Chemical Analysis Report

WQAP-2017-05-09-01

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

Event Description: **SMP: Clam Bay & Gulf of Mexico**
Request ID: **RQ-2017-05-15-07**
Customer: **WQAP**
Project ID: **SMP**

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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 01-JUN-2017 16:18

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: 8063 @ Mouth of Gordon Pass **Collection Date/Time: 05/08/2017 10:40**

Field ID: G1SD050817-1 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1897192	EPA 180.1 Rev. 2.0	Turbidity	10	A	NTU	P324932	
	SM 2320 B-97	Total Alkalinity	127		mg CaCO3/L	P325412	
	SM 2540 D-97	TSS	11		mg/L	P325329	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P325415	
1897194	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P325046	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30	I	mg N/L	P325157	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325081	
	EPA 365.1 Rev. 2.0	Total-P	0.038		mg P/L	P324987	
	SM 5310 B-00	Organic Carbon	2.9		mg C/L	P325361	
1897196	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.007	I	mg P/L	P324938	

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: Outer Clam Bay at Beach Path **Collection Date/Time: 05/08/2017 12:00**

Field ID: G1SD050817-2 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1897193	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P324932	
	SM 2320 B-97	Total Alkalinity	128		mg CaCO3/L	P325412	
	SM 2540 D-97	TSS	11		mg/L	P325329	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P325415	
1897195	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P325046	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P325157	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P325081	
	EPA 365.1 Rev. 2.0	Total-P	0.045		mg P/L	P324987	
	SM 5310 B-00	Organic Carbon	3.0		mg C/L	P325361	
1897197	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P324938	

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: P324932

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325046

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: P325157

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325081

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324987

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324938

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

Reference Method: SM 2320 B-97
Batch ID: P325412

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

Reference Method: SM 2540 D-97
Batch ID: P325329

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P325415

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P325361

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: P325046

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325046

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: P325157

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: P325081

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	105		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324987

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324938

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.4		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P325412

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P325415

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P325361

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	91.0		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325046

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325046

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897111	Ammonia-N	107	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325157

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897194	Kjeldahl Nitrogen	102	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325081

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897112	NO2NO3-N	97.5	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324987

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897111	Total-P	97.2	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324938

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897196	O-Phosphate-P	102	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P325415

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897107	Fluoride	98.7	98.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P325361

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1897111	Organic Carbon	88.4	87.0	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P324932

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897192	Turbidity	2.28	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P325046

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897111	Ammonia-N	1.57	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P325157

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897194	Kjeldahl Nitrogen	1.85	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P325081

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897112	NO2NO3-N	1.53	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P324987

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897111	Total-P	3.92	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P324938

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897196	O-Phosphate-P	0.830	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P325412

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897107	Total Alkalinity	0.119	Sample	P	0 - 4.8

Reference Method: SM 4500 F-C-97
Batch ID: P325415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897107	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P325361

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1897111	Organic Carbon	1.21	Spike	P	0 - 20

Quality Assurance Report
Precision

* 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: A76301
Included Lab Sample IDs: 1897192, 1897193

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	102	99.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A76302
Included Lab Sample IDs: 1897196, 1897197

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.9	P/P	90 - 110
O-Phosphate-P	101	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A76336
Included Lab Sample IDs: 1897194, 1897195

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A76348
Included Lab Sample IDs: 1897194, 1897195

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A76356
Included Lab Sample IDs: 1897194, 1897195

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	98.5	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A76450
Included Lab Sample IDs: 1897194, 1897195

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.7	93.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A76474
Included Lab Sample IDs: 1897194, 1897195

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	107	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A76474
Included Lab Sample IDs: 1897194, 1897195

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	107	106	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A76475
Included Lab Sample IDs: 1897192, 1897193

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

Reference Method: SM 4500 F-C-97
Run ID: A76475
Included Lab Sample IDs: 1897192, 1897193

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	95.9	97.6	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		
					LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity					2.28	
EPA 350.1 Rev. 2.0	Ammonia-N	103	107	105			1.57
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	102	104			1.85
EPA 353.2 Rev. 2.0	NO2NO3-N	105	97.5	99.0			1.53
EPA 365.1 Rev. 2.0	Total-P	101	97.2	102			3.92
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.4	102	101			0.830
SM 2320 B-97	Total Alkalinity	103				0.119	
SM 4500 F-C-97	Fluoride	102	98.7	98.7			0.0
SM 5310 B-00	Organic Carbon	91.0	88.4	87.0			1.21

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1897192, 1897193
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1897194, 1897195
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1897194, 1897195
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1897194, 1897195
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1897194, 1897195
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1897196, 1897197
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1897192, 1897193

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1897192, 1897193
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1897192, 1897193
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1897194, 1897195

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	05/09/2017			05/09/2017 15:52	Sima Feizi	1897192, 1897193
EPA 350.1 Rev. 2.0	05/09/2017			05/10/2017	Julie Michelle Frank	1897194, 1897195
EPA 351.2 Rev. 2.0	05/09/2017	05/12/2017	Adrian Shelby	05/17/2017	Joseph Suarez	1897194, 1897195
EPA 353.2 Rev. 2.0	05/09/2017			05/11/2017	Beverly Y. Sanders	1897194, 1897195
EPA 365.1 Rev. 2.0	05/09/2017	05/10/2017	Vijayalakshmi Reddy	05/11/2017	Lipi Saha	1897194, 1897195
EPA 365.1 Rev. 2.0 dissolved	05/09/2017			05/09/2017 14:30	Anthony C. Onicha	1897196
	05/09/2017			05/09/2017 14:55	Anthony C. Onicha	1897197
SM 2320 B-97	05/09/2017			05/17/2017	Dale L. Simmons	1897192, 1897193
SM 2540 D-97	05/09/2017			05/10/2017	Yijie Li	1897192, 1897193
SM 4500 F-C-97	05/09/2017			05/17/2017	Dale L. Simmons	1897192, 1897193
SM 5310 B-00	05/09/2017			05/16/2017	Christopher Armour	1897194, 1897195