Chemical Analysis Report

TLH-ROC-2018-02-01-02

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-2018-01-29-48**
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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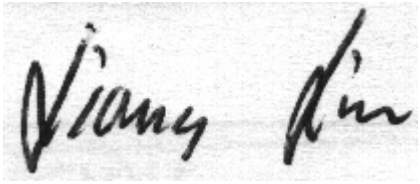
Certified by: Liang Lin, Environmental Administrator

Date Certified: 21-FEB-2018 15:00



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: LITTLE ALAPAHA @ US 129 **Collection Date/Time: 02/01/2018 11:10**

Field ID: G1TLHR0037 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1963840	EPA 180.1 Rev. 2.0	Turbidity	3.7		NTU	P339174	
	EPA 300.0 Rev. 2.1	Chloride	11		mg Cl/L	P339698	
		Sulfate	1.3		mg SO4/L	P339703	
	SM 2120 B	Color (true)	470		PCU	P339255	
	SM 2320 B-97	Total Alkalinity	14		mg CaCO3/L	P339612	
	SM 2540 C-97	TDS	165		mg/L	P339637	
	SM 2540 D-97	TSS	10	I	mg/L	P339535	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P339615	
1963841	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P339372	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P339426	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P339334	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P339341	
	SM 5310 B-00	Organic Carbon	54		mg C/L	P339521	
1963842	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P339201	

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: P339174

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339698

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339703

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339372

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339426

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: P339334

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339341

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339201

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

Reference Method: SM 2120 B
Batch ID: P339255

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P339612

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

Reference Method: SM 2540 C-97
Batch ID: P339637

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P339535

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P339615

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P339521

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: P339698

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	94.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339703

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	92.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339372

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339426

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	93.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339334

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: P339341

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339201

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.7		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P339612

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	97.4		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P339615

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.5		P	92 - 103

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P339521

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.0		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339698

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963940	Chloride	96.0		P	90 - 110
1963947	Chloride	96.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339703

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963940	Sulfate	94.2		P	90 - 110
1963947	Sulfate	95.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339372

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963757	Ammonia-N	100	96.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339426

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1964318	Kjeldahl Nitrogen	92.0	94.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339334

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963841	NO2NO3-N	98.4	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339341

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963895	Total-P	98.3	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339201

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963758	O-Phosphate-P	97.5	97.3	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P339615

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963898	Fluoride	94.2	91.9	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P339521

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1963629	Organic Carbon	94.2	95.6	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P339174

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963750	Turbidity	0.873	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339698

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963947	Chloride	2.83	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P339703

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963947	Sulfate	1.68	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P339372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963757	Ammonia-N	2.90	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P339426

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1964318	Kjeldahl Nitrogen	2.30	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339334

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits

Quality Assurance Report
Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P339334

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963841	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P339341

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963895	Total-P	2.88	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P339201

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963758	O-Phosphate-P	0.194	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P339255

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963824	Color (true)	0.578	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P339612

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963898	Total Alkalinity	0.0876	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P339637

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963751	TDS	7.59	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P339615

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963898	Fluoride	1.94	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P339521

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1963629	Organic Carbon	0.970	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: A81797
Included Lab Sample IDs: 1963840

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: A81805
Included Lab Sample IDs: 1963842

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.9	99.1	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A81826
Included Lab Sample IDs: 1963840

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	109	P/P	85 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A81855
Included Lab Sample IDs: 1963841

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A81866
Included Lab Sample IDs: 1963841

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A81871
Included Lab Sample IDs: 1963841

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A81900
Included Lab Sample IDs: 1963841

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.1	97.8	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A81915
Included Lab Sample IDs: 1963841

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.3	94.1	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A81946
Included Lab Sample IDs: 1963840

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.4	95.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A81946
Included Lab Sample IDs: 1963840

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	109	99.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A81969
Included Lab Sample IDs: 1963840

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.3	100	P/P	90 - 110
Sulfate	98.7	101	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					0.873	
EPA 300.0 Rev. 2.1	Chloride	94.1	96.3	96.0		2.83	
	Sulfate	92.2	95.5	94.2		1.68	
EPA 350.1 Rev. 2.0	Ammonia-N	99.1	100	96.3			2.90
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	93.9	92.0	94.5			2.30
EPA 353.2 Rev. 2.0	NO2NO3-N	106	98.4	98.4			0.0
EPA 365.1 Rev. 2.0	Total-P	99.2	98.3	102			2.88
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.7	97.5	97.3			0.194
SM 2120 B	Color (true)					0.578	
SM 2320 B-97	Total Alkalinity	97.4				0.0876	
SM 2540 C-97	TDS					7.59	
SM 4500 F-C-97	Fluoride	94.5	94.2	91.9			1.94
SM 5310 B-00	Organic Carbon	94.0	94.2	95.6			0.970

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1963840
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1963840
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1963840
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1963841
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1963841
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1963841
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1963841
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1963842
SM 2120 B / E31780	True Color measured at 450 nm	1963840
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1963840
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1963840
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1963840
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1963840
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1963841

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	02/01/2018			02/01/2018 16:00	DeAsia Armster	1963840
EPA 300.0 Rev. 2.1	02/01/2018			02/09/2018	Julia Storbeck	1963840
EPA 350.1 Rev. 2.0	02/01/2018			02/05/2018	Ping Hua	1963841
EPA 351.2 Rev. 2.0	02/01/2018	02/07/2018	Adrian Shelby	02/07/2018	Joseph Suarez	1963841
EPA 353.2 Rev. 2.0	02/01/2018			02/05/2018	Lauren Bottorf	1963841
EPA 365.1 Rev. 2.0	02/01/2018	02/05/2018	Sima Feizi	02/06/2018	Beverly Y. Sanders	1963841
EPA 365.1 Rev. 2.0 dissolved	02/01/2018			02/01/2018 16:01	Megan Treadwell	1963842
SM 2120 B	02/01/2018			02/02/2018 16:18	Tanya Welborn	1963840
SM 2320 B-97	02/01/2018			02/08/2018	Lauren Bottorf	1963840
SM 2540 C-97	02/01/2018			02/02/2018	DeAsia Armster	1963840
SM 2540 D-97	02/01/2018			02/02/2018	DeAsia Armster	1963840
SM 4500 F-C-97	02/01/2018			02/08/2018	Lauren Bottorf	1963840
SM 5310 B-00	02/01/2018			02/07/2018	Megan Treadwell	1963841