

Chemical Analysis Report

TLH-ROC-2019-04-18-03

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

Event Description: **Run 8**
Request ID: **RQ-2019-01-21-11**
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: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 13-MAY-2019 13:59



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 by the Florida Department of Health Environmental Laboratory Certification Program 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: Gulf of Mexico (Econfina River)

Collection Date/Time: 04/18/2019 12:50

Field ID: G1TLHR0043

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2079583	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P362510	
	EPA 300.0	Bromide	45		mg Br/L	P362742	
	SM 2320 B-97	Total Alkalinity	135		mg CaCO3/L	P363131	
	SM 2540 D-97	TSS	30	A	mg/L	P362798	
	SM 4500 F-C-97	Fluoride	0.85		mg F/L	P363132	
2079584	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P362694	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.71		mg N/L	P363397	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P362650	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P362687	
	SM 5310 B-00	Organic Carbon	10		mg C/L	P362592	
2079585	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P362465	

Ref. Method and Comment:

SM 2540 D-97: Sample contains high density particulates that settle out quickly.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P362510

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0
Batch ID: P362742

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362694

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363397

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362650

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362687

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362465

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

Reference Method: SM 2320 B-97
Batch ID: P363131

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

Reference Method: SM 2540 D-97
Batch ID: P362798

Component	Result	Code	Units
TSS	3	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P363132

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P362592

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0
Batch ID: P362742

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362694

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: P363397

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: P362650

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362687

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362465

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	101		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P363131

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P363132

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P362592

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0
Batch ID: P362742

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079290	Bromide	98.4		P	90 - 110
2079303	Bromide	99.0		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P362694

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079431	Ammonia-N	105	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P363397

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2081934	Kjeldahl Nitrogen	103	97.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P362650

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079584	NO2NO3-N	98.6	98.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P362687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079305	Total-P	99.5	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P362465

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079417	O-Phosphate-P	99.0	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P363132

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2080079	Fluoride	97.9	99.6	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P362592

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2079272	Organic Carbon	101	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P362510

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079680	Turbidity	2.82	Sample	P	0 - 20

Reference Method: EPA 300.0
 Batch ID: P362742

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079290	Bromide	0.988	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P362694

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079431	Ammonia-N	0.102	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P363397

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2081934	Kjeldahl Nitrogen	5.17	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P362650

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079584	NO2NO3-N	0.509	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P362687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079305	Total-P	0.0606	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P362465

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079417	O-Phosphate-P	1.32	Spike	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P363131

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080079	Total Alkalinity	0.508	Sample	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 2540 D-97
Batch ID: P362798

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079583	TSS	5.33	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P363132

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2080079	Fluoride	0.940	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P362592

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2079272	Organic Carbon	0.522	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: A90833

Included Lab Sample IDs: 2079585

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A90854

Included Lab Sample IDs: 2079583

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	100	P/P	95 - 105

Reference Method: SM 5310 B-00

Run ID: A90876

Included Lab Sample IDs: 2079584

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	105	108	P/P	90 - 110

Reference Method: EPA 300.0

Run ID: A90903

Included Lab Sample IDs: 2079583

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	98.4	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A90918

Included Lab Sample IDs: 2079584

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	99.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A90940

Included Lab Sample IDs: 2079584

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91023

Included Lab Sample IDs: 2079584

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: A91108

Included Lab Sample IDs: 2079583

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	99.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A91108

Included Lab Sample IDs: 2079583

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91272

Included Lab Sample IDs: 2079584

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.8	104	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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					2.82	
EPA 300.0	Bromide	101	98.4	99.0		0.988	
EPA 350.1 Rev. 2.0	Ammonia-N	104	105	105			0.102
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	103	97.6			5.17
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	101	98.6	98.1			0.509
EPA 365.1 Rev. 2.0	Total-P	99.0	99.5	99.6			0.0606
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	99.0	101			1.32
SM 2320 B-97	Total Alkalinity	100				0.508	
SM 2540 D-97	TSS					5.33	
SM 4500 F-C-97	Fluoride	96.6	97.9	99.6			0.940
SM 5310 B-00	Organic Carbon	101	101	100			0.522

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2079583
EPA 300.0 / E31780	Bromide in aqueous matrices	2079583
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2079584
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2079584
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2079584
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2079584
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2079585
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2079583
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2079583
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2079583
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2079584

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	04/18/2019			04/19/2019 15:55	Adrian Shelby	2079583
EPA 300.0	04/18/2019			04/23/2019 19:39	Lipi Saha	2079583
EPA 350.1 Rev. 2.0	04/18/2019			04/23/2019 15:34	Julia Storbeck	2079584
EPA 351.2 Rev. 2.0	04/18/2019	05/06/2019 12:50	Jhamieka S. Greenwood	05/07/2019 15:08	Joseph Suarez	2079584
EPA 353.2 Rev. 2.0	04/18/2019			04/23/2019 11:39	Beverly Y. Sanders	2079584
EPA 365.1 Rev. 2.0	04/18/2019	04/24/2019 15:26	Sima Feizi	04/26/2019 12:21	Rosalyn Ballman	2079584
EPA 365.1 Rev. 2.0 dissolved	04/18/2019			04/18/2019 17:32	Julia Storbeck	2079585
SM 2320 B-97	04/18/2019			05/01/2019 01:13	Dale L. Simmons	2079583
SM 2540 D-97	04/18/2019			04/22/2019 18:35	Mariam Hanna	2079583
SM 4500 F-C-97	04/18/2019			04/30/2019 19:03	Dale L. Simmons	2079583
SM 5310 B-00	04/18/2019			04/20/2019 08:18	Julia Storbeck	2079584