

Chemical Analysis Report

TLH-ROC-2018-06-20-01

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

Event Description: **B-b2 (WBID 3366A Waccasassa River)**

Request ID: **RQ-2018-04-30-24**

Customer: **TLH-ROC**

Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
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Tallahassee, FL 32399
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 13-JUL-2018 14:11



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: WACCASASSA RIVER @ BOAT RA

Collection Date/Time: 06/20/2018 11:05

Field ID: G1TLHR0032

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2002405	EPA 180.1 Rev. 2.0	Turbidity	2.2	A	NTU	P347293	
	SM 2320 B-97	Total Alkalinity	99		mg CaCO3/L	P347842	
	SM 2540 D-97	TSS	3	I	mg/L	P347735	
	SM 4500 F-C-97	Fluoride	0.095	I	mg F/L	P347846	
2002406	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P347555	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P348068	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.14		mg N/L	P347512	
	EPA 365.1 Rev. 2.0	Total-P	0.066		mg P/L	P347559	
	SM 5310 B-00	Organic Carbon	28		mg C/L	P347697	
2002407	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.044		mg P/L	P347287	

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: P347293

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347555

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348068

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347512

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347559

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347287

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

Reference Method: SM 2320 B-97
Batch ID: P347842

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

Reference Method: SM 2540 D-97
Batch ID: P347735

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P347846

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: P347697

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: P347555

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348068

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347512

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347559

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347287

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: P347842

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

Reference Method: SM 4500 F-C-97
Batch ID: P347846

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.8		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P347697

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347555

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2002389	Ammonia-N	93.1	95.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348068

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2002423	Kjeldahl Nitrogen	97.6	92.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347512

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2002248	NO2NO3-N	101	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347559

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2002389	Total-P	96.3	94.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347287

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2002391	O-Phosphate-P	99.0	99.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P347846

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2002385	Fluoride	96.3	96.3	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P347697

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2002390	Organic Carbon	94.6	95.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P347293

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002405	Turbidity	10.5	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P347555

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002389	Ammonia-N	0.848	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P348068

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002423	Kjeldahl Nitrogen	5.35	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P347512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002248	NO2NO3-N	0.496	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P347559

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002389	Total-P	2.14	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P347287

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002391	O-Phosphate-P	0.531	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P347842

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002385	Total Alkalinity	0.588	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P347846

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002385	Fluoride	0.0	Spike	P	0 - 3.5

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P347697

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2002390	Organic Carbon	0.958	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: A84758

Included Lab Sample IDs: 2002407

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A84760

Included Lab Sample IDs: 2002405

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	98.5	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A84842

Included Lab Sample IDs: 2002406

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A84852

Included Lab Sample IDs: 2002406

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.5	96.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A84915

Included Lab Sample IDs: 2002406

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.2	97.8	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A84969

Included Lab Sample IDs: 2002405

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A84969

Included Lab Sample IDs: 2002405

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A84976

Included Lab Sample IDs: 2002406

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.6	97.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A85111

Included Lab Sample IDs: 2002406

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	96.7	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 SMP	MS
			LCS			
EPA 180.1 Rev. 2.0	Turbidity				10.5	
EPA 350.1 Rev. 2.0	Ammonia-N	98.7	93.1	95.1		0.848
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	97.6	92.2		5.35
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	102	101	100		0.496
EPA 365.1 Rev. 2.0	Total-P	95.9	96.3	94.2		2.14
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.1	99.0	99.6		0.531
SM 2320 B-97	Total Alkalinity	102			0.588	
SM 4500 F-C-97	Fluoride	98.8	96.3	96.3		0.0
SM 5310 B-00	Organic Carbon	99.2	94.6	95.6		0.958

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2002405
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2002406
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2002406
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2002406
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2002406
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2002407
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2002405
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2002405
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2002405
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2002406

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	06/20/2018			06/21/2018 17:00	William L. Brown IV	2002405
EPA 350.1 Rev. 2.0	06/20/2018			06/26/2018 12:49	Adrian Shelby	2002406
EPA 351.2 Rev. 2.0	06/20/2018	07/09/2018 10:25	Tanya Welborn	07/10/2018 09:49	Joseph Suarez	2002406
EPA 353.2 Rev. 2.0	06/20/2018			06/26/2018 14:57	Lauren Bottorf	2002406
EPA 365.1 Rev. 2.0	06/20/2018	06/26/2018 12:45	Sima Feizi	06/28/2018 13:15	Beverly Y. Sanders	2002406
EPA 365.1 Rev. 2.0 dissolved	06/20/2018			06/21/2018 15:30	Megan Treadwell	2002407
SM 2320 B-97	06/20/2018			07/01/2018 23:20	Dale L. Simmons	2002405
SM 2540 D-97	06/20/2018			06/22/2018 15:45	Yijie Li	2002405
SM 4500 F-C-97	06/20/2018			07/01/2018 23:20	Dale L. Simmons	2002405
SM 5310 B-00	06/20/2018			06/27/2018 22:22	Julia Storbeck	2002406