

Chemical Analysis Report

TLH-ROC-2018-05-24-01

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

Event Description: **kit B-3M (WBID 3402A & 3473A1)**

Request ID: **RQ-2018-04-09-54**

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.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Liang Lin, Environmental Administrator

Date Certified: 12-JUN-2018 15:47

A handwritten signature in black ink, appearing to read "Liang Lin", on a light-colored background.

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: TLH-ROC SMP

Collection Date/Time: 05/24/2018 11:15

Field ID: G1TLHR0043

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1995411	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P345908	
	SM 2320 B-97	Total Alkalinity	133		mg CaCO3/L	P346240	
	SM 2540 D-97	TSS	3	UA	mg/L	P346208	
	SM 4500 F-C-97	Fluoride	0.87		mg F/L	P346243	
1995413	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P346342	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.53		mg N/L	P346354	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P346124	
	EPA 365.1 Rev. 2.0	Total-P	0.017		mg P/L	P346075	
	SM 5310 B-00	Organic Carbon	7.7		mg C/L	P346314	
1995415	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P345938	

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: TLH-ROC SMP

Collection Date/Time: 05/24/2018 11:10

Field ID: G1TLHR0031

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1995412	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P345908	
	SM 2320 B-97	Total Alkalinity	137		mg CaCO3/L	P346240	
	SM 2540 D-97	TSS	3	U	mg/L	P346208	
	SM 4500 F-C-97	Fluoride	0.80		mg F/L	P346243	
1995414	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P346342	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.71		mg N/L	P346354	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P346124	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P346075	
	SM 5310 B-00	Organic Carbon	9.4		mg C/L	P346314	
1995416	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P345938	

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: P345908

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P346342

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: P346354

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346124

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346075

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345938

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

Reference Method: SM 2320 B-97
Batch ID: P346240

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

Reference Method: SM 2540 D-97
Batch ID: P346208

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P346243

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P346314

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: P346342

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P346342

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P346354

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P346124

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: P346075

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P345938

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

Reference Method: SM 2320 B-97
 Batch ID: P346240

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Reference Method: SM 4500 F-C-97
 Batch ID: P346243

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.3		P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P346314

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P346342

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P346342

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995413	Ammonia-N	98.5	99.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P346354

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995187	Kjeldahl Nitrogen	92.1	95.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P346124

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995182	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P346075

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995184	Total-P	92.6	96.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P345938

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995415	O-Phosphate-P	96.9	97.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P346243

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1995544	Fluoride	92.5	92.5	P/P	91 - 105

Reference Method: SM 5310 B-00
 Batch ID: P346314

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1994851	Organic Carbon	95.5	96.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P345908

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995131	Turbidity	9.16	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P346342

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995413	Ammonia-N	0.811	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P346354

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995187	Kjeldahl Nitrogen	2.88	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P346124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995182	NO2NO3-N	0.363	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P346075

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995184	Total-P	3.45	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P345938

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995415	O-Phosphate-P	1.03	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P346240

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995544	Total Alkalinity	0.804	Sample	P	0 - 1.6

Reference Method: SM 4500 F-C-97
Batch ID: P346243

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1995544	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P346314

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1994851	Organic Carbon	0.482	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: A84145
Included Lab Sample IDs: 1995411, 1995412

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A84154
Included Lab Sample IDs: 1995415, 1995416

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.1	P/P	90 - 110
O-Phosphate-P	99.7	99.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A84235
Included Lab Sample IDs: 1995413, 1995414

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

Reference Method: SM 2320 B-97
Run ID: A84290
Included Lab Sample IDs: 1995411, 1995412

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

Reference Method: SM 4500 F-C-97
Run ID: A84290
Included Lab Sample IDs: 1995411, 1995412

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A84294
Included Lab Sample IDs: 1995413, 1995414

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.2	P/P	90 - 110
Total-P	100	100	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A84324
Included Lab Sample IDs: 1995413, 1995414

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A84324

Included Lab Sample IDs: 1995413, 1995414

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.8	97.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A84336

Included Lab Sample IDs: 1995413, 1995414

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A84411

Included Lab Sample IDs: 1995413, 1995414

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.7	93.9	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				9.16	
EPA 350.1 Rev. 2.0	Ammonia-N	102	98.5 99.4			0.811
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100	92.1 95.8			2.88
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102 102			0.363
EPA 365.1 Rev. 2.0	Total-P	99.4	92.6 96.1			3.45
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.3	96.9 97.9			1.03
SM 2320 B-97	Total Alkalinity	103			0.804	
SM 4500 F-C-97	Fluoride	95.3	92.5 92.5			0.0
SM 5310 B-00	Organic Carbon	96.8	95.5 96.0			0.482

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1995411, 1995412
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1995413, 1995414
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1995413, 1995414
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1995413, 1995414
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1995413, 1995414
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1995415, 1995416

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1995411, 1995412
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	1995411, 1995412
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1995411, 1995412
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1995413, 1995414

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	05/24/2018			05/24/2018 16:55	William L. Brown IV	1995411, 1995412
EPA 350.1 Rev. 2.0	05/24/2018			06/04/2018 15:15	Julia Storbeck	1995413
	05/24/2018			06/04/2018 15:26	Julia Storbeck	1995414
EPA 351.2 Rev. 2.0	05/24/2018	06/05/2018 11:50	Adrian Shelby	06/07/2018 08:21	Joseph Suarez	1995413
	05/24/2018	06/05/2018 11:50	Adrian Shelby	06/07/2018 08:22	Joseph Suarez	1995414
EPA 353.2 Rev. 2.0	05/24/2018			05/30/2018 11:25	Lauren Bottorf	1995413
	05/24/2018			05/30/2018 11:26	Lauren Bottorf	1995414
EPA 365.1 Rev. 2.0	05/24/2018	05/29/2018 09:34	Sima Feizi	06/01/2018 13:14	Beverly Y. Sanders	1995413
	05/24/2018	05/29/2018 09:34	Sima Feizi	06/01/2018 13:22	Beverly Y. Sanders	1995414
EPA 365.1 Rev. 2.0 dissolved	05/24/2018			05/24/2018 16:39	Megan Treadwell	1995415
	05/24/2018			05/24/2018 17:04	Megan Treadwell	1995416
SM 2320 B-97	05/24/2018			06/01/2018 01:46	Dale L. Simmons	1995412
	05/24/2018			06/01/2018 01:55	Dale L. Simmons	1995411
SM 2540 D-97	05/24/2018			05/25/2018 13:00	William L. Brown IV	1995411, 1995412
SM 4500 F-C-97	05/24/2018			05/31/2018 23:39	Dale L. Simmons	1995412
	05/24/2018			05/31/2018 23:43	Dale L. Simmons	1995411
SM 5310 B-00	05/24/2018			06/02/2018 15:03	Megan Treadwell	1995413
	05/24/2018			06/02/2018 15:20	Megan Treadwell	1995414