

Chemical Analysis Report

TLH-ROC-2018-01-09-01

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: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 26-JAN-2018 14:57



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: 01/09/2018 13:00

Field ID: G1TLHR0037

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1958053	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P337971	
	EPA 300.0 Rev. 2.1	Chloride	10		mg Cl/L	P338150	
		Sulfate	0.89		mg SO4/L	P338153	
	SM 2120 B	Color (true)	420		PCU	P338054	
	SM 2320 B-97	Total Alkalinity	20		mg CaCO3/L	P338229	
	SM 2540 C-97	TDS	147		mg/L	P338387	
	SM 2540 D-97	TSS	2	I	mg/L	P338546	
	SM 4500 F-C-97	Fluoride	0.13		mg F/L	P338237	
1958054	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P338304	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P338078	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P338175	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P338086	
	SM 5310 B-00	Organic Carbon	55		mg C/L	P338219	
1958055	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.088		mg P/L	P338051	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 350.1 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

SM 5310 B-00: 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: P337971

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P338150

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P338153

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P338304

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P338078

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: P338175

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338086

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338051

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

Reference Method: SM 2120 B
Batch ID: P338054

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P338229

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

Reference Method: SM 2540 C-97
Batch ID: P338387

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P338546

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P338237

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P338219

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: P338150

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338153

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P338304

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: P338078

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: P338175

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338086

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338051

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: P338229

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P338237

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.0		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P338219

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338150

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1958068	Chloride	92.8		P	90 - 110
1958192	Chloride	97.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338153

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1958068	Sulfate	92.2		P	90 - 110
1958192	Sulfate	93.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1958025	Kjeldahl Nitrogen	103	98.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338175

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1958475	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338086

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1958136	Total-P	99.4	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338051

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1958055	O-Phosphate-P	95.5	96.5	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P338237

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1958023	Fluoride	98.5	98.5	P/P	91 - 105

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P337971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1958023	Turbidity	2.06	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338150

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1958192	Chloride	4.36	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P338153

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1958192	Sulfate	3.71	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P338304

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1958024	Ammonia-N	2.21	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P338078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1958025	Kjeldahl Nitrogen	2.42	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P338175

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1958475	NO2NO3-N	0.897	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P338086

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1958136	Total-P	0.985	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P338051

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1958055	O-Phosphate-P	0.543	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
 Batch ID: P338054

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1958059	Color (true)	1.13	Sample	P	0 - 20

Reference Method: SM 2320 B-97
 Batch ID: P338229

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1958023	Total Alkalinity	0.150	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
 Batch ID: P338387

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1958059	TDS	4.78	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P338237

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1958023	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P338219

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1958054	Organic Carbon	0.311	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

Reference Method: EPA 180.1 Rev. 2.0
 Run ID: A81353
 Included Lab Sample IDs: 1958053

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Run ID: A81395
 Included Lab Sample IDs: 1958055

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.5	98.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A81396
Included Lab Sample IDs: 1958053

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	103	P/P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A81397
Included Lab Sample IDs: 1958053

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	93.7	99.7	P/P	90 - 110
Sulfate	94.7	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A81432
Included Lab Sample IDs: 1958054

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A81434
Included Lab Sample IDs: 1958054

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A81440
Included Lab Sample IDs: 1958054

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	99.0	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A81452
Included Lab Sample IDs: 1958053

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	99.5	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A81452
Included Lab Sample IDs: 1958053

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

Reference Method: SM 5310 B-00
Run ID: A81454
Included Lab Sample IDs: 1958054

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.9	97.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A81474

Included Lab Sample IDs: 1958054

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	102	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				2.06	
EPA 300.0 Rev. 2.1	Chloride	99.1	97.0 92.8		4.36	
	Sulfate	99.0	93.6 92.2		3.71	
EPA 350.1 Rev. 2.0	Ammonia-N	101				2.21
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	103 98.6			2.42
EPA 353.2 Rev. 2.0	NO2NO3-N	100	101 102			0.897
EPA 365.1 Rev. 2.0	Total-P	103	99.4 98.4			0.985
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.7	95.5 96.5			0.543
SM 2120 B	Color (true)				1.13	
SM 2320 B-97	Total Alkalinity	102			0.150	
SM 2540 C-97	TDS				4.78	
SM 4500 F-C-97	Fluoride	98.0	98.5 98.5			0.0
SM 5310 B-00	Organic Carbon	99.8				0.311

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1958053
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1958053
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1958053
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1958054
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1958054
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1958054
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1958054
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1958055
SM 2120 B / E31780	True Color measured at 450 nm	1958053
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1958053
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1958053
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1958053
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1958053
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1958054

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	01/09/2018			01/09/2018 15:49	DeAsia Armster	1958053
EPA 300.0 Rev. 2.1	01/09/2018			01/12/2018	Julia Storbeck	1958053
EPA 350.1 Rev. 2.0	01/09/2018			01/16/2018	Sofia Elnemr	1958054
EPA 351.2 Rev. 2.0	01/09/2018	01/11/2018	Adrian Shelby	01/12/2018	Joseph Suarez	1958054
EPA 353.2 Rev. 2.0	01/09/2018			01/12/2018	Lauren Bottorf	1958054
EPA 365.1 Rev. 2.0	01/09/2018	01/11/2018	Sima Feizi	01/12/2018	Beverly Y. Sanders	1958054
EPA 365.1 Rev. 2.0 dissolved	01/09/2018			01/10/2018 16:19	Megan Treadwell	1958055
SM 2120 B	01/09/2018			01/10/2018 17:15	Tanya Welborn	1958053
SM 2320 B-97	01/09/2018			01/13/2018	Dale L. Simmons	1958053
SM 2540 C-97	01/09/2018			01/13/2018	Yijie Li	1958053
SM 2540 D-97	01/09/2018			01/13/2018	Yijie Li	1958053
SM 4500 F-C-97	01/09/2018			01/13/2018	Dale L. Simmons	1958053
SM 5310 B-00	01/09/2018			01/11/2018	Megan Treadwell	1958054