

Chemical Analysis Report

WTRSHD-MGT-2012-02-02-02

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

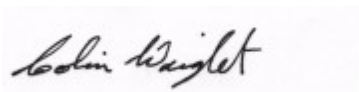
Event Description: **TMDL Sampling - Merritts Mill Pond SURFACE WATER**
Request ID: **RQ-2012-01-23-37**
Customer: **WTRSHD-MGT**
Project ID: **GRNT-10608**

Send Reports to:
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Certified by: Colin Wright, Environmental Administrator

Date Certified: 17-FEB-2012 15:25



Abbreviations and data remark codes

CERT # - NELAP (National Environmental Laboratory Accreditation Program) Certification Number of the laboratory that performed the analysis.

LCS – Laboratory Control Sample; in the QC Failures column, this notation indicates a batch recovery failure.

MS – Matrix Spike; in the QC Failures column, this notation indicates a batch recovery failure.

RPD – Relative Percent Difference; in the QC Failures column, this notation indicates a batch failure for precision.

CCV – Continuing Calibration Verification; in the QC Failures column, this notation indicates a failure of the calibration verification check sample.

RSD – Relative Standard Deviation expressed as a percentage.

SMP – Sample.

** - The laboratory is not NELAP certified for this analyte/method, or certification is not applicable.

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

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).

Precision is reported as relative percent difference unless otherwise noted.

Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published test performance acceptance criteria.

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.

All sample collection performed by Bureau of Laboratories staff followed the field Standard Operating Procedures adopted by reference in Rule 62-160 FAC unless otherwise noted.

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.

Results for NELAP accredited tests contained in this report meet the requirements specified by the National Environmental Laboratory Accreditation Conference (NELAC). All samples received were in acceptable condition and met NELAC requirements unless otherwise noted. Results generated in this report pertain to the samples collected and submitted for analysis.

Job: TLH-2012-02-02-06

Group: Nutrients

Job: TLH-2012-02-02-07

Group: Metals

Sample Location: MMP-1**Collection Date/Time: 02/01/2012 01:27 PM****Field ID: MMP-1****Matrix: W-OTHER**

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Failures
1406026	EPA 180.1 Rev. 2.0	Turbidity	0.50		NTU	P235645	
	EPA 300.0 Rev. 2.1	Chloride	4.4		mg Cl/L	P235981	
		Sulfate	1.4		mg SO4/L	P235972	
	SM 2120 B	Color (true)	2.5	U	PCU	P235628	
	SM 2320 B-97	Alkalinity	122	A	mg CaCO3/L	P235866	
	SM 2540 C-97	TDS	162	A	mg/L	P235957	
	SM 2540 D-97	TSS	2	I	mg/L	P235842	
	SM 4500 F-C-97	Fluoride	0.038	I	mg F/L	P235799	
1406027	EPA 350.1 Rev. 2.0	Ammonia-N	0.015	I	mg N/L	P235682	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.14	I	mg N/L	P235750	
	EPA 353.2 Rev. 2.0	NO2NO3-N	3.5		mg N/L	P235695	
	EPA 365.1 Rev. 2.0	Total-P	0.019		mg P/L	P235738	
	SM 5310 B-00	Organic Carbon	1.0	U	mg C/L	P235947	
1406028	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.017		mg P/L	P235665	
1406029	EPA 200.7 Rev. 4.4	Boron	15	U	ug/L	P236031	
		Potassium	0.39	I	mg/L	P236031	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: One of the matrix spike recoveries is unavailable due to high analyte concentration in the QC sample.

SM 2120 B: The precision data is unavailable due to the low analyte concentration in the QC sample.

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0**Batch ID: P235645**

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4**Batch ID: P236031**

Component	Result	Code	Units
Boron	15	U	ug/L
Potassium	0.30	U	mg/L

Reference Method: EPA 300.0 Rev. 2.1**Batch ID: P235972**

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1**Batch ID: P235981**

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report

Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P235682

Component	Result	Code	Units
Ammonia-N	0.010	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P235750

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P235695

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P235738

Component	Result	Code	Units
Total-P	0.004	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P235665

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

Reference Method: SM 2120 B

Batch ID: P235628

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97

Batch ID: P235866

Component	Result	Code	Units
Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-97

Batch ID: P235957

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97

Batch ID: P235842

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97

Batch ID: P235799

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00

Batch ID: P235947

Component	Result	Code	Units
Organic Carbon	1.0	U	mg C/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P236031

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Boron	96.8		P	85 - 115
Potassium	104		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P235972

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

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P235981

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P235682

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P235750

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P235695

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P235738

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: P235665

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.4		P	90 - 110

Reference Method: SM 2320 B-97

Batch ID: P235866

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Alkalinity	100		P	85 - 115

Reference Method: SM 4500 F-C-97

Batch ID: P235799

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.4		P	85 - 115

Reference Method: SM 5310 B-00

Batch ID: P235947

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P236031

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1406008	Boron	103	105	P/P	80 - 120
1406008	Potassium	104	103	P/P	80 - 120
1406400	Boron	103		P	80 - 120
1406400	Potassium	103		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P235972

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1406026	Sulfate	94.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P235981

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1406026	Chloride	97.0		P	90 - 110
1406148	Chloride	96.7	96.6	P/P	90 - 110

Quality Assurance Report

Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P235682

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1406017	Ammonia-N	94.4	97.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P235750

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1406079	Kjeldahl Nitrogen	105	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P235695

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1405972	NO2NO3-N	96.0	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P235665

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1406007	O-Phosphate-P	96.2	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Batch ID: P235799

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1406026	Fluoride	98.6	99.1	P/P	85 - 115

Reference Method: SM 5310 B-00

Batch ID: P235947

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1406105	Organic Carbon	98.6	99.0	P/P	85 - 115

Quality Assurance Report

Precision

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P235645

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1406072	Turbidity	0.653	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P236031

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1406008	Boron	1.86	Spike	P	0 - 20
1406008	Potassium	1.47	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P235972

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1406148	Sulfate	0.731	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P235981

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1406148	Chloride	0.0110	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P235682

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1406017	Ammonia-N	3.48	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P235750

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1406079	Kjeldahl Nitrogen	0.389	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P235695

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1405972	NO2NO3-N	2.65	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0

Batch ID: P235738

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1406004	Total-P	1.33	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Batch ID: P235665

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1406007	O-Phosphate-P	3.69	Spike	P	0 - 20

Reference Method: SM 2320 B-97

Batch ID: P235866

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1406015	Alkalinity	0.930	Sample	P	0 - 20
1406026	Alkalinity	0.852	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2540 C-97

Batch ID: P235957

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1406026	TDS	4.33	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97

Batch ID: P235799

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1406026	Fluoride	0.519	Spike	P	0 - 20

Reference Method: SM 5310 B-00

Batch ID: P235947

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1406105	Organic Carbon	0.373	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: SM 2120 B

Run ID: A43356

Included Lab Sample IDs: 1406026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	95.0	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A43360

Included Lab Sample IDs: 1406026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	102	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A43367

Included Lab Sample IDs: 1406028

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.0	98.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A43375

Included Lab Sample IDs: 1406027

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.6	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A43403

Included Lab Sample IDs: 1406027

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	97.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A43411

Included Lab Sample IDs: 1406027

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.6	96.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A43420

Included Lab Sample IDs: 1406027

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A43431

Included Lab Sample IDs: 1406026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.5	P/P	85 - 115

Reference Method: SM 2320 B-97

Run ID: A43464

Included Lab Sample IDs: 1406026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Alkalinity	98.2	99.7	P/P	85 - 115

Reference Method: SM 5310 B-00

Run ID: A43504

Included Lab Sample IDs: 1406027

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	105	104	P/P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A43516

Included Lab Sample IDs: 1406026

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	98.3	97.4	P/P	90 - 110
Sulfate	104	94.7	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A43543

Included Lab Sample IDs: 1406029

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Boron	99.0	97.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A43543

Included Lab Sample IDs: 1406029

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Potassium	102	104	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				0.653	
EPA 200.7 Rev. 4.4	Boron	96.8	103 105 103			1.86
	Potassium	104	104 103 103			1.47
EPA 300.0 Rev. 2.1	Chloride	97.3	96.7 96.6 97.0			0.0110
	Sulfate	97.4	94.0			0.731
EPA 350.1 Rev. 2.0	Ammonia-N	98.3	94.4 97.9			3.48
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	91.9	105 106			0.389
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5	96.0 99.0			2.65
EPA 365.1 Rev. 2.0	Total-P	103				1.33
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.4	96.2 102			3.69
SM 2320 B-97	Alkalinity	100			0.852 0.930	
SM 2540 C-97	TDS				4.33	
SM 4500 F-C-97	Fluoride	99.4	98.6 99.1			0.519
SM 5310 B-00	Organic Carbon	94.6	98.6 99.0			0.373

Reference Method Descriptions

Method / NELAC Cert. #	Description
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L
SM 2120 B / E31780	True Color measured at 450 nm or Apparent Color
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices

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	02/02/2012			02/02/2012 16:31	Bryan A. Werth	1406026
EPA 200.7 Rev. 4.4	02/02/2012	02/08/2012	Elliott D. Healy	02/14/2012	Elisa J Lutz	1406029
EPA 300.0 Rev. 2.1	02/02/2012			02/07/2012	Gary Dearman	1406026
EPA 350.1 Rev. 2.0	02/02/2012			02/03/2012	Diana M. Dunbar	1406027
EPA 351.2 Rev. 2.0	02/02/2012	02/03/2012	Bryan A. Werth	02/06/2012	Pallavi R. Gadwal	1406027
EPA 353.2 Rev. 2.0	02/02/2012			02/07/2012	Sima Feizi	1406027
EPA 365.1 Rev. 2.0	02/02/2012	02/03/2012	Pallavi R. Gadwal	02/06/2012	Megan E. Faircloth	1406027
EPA 365.1 Rev. 2.0 dissolved	02/02/2012			02/02/2012 14:43	Pallavi R. Gadwal	1406028
SM 2120 B	02/02/2012			02/02/2012 12:42	Rochelle Y Jackson	1406026
SM 2320 B-97	02/02/2012			02/09/2012	Dale L. Simmons	1406026
SM 2540 C-97	02/02/2012			02/06/2012	Yijie Li	1406026
SM 2540 D-97	02/02/2012			02/06/2012	Yijie Li	1406026
SM 4500 F-C-97	02/02/2012			02/07/2012	Dale L. Simmons	1406026
SM 5310 B-00	02/02/2012			02/13/2012	Rochelle Y Jackson	1406027