

Chemical Analysis Report

TLH-ROC-2020-11-02-02

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

Event Description: **Marine Kits**
Request ID: **RQ-2020-11-02-50**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
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Date Certified: 24-NOV-2020 12:05



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: Direct Runoff Gulf @ Mouth

Collection Date/Time: 11/02/2020 13:20

Field ID: G1TLHR0115

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2205822	EPA 180.1 Rev. 2.0	Turbidity	4.1	A	NTU	P389695	
	EPA 300.0 Rev. 2.1	Bromide	9.0		mg Br/L	P389912	
	SM 2320 B-2011	Total Alkalinity	129		mg CaCO3/L	P389776	
	SM 2540 D-2011	TSS	5	I	mg/L	P389999	
	SM 4500 F-C-2011	Fluoride	0.25		mg F/L	P389778	
2205823	EPA 350.1 Rev. 2.0	Ammonia-N	0.058		mg N/L	P389891	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.83		mg N/L	P389865	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.56		mg N/L	P389792	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P389799	
	SM 5310 B-2011	Organic Carbon	12		mg C/L	P389772	
2205824	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.073		mg P/L	P389699	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Bromide: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 4500 F-C-2011: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P389695

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389912

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389891

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389865

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389792

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389799

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389699

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

Reference Method: SM 2320 B-2011
Batch ID: P389776

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

Reference Method: SM 2540 D-2011
Batch ID: P389999

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-2011
Batch ID: P389778

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P389772

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: P389912

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389891

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389865

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	106		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389792

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389799

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: P389699

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.5		P	90 - 110

Reference Method: SM 2320 B-2011
Batch ID: P389776

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.2		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P389778

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	93.6		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P389772

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389912

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205470	Bromide	103		P	90 - 110
2205479	Bromide	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389891

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2206178	Ammonia-N	106	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389865

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205823	Kjeldahl Nitrogen	106	110	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389792

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205580	NO2NO3-N	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389799

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205823	Total-P	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389699

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205824	O-Phosphate-P	98.9	100	P/P	90 - 110

Reference Method: SM 5310 B-2011
Batch ID: P389772

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2205510	Organic Carbon	103	103	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P389695

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205822	Turbidity	4.18	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2206178	Ammonia-N	0.914	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389865

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205823	Kjeldahl Nitrogen	2.49	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389792

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205580	NO2NO3-N	0.494	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389799

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205823	Total-P	1.66	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389699

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205824	O-Phosphate-P	0.810	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P389776

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205414	Total Alkalinity	1.15	Sample	P	0 - 8.1

Reference Method: SM 4500 F-C-2011
Batch ID: P389778

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205414	Fluoride	0.469	Spike	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 5310 B-2011
Batch ID: P389772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2205510	Organic Carbon	0.180	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A101936

Included Lab Sample IDs: 2205822

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	98.0	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A101937

Included Lab Sample IDs: 2205824

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.8	98.1	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A101967

Included Lab Sample IDs: 2205823

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	104	105	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A101970

Included Lab Sample IDs: 2205822

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	98.6	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A101970

Included Lab Sample IDs: 2205822

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	95.4	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A101978

Included Lab Sample IDs: 2205823

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A101986

Included Lab Sample IDs: 2205822

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A102017

Included Lab Sample IDs: 2205823

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A102027

Included Lab Sample IDs: 2205823

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A102057

Included Lab Sample IDs: 2205823

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	106	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					4.18	
EPA 300.0 Rev. 2.1	Bromide	103	103	104			
EPA 350.1 Rev. 2.0	Ammonia-N	97.8	106	105			0.914
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	106	110			2.49
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	102	101			0.494
EPA 365.1 Rev. 2.0	Total-P	102	101	103			1.66
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.5	98.9	100			0.810
SM 2320 B-2011	Total Alkalinity	99.2				1.15	
SM 4500 F-C-2011	Fluoride	93.6					0.469
SM 5310 B-2011	Organic Carbon	102	103	103			0.180

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2205822
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2205822
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2205823
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2205823
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2205823
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2205823
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2205824
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2205822
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2205822
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2205822
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2205823

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	11/02/2020			11/03/2020 15:14	Yen Ta	2205822
EPA 300.0 Rev. 2.1	11/02/2020			11/06/2020 22:32	Lipi Saha	2205822
EPA 350.1 Rev. 2.0	11/02/2020			11/07/2020 11:07	Ping Hua	2205823
EPA 351.2 Rev. 2.0	11/02/2020	11/06/2020 12:50	David Boose	11/09/2020 13:27	Elliott Rodriguez	2205823
EPA 353.2 Rev. 2.0	11/02/2020			11/05/2020 10:15	Beverly Y. Sanders	2205823
EPA 365.1 Rev. 2.0	11/02/2020	11/05/2020 12:58	Yen Ta	11/06/2020 12:43	Benjamin T. Nordmann	2205823
EPA 365.1 Rev. 2.0 dissolved	11/02/2020			11/03/2020 15:44	Blanca Fach	2205824
SM 2320 B-2011	11/02/2020			11/04/2020 22:59	Samantha Davila	2205822
SM 2540 D-2011	11/02/2020			11/04/2020 14:21	Yijie Li	2205822
SM 4500 F-C-2011	11/02/2020			11/04/2020 22:59	Samantha Davila	2205822
SM 5310 B-2011	11/02/2020			11/04/2020 17:12	Lauren Lees	2205823