Chemical Analysis Report

TLH-ROC-2018-02-20-01

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

Event Description: **kit A w/ bacteria**
Request ID: **RQ-2018-01-01-24**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Michael Eckles

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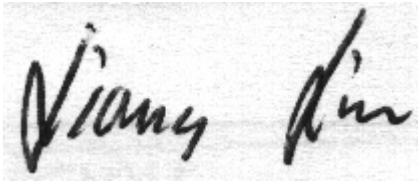
Certified by: Liang Lin, Environmental Administrator

Date Certified: 12-MAR-2018 11:40



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: Mitchell Creek @ SW 107th Blvd **Collection Date/Time: 02/20/2018 11:45**

Field ID: G1TLHR0059 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1968992	EPA 180.1 Rev. 2.0	Turbidity	4.6	A	NTU	P340361	
	EPA 300.0 Rev. 2.1	Chloride	9.9	A	mg Cl/L	P340650	
		Sulfate	2.4	A	mg SO4/L	P340652	
	SM 2120 B	Color (true)	120		PCU	P340351	
	SM 2320 B-97	Total Alkalinity	57		mg CaCO3/L	P340919	
	SM 2540 C-97	TDS	120	A	mg/L	P340599	
	SM 2540 D-97	TSS	2	U	mg/L	P340444	
	SM 4500 F-C-97	Fluoride	0.52		mg F/L	P340765	
1968993	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P340856	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P340508	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P340491	
	EPA 365.1 Rev. 2.0	Total-P	1.3		mg P/L	P340514	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P340536	
1968994	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	1.1		mg P/L	P340312	

Ref. Method and Comment:
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
SM 4500 F-C-97: 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: P340361

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340650

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340652

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340856

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340508

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340491

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340514

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340312

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

Reference Method: SM 2120 B
Batch ID: P340351

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P340919

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

Reference Method: SM 2540 C-97
Batch ID: P340599

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P340444

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P340765

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P340536

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: P340650

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	95.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340652

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	94.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340856

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340508

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340491

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340514

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340312

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

Reference Method: SM 2320 B-97
Batch ID: P340919

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.0		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P340765

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.7		P	92 - 103

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P340536

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340650

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968823	Chloride	92.3		P	90 - 110
1968992	Chloride	92.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340652

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968823	Sulfate	91.1		P	90 - 110
1968992	Sulfate	90.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340856

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968993	Ammonia-N	96.2	93.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340508

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1969007	Kjeldahl Nitrogen	93.5	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340491

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968899	NO2NO3-N	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340514

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1969005	Total-P	97.3	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340312

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968859	O-Phosphate-P	96.5	97.9	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P340536

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1968936	Organic Carbon	95.0	96.9	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P340361

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968992	Turbidity	3.29	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340650

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968992	Chloride	1.39	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P340652

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968992	Sulfate	1.38	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P340856

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968993	Ammonia-N	2.66	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P340508

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1969007	Kjeldahl Nitrogen	7.01	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P340491

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968899	NO2NO3-N	0.406	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P340514

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1969005	Total-P	4.71	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P340312

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968859	O-Phosphate-P	1.37	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P340351

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1969001	Color (true)	3.06	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P340919

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1969839	Total Alkalinity	0.957	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P340599

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968992	TDS	3.33	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P340765

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1969029	Fluoride	0.516	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P340536

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1968936	Organic Carbon	1.30	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

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A82188
Included Lab Sample IDs: 1968994

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.2	99.4	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A82214
Included Lab Sample IDs: 1968992

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	98.7	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A82216
Included Lab Sample IDs: 1968992

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A82251
Included Lab Sample IDs: 1968993

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

Reference Method: SM 5310 B-00
Run ID: A82268
Included Lab Sample IDs: 1968993

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.1	97.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A82271
Included Lab Sample IDs: 1968993

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A82281
Included Lab Sample IDs: 1968993

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A82311
Included Lab Sample IDs: 1968992

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	97.7	P/P	90 - 110
Sulfate	101	96.5	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A82351
Included Lab Sample IDs: 1968992

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.7	96.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A82391
Included Lab Sample IDs: 1968993

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

Reference Method: SM 2320 B-97
Run ID: A82421
Included Lab Sample IDs: 1968992

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	96.7	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					3.29	
EPA 300.0 Rev. 2.1	Chloride	95.8	92.5	92.3		1.39	
	Sulfate	94.5	90.3	91.1		1.38	
EPA 350.1 Rev. 2.0	Ammonia-N	100	96.2	93.2			2.66
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	93.5	103			7.01
EPA 353.2 Rev. 2.0	NO2NO3-N	104	103	103			0.406
EPA 365.1 Rev. 2.0	Total-P	100	97.3	102			4.71
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	96.5	97.9			1.37
SM 2120 B	Color (true)					3.06	
SM 2320 B-97	Total Alkalinity	99.0				0.957	
SM 2540 C-97	TDS					3.33	
SM 4500 F-C-97	Fluoride	94.7					0.516
SM 5310 B-00	Organic Carbon	94.9	95.0	96.9			1.30

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1968992
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1968992
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1968992
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1968993

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1968993
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1968993
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1968993
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1968994
SM 2120 B / E31780	True Color measured at 450 nm	1968992
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1968992
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1968992
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1968992
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1968992
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1968993

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	02/20/2018			02/21/2018 15:50	Sima Feizi	1968992
EPA 300.0 Rev. 2.1	02/20/2018			02/22/2018	Julia Storbeck	1968992
EPA 350.1 Rev. 2.0	02/20/2018			03/01/2018	Ping Hua	1968993
EPA 351.2 Rev. 2.0	02/20/2018	02/23/2018	Adrian Shelby	02/26/2018	Joseph Suarez	1968993
EPA 353.2 Rev. 2.0	02/20/2018			02/23/2018	Beverly Y. Sanders	1968993
EPA 365.1 Rev. 2.0	02/20/2018	02/23/2018	Sima Feizi	02/26/2018	Beverly Y. Sanders	1968993
EPA 365.1 Rev. 2.0 dissolved	02/20/2018			02/20/2018 16:41	Megan Treadwell	1968994
SM 2120 B	02/20/2018			02/21/2018 14:36	Tanya Welborn	1968992
SM 2320 B-97	02/20/2018			03/04/2018	Dale L. Simmons	1968992
SM 2540 C-97	02/20/2018			02/21/2018	DeAsia Armster	1968992
SM 2540 D-97	02/20/2018			02/21/2018	DeAsia Armster	1968992
SM 4500 F-C-97	02/20/2018			02/28/2018	Dale L. Simmons	1968992
SM 5310 B-00	02/20/2018			02/24/2018	Megan Treadwell	1968993