 353.2 Rev. 2.0	04/03/2018			04/06/2018 13:15	Lauren Bottorf	1980319
EPA 365.1 Rev. 2.0	04/03/2018	04/11/2018 13:08	Sima Feizi	04/13/2018 08:49	Beverly Y. Sanders	1980319
EPA 365.1 Rev. 2.0 dissolved	04/03/2018			04/03/2018 16:16	Megan Treadwell	1980320
SM 2320 B-97	04/03/2018			04/13/2018 11:06	Dale L. Simmons	1980318
SM 2540 D-97	04/03/2018			04/06/2018 16:01	Yijie Li	1980318
SM 4500 F-C-97	04/03/2018			04/13/2018 11:06	Dale L. Simmons	1980318
SM 5310 B-00	04/03/2018			04/10/2018 21:37	Julia Storbeck	1980319