Chemical Analysis Report

TLH-ROC-2018-01-04-01

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

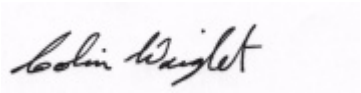
Event Description: **kit A w/ bacteria**
Request ID: **RQ-2018-01-01-24**
Customer: **TLH-ROC**
Project ID: **SMP**

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

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: Colin Wright, Program Administrator

Date Certified: 19-JAN-2018 09:30



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: BAILEY MILL CRK @ WILSON RD. **Collection Date/Time: 01/04/2018 11:30**

Field ID: G1TLHR0081 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1957506	EPA 180.1 Rev. 2.0	Turbidity	0.70		NTU	P337838	
	EPA 300.0 Rev. 2.1	Chloride	8.8		mg Cl/L	P338061	
		Sulfate	0.20	U	mg SO4/L	P338063	
	SM 2120 B	Color (true)	74		PCU	P337832	
	SM 2320 B-97	Total Alkalinity	63		mg CaCO3/L	P338204	
	SM 2540 C-97	TDS	109		mg/L	P337964	
	SM 2540 D-97	TSS	2	UA	mg/L	P337934	
	SM 4500 F-C-97	Fluoride	0.056	I	mg F/L	P338207	
1957507	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P337927	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.47		mg N/L	P337891	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P337897	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P337895	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P337948	
1957508	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.011		mg P/L	P337835	

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: P337838

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338061

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338063

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P337927

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P337891

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: P337897

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P337895

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P337835

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

Reference Method: SM 2120 B
Batch ID: P337832

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P338204

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

Reference Method: SM 2540 C-97
Batch ID: P337964

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P337934

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P338207

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P337948

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: P338061

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338063

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P337927

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P337891

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P337897

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P337895

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: P337835

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

Reference Method: SM 2320 B-97
Batch ID: P338204

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

Reference Method: SM 4500 F-C-97
Batch ID: P338207

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.6		P	92 - 103

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P337948

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338061

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1957421	Chloride	97.3		P	90 - 110
1957422	Chloride	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338063

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1957421	Sulfate	98.5		P	90 - 110
1957422	Sulfate	97.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P337927

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1957479	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P337891

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1957497	Kjeldahl Nitrogen	98.3	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P337897

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1957425	NO2NO3-N	101	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P337895

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1957497	Total-P	102	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P337835

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1957508	O-Phosphate-P	95.6	97.7	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P338207

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1957739	Fluoride	95.5	96.1	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P337948

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1957425	Organic Carbon	96.4	96.0	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P337838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957424	Turbidity	3.35	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338061

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957421	Chloride	0.186	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338063

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957421	Sulfate	1.15	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P337927

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957479	Ammonia-N	0.530	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P337891

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957497	Kjeldahl Nitrogen	3.84	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P337897

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: P337897

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957425	NO2NO3-N	1.37	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P337895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957497	Total-P	3.42	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P337835

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957508	O-Phosphate-P	1.95	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P337832

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957424	Color (true)	2.14	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P338204

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957739	Total Alkalinity	0.401	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P337964

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957476	TDS	0.837	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P338207

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957739	Fluoride	0.513	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P337948

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1957425	Organic Carbon	0.385	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: SM 2120 B
Run ID: A81291
Included Lab Sample IDs: 1957506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.3	99.8	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A81292
Included Lab Sample IDs: 1957508

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.2	99.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A81293
Included Lab Sample IDs: 1957506

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A81321
Included Lab Sample IDs: 1957507

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	98.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A81332
Included Lab Sample IDs: 1957507

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A81335
Included Lab Sample IDs: 1957507

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	100	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A81348
Included Lab Sample IDs: 1957507

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.7	96.8	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A81384
Included Lab Sample IDs: 1957507

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A81397
Included Lab Sample IDs: 1957506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	102	P/P	90 - 110
Sulfate	99.3	101	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A81446
Included Lab Sample IDs: 1957506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.6	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A81446
Included Lab Sample IDs: 1957506

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.1	100	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					3.35	
EPA 300.0 Rev. 2.1	Chloride	102	97.3	97.6		0.186	
	Sulfate	101	98.5	97.6		1.15	
EPA 350.1 Rev. 2.0	Ammonia-N	101	101	101			0.530
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	98.3	103			3.84
EPA 353.2 Rev. 2.0	NO2NO3-N	103	101	98.8			1.37
EPA 365.1 Rev. 2.0	Total-P	101	102	97.4			3.42
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.4	95.6	97.7			1.95
SM 2120 B	Color (true)					2.14	
SM 2320 B-97	Total Alkalinity	103				0.401	
SM 2540 C-97	TDS					0.837	
SM 4500 F-C-97	Fluoride	96.6	95.5	96.1			0.513
SM 5310 B-00	Organic Carbon	95.5	96.4	96.0			0.385

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1957506
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1957506
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1957506
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1957507
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1957507
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1957507
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1957507
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1957508
SM 2120 B / E31780	True Color measured at 450 nm	1957506
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1957506
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1957506
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1957506
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1957506
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1957507

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	01/04/2018			01/04/2018 15:25	DeAsia Armster	1957506
EPA 300.0 Rev. 2.1	01/04/2018			01/10/2018	Julia Storbeck	1957506
EPA 350.1 Rev. 2.0	01/04/2018			01/08/2018	Sofia Elnemr	1957507
EPA 351.2 Rev. 2.0	01/04/2018	01/08/2018	Adrian Shelby	01/09/2018	Joseph Suarez	1957507
EPA 353.2 Rev. 2.0	01/04/2018			01/08/2018	Beverly Y. Sanders	1957507
EPA 365.1 Rev. 2.0	01/04/2018	01/08/2018	Sima Feizi	01/10/2018	Lipi Saha	1957507
EPA 365.1 Rev. 2.0 dissolved	01/04/2018			01/04/2018 15:42	Megan Treadwell	1957508
SM 2120 B	01/04/2018			01/04/2018 15:20	Tanya Welborn	1957506
SM 2320 B-97	01/04/2018			01/12/2018	Dale L. Simmons	1957506
SM 2540 C-97	01/04/2018			01/05/2018	DeAsia Armster	1957506
SM 2540 D-97	01/04/2018			01/05/2018	DeAsia Armster	1957506
SM 4500 F-C-97	01/04/2018			01/12/2018	Dale L. Simmons	1957506
SM 5310 B-00	01/04/2018			01/09/2018	Megan Treadwell	1957507