

Chemical Analysis Report

TLH-ROC-2017-09-27-01

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

Event Description: **SMP 2017 Marine Kit B**

Request ID: **RQ-2017-07-17-37**

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: 12-OCT-2017 11:16



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: FENHALLOWAY RIVER @ MOUTH

Collection Date/Time: 09/27/2017 12:00

Field ID: G1TLHR0042-2017-04

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1932285	EPA 180.1 Rev. 2.0	Turbidity	3.5		NTU	P332346	
	SM 2320 B-97	Total Alkalinity	152		mg CaCO3/L	P332841	
	SM 2540 D-97	TSS	4	I	mg/L	P332918	
	SM 4500 F-C-97	Fluoride	0.49		mg F/L	P333078	
1932287	EPA 350.1 Rev. 2.0	Ammonia-N	0.043		mg N/L	P332820	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.74		mg N/L	P332527	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.057		mg N/L	P332524	
	EPA 365.1 Rev. 2.0	Total-P	0.30		mg P/L	P332464	
	SM 5310 B-00	Organic Carbon	22		mg C/L	P332615	
1932289	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.094		mg P/L	P332411	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: GULF OF MEXICO

Collection Date/Time: 09/27/2017 13:45

Field ID: G1TLHR0043-2017-03

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1932286	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P332346	
	SM 2320 B-97	Total Alkalinity	133		mg CaCO3/L	P332841	
	SM 2540 D-97	TSS	3	U	mg/L	P332918	
	SM 4500 F-C-97	Fluoride	0.56		mg F/L	P332844	
1932288	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P332820	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P332527	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P332524	
	EPA 365.1 Rev. 2.0	Total-P	0.045		mg P/L	P332464	
	SM 5310 B-00	Organic Carbon	22		mg C/L	P332615	
1932290	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.018		mg P/L	P332411	

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: P332346

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P332820

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332527

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332524

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: P332464

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332411

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

Reference Method: SM 2320 B-97
Batch ID: P332841

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

Reference Method: SM 2540 D-97
Batch ID: P332918

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P332844

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P333078

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P332615

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: P332820

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: P332527

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: P332524

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332464

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332411

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

Reference Method: SM 2320 B-97
Batch ID: P332841

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P332844

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.3		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P333078

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P332615

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.7		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P332820

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1931920	Ammonia-N	105	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332527

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932352	Kjeldahl Nitrogen	96.3	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332524

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1931853	NO2NO3-N	107	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332464

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1931906	Total-P	90.3	91.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332411

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932290	O-Phosphate-P	95.0	97.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P332844

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932780	Fluoride	95.9	95.1	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P333078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932285	Fluoride	95.5	95.5	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P332615

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932411	Organic Carbon	96.0	94.9	P/P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P332346

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932243	Turbidity	1.76	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P332820

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1931920	Ammonia-N	0.878	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332527

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932352	Kjeldahl Nitrogen	5.52	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332524

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1931853	NO2NO3-N	0.418	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332464

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1931906	Total-P	1.19	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332411

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932290	O-Phosphate-P	2.11	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P332841

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932780	Total Alkalinity	0.145	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P332844

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932780	Fluoride	0.480	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P333078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932285	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P332615

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932411	Organic Carbon	0.918	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 180.1 Rev. 2.0
Run ID: A79197
Included Lab Sample IDs: 1932285, 1932286

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: A79216
Included Lab Sample IDs: 1932289, 1932290

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	101	P/P	90 - 110
O-Phosphate-P	98.3	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A79264
Included Lab Sample IDs: 1932287, 1932288

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A79274
Included Lab Sample IDs: 1932287

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A79280
Included Lab Sample IDs: 1932288

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	99.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A79302

Included Lab Sample IDs: 1932287, 1932288

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.5	95.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A79314

Included Lab Sample IDs: 1932287, 1932288

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A79368

Included Lab Sample IDs: 1932287, 1932288

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

Reference Method: SM 2320 B-97

Run ID: A79374

Included Lab Sample IDs: 1932285, 1932286

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	98.6	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A79374

Included Lab Sample IDs: 1932286

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

Reference Method: SM 4500 F-C-97

Run ID: A79462

Included Lab Sample IDs: 1932285

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	99.1	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				1.76	
EPA 350.1 Rev. 2.0	Ammonia-N	103	105 104			0.878
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	96.3 105			5.52
EPA 353.2 Rev. 2.0	NO2NO3-N	106	107 107			0.418

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
EPA 365.1 Rev. 2.0	Total-P	95.2	90.3	91.4			1.19
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.8	95.0	97.4			2.11
SM 2320 B-97	Total Alkalinity	101				0.145	
SM 4500 F-C-97	Fluoride	96.3	95.9	95.1			0.480
	Fluoride	97.4	95.5	95.5			0.0
SM 5310 B-00	Organic Carbon	96.7	96.0	94.9			0.918

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1932285, 1932286
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1932287, 1932288
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1932287, 1932288
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1932287, 1932288
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1932287, 1932288
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1932289, 1932290
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1932285, 1932286
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1932285, 1932286
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1932285, 1932286
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1932287, 1932288

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	09/27/2017			09/27/2017 17:33	Tanya Welborn	1932285, 1932286
EPA 350.1 Rev. 2.0	09/27/2017			10/05/2017	Sofia Elnemr	1932287, 1932288
EPA 351.2 Rev. 2.0	09/27/2017	10/02/2017	Sofia Elnemr	10/03/2017	Joseph Suarez	1932287, 1932288
EPA 353.2 Rev. 2.0	09/27/2017			10/02/2017	Beverly Y. Sanders	1932287, 1932288
EPA 365.1 Rev. 2.0	09/27/2017	09/29/2017	Sima Feizi	10/02/2017	Lipi Saha	1932287, 1932288
EPA 365.1 Rev. 2.0 dissolved	09/27/2017			09/28/2017 13:34	Megan Treadwell	1932290
	09/27/2017			09/28/2017 13:48	Megan Treadwell	1932289
SM 2320 B-97	09/27/2017			10/06/2017	Dale L. Simmons	1932285, 1932286
SM 2540 D-97	09/27/2017			09/29/2017	Yijie Li	1932285, 1932286
SM 4500 F-C-97	09/27/2017			10/06/2017	Dale L. Simmons	1932286
	09/27/2017			10/10/2017	Dale L. Simmons	1932285
SM 5310 B-00	09/27/2017			10/03/2017	Ping Hua	1932287, 1932288