

Chemical Analysis Report

WQAP-2016-07-28-02

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

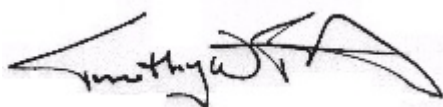
Event Description: **Ochlockonee River, Harbinwood Estates Drain and Chicken Branch**
Request ID: **RQ-2016-07-25-48**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
MS #3560
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Attn: Katrina Sanders

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Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 19-AUG-2016 11:17

A handwritten signature in black ink, appearing to read "Timothy W. Fitzpatrick", with a stylized flourish at the end.

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: CHICKEN BRANCH @ OLD PLANK RD.

Collection Date/Time: 07/28/2016 08:25

Field ID: G1WA0031-07282016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1819837	EPA 180.1 Rev. 2.0	Turbidity	0.55		NTU	P308804	
	EPA 300.0 Rev. 2.1	Chloride	5.8		mg Cl/L	P309376	
	SM 2120 B	Color (true)	12		PCU	P308810	
	SM 2320 B-97	Total Alkalinity	135		mg CaCO3/L	P308919	
	SM 2540 C-97	TDS	175		mg/L	P309555	
	SM 2540 D-97	TSS	2	U	mg/L	P309445	
	SM 4500 F-C-97	Fluoride	0.17		mg F/L	P308922	
1819838	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P308957	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.13	I	mg N/L	P309245	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P309034	
	EPA 365.1 Rev. 2.0	Total-P	0.055		mg P/L	P309283	
	SM 5310 B-00	Organic Carbon	1.7		mg C/L	P309198	
1819839	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.049		mg P/L	P308824	

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: P308804

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P309376

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P308957

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P309245

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P309034

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309283

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P308824

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

Reference Method: SM 2120 B
Batch ID: P308810

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P308919

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

Reference Method: SM 2540 C-97
Batch ID: P309555

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P309445

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P308922

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P309198

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: P309376

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309376

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308957

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309245

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: P309034

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	105		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309283

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P308824

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

Reference Method: SM 2320 B-97
Batch ID: P308919

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

Reference Method: SM 4500 F-C-97
Batch ID: P308922

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P309198

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309376

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1819651	Chloride	98.1		P	90 - 110
1822305	Chloride	95.4	95.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308957

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1819838	Ammonia-N	97.5	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309245

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1819816	Kjeldahl Nitrogen	91.9	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309034

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1819838	NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309283

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1819838	Total-P	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P308824

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1819839	O-Phosphate-P	97.6	98.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P308922

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1819631	Fluoride	98.0	98.5	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P309198

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1819637	Organic Carbon	106	106	P/P	85 - 115

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P308804

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1819775	Turbidity	5.17	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P309376

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1822305	Chloride	0.0134	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P308957

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1819838	Ammonia-N	1.25	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P309245

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1819816	Kjeldahl Nitrogen	5.79	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P309034

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1819838	NO2NO3-N	0.469	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P309283

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1819838	Total-P	0.0417	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P308824

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1819839	O-Phosphate-P	0.340	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P308810

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1819815	Color (true)	0.229	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P308919

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1819631	Total Alkalinity	0.260	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P309555

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1819780	TDS	1.71	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P308922

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1819631	Fluoride	0.482	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P309198

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1819637	Organic Carbon	0.497	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: A70811
Included Lab Sample IDs: 1819837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	100	P/P	95 - 105

Reference Method: SM 2120 B
Run ID: A70813
Included Lab Sample IDs: 1819837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	99.6	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A70815
Included Lab Sample IDs: 1819839

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.8	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A70856
Included Lab Sample IDs: 1819837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A70856
Included Lab Sample IDs: 1819837

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A70871
Included Lab Sample IDs: 1819838

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.9	99.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A70885
Included Lab Sample IDs: 1819837

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A70894
Included Lab Sample IDs: 1819838

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

Reference Method: SM 5310 B-00
Run ID: A70945
Included Lab Sample IDs: 1819838

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	102	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A70992
Included Lab Sample IDs: 1819838

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A71014
Included Lab Sample IDs: 1819838

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.2	93.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

* 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 SMP	MS
			LCS	MS	MS		
EPA 180.1 Rev. 2.0	Turbidity					5.17	
EPA 300.0 Rev. 2.1	Chloride	97.9	95.4	95.4	98.1		0.0134
EPA 350.1 Rev. 2.0	Ammonia-N	98.9	97.5	99.2			1.25
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	105	91.9	102			5.79
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	105	104				0.469
EPA 365.1 Rev. 2.0	Total-P	102	106	106			0.0417
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	97.6	98.1			0.340
SM 2120 B	Color (true)					0.229	
SM 2320 B-97	Total Alkalinity	103				0.260	
SM 2540 C-97	TDS					1.71	
SM 4500 F-C-97	Fluoride	101	98.0	98.5			0.482
SM 5310 B-00	Organic Carbon	102	106	106			0.497

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1819837
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1819837
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1819838
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1819838
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1819838
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1819838
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1819839
SM 2120 B / E31780	True Color measured at 450 nm	1819837
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1819837
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1819837
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1819837
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1819837
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1819838

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	07/28/2016			07/28/2016 14:56	Sima Feizi	1819837
EPA 300.0 Rev. 2.1	07/28/2016			08/05/2016	Ping Hua	1819837
EPA 350.1 Rev. 2.0	07/28/2016			08/01/2016	Julie Michelle Frank	1819838
EPA 351.2 Rev. 2.0	07/28/2016	08/05/2016	Sofia Elnemr	08/09/2016	Virginia P. Brown	1819838
EPA 353.2 Rev. 2.0	07/28/2016			08/02/2016	Peter D. Kaus	1819838
EPA 365.1 Rev. 2.0	07/28/2016	08/05/2016	Vijayalakshmi Reddy	08/08/2016	Lipi Saha	1819838
EPA 365.1 Rev. 2.0 dissolved	07/28/2016			07/28/2016 16:15	Julia Storbeck	1819839
SM 2120 B	07/28/2016			07/28/2016 15:09	Blanca Fach	1819837
SM 2320 B-97	07/28/2016			07/30/2016	Dale L. Simmons	1819837
SM 2540 C-97	07/28/2016			08/01/2016	Sima Feizi	1819837
SM 2540 D-97	07/28/2016			08/01/2016	Sima Feizi	1819837
SM 4500 F-C-97	07/28/2016			07/30/2016	Dale L. Simmons	1819837
SM 5310 B-00	07/28/2016			08/04/2016	Sofia Elnemr	1819838