

Chemical Analysis Report

WTRSHD-MGT-2011-04-27-01

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

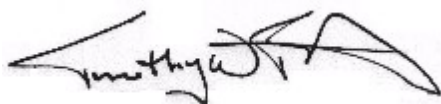
Event Description: **Merritts Mill Springs**
Request ID: **RQ-2011-04-04-06**
Customer: **WTRSHD-MGT**
Project ID: **SPG_QTR_WQ**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd.
Tallahassee, FL 32399-2400
Attn: Kathryn Holland

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Certified by: Timothy Fitzpatrick, Program Administrator

Date Certified: 19-MAY-2011 13:37

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

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.

* - Item was outside the QC Limits.

** - 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-2011-04-27-45

Group: Nutrients

Job: TLH-2011-04-27-46

Group: Metals

Sample Location: BLANK # 1**Collection Date/Time: 04/26/2011 01:30 PM****Field ID: BLANK # 1****Matrix: W-FIELD-BK**

Sample ID	Ref. Method	Component	Result	Code	QC Failures	Units	Cert #
1346989	EPA 300.0 Rev. 2.1	Chloride	0.20	U		mg Cl/L	E31780
		Sulfate	0.20	U		mg SO4/L	
	SM 2120 B	Color (apparent)	5	U		PCU	
	SM 2320 B-97	Alkalinity	0.65	U		mg CaCO3/L	
	SM 2540 C-97	TDS	15	U		mg/L	
	SM 2540 D-97	TSS	4	U		mg/L	
	SM 4500 F-C-97	Fluoride	0.035	U		mg F/L	
1346993	EPA 350.1 Rev. 2.0	Ammonia-N	0.010	U		mg N/L	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U		mg N/L	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U		mg N/L	
	EPA 365.1 Rev. 2.0	Total-P	0.004	U		mg P/L	
	SM 5310 B-00	Organic Carbon	1.0	U		mg C/L	
1346997	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U		mg P/L	
1347001	EPA 200.7 Rev. 4.4	Boron	15	U		ug/L	
		Calcium	0.075	U		mg/L	
		Iron	30	U		ug/L	
		Magnesium	0.040	U		mg/L	
		Manganese	1.0	U		ug/L	
		Potassium	0.30	U		mg/L	
		Sodium	0.50	U		mg/L	
		Strontium	2.0	U		ug/L	
		Zinc	5.0	U		ug/L	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U		ug/L	
		Arsenic	0.25	U		ug/L	
		Barium	0.20	U		ug/L	
		Silica	0.10	U		mg/L	

Ref. Method and Comment:

SM 2120 B: The precision data is unavailable due to the small amount of analyte in the QC sample. The pH of the aliquot used to measure the color is between 4 and 10 units. This value does not represent the field pH.

SM 2540 D-97: The precision data is unavailable due to the small amount of analyte in the QC sample.

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

Sample Location: HEIDI HOLE**Collection Date/Time: 04/26/2011 12:46 PM****Field ID: 9447****Matrix: W-SURF-FRH**

Sample ID	Ref. Method	Component	Result	Code	QC Failures	Units	Cert #
1346987	EPA 300.0 Rev. 2.1	Chloride	6.2			mg Cl/L	E31780
		Sulfate	2.2			mg SO4/L	
	SM 2120 B	Color (apparent)	5	U		PCU	
	SM 2320 B-97	Alkalinity	165			mg CaCO3/L	
	SM 2540 C-97	TDS	187			mg/L	
	SM 2540 D-97	TSS	5	I		mg/L	
	SM 4500 F-C-97	Fluoride	0.099	I		mg F/L	
1346991	EPA 350.1 Rev. 2.0	Ammonia-N	0.010	U		mg N/L	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	I		mg N/L	

Field ID: 9447

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	QC Failures	Units	Cert #
1346991	EPA 353.2 Rev. 2.0	NO2NO3-N	2.6			mg N/L	E31780
	EPA 365.1 Rev. 2.0	Total-P	0.030			mg P/L	
	SM 5310 B-00	Organic Carbon	1.0	U		mg C/L	
1346995	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.035			mg P/L	
1346999	EPA 200.7 Rev. 4.4	Boron	19	I		ug/L	
		Calcium	64.2			mg/L	
		Iron	30	U		ug/L	
		Magnesium	5.22			mg/L	
		Manganese	1.0	U		ug/L	
		Potassium	0.37	I		mg/L	
		Sodium	3.1			mg/L	
		Strontium	87.6			ug/L	
		Zinc	5.0	U		ug/L	
	EPA 200.8 Rev. 5.4	Aluminum	13	I		ug/L	
		Arsenic	0.42	I		ug/L	
		Barium	11.9			ug/L	
1347003	EPA 200.7 Rev. 4.4 dissolved	Silica	9.02			mg/L	

Ref. Method and Comment:

SM 2120 B: The precision data is unavailable due to the small amount of analyte in the QC sample. The pH of the aliquot used to measure the color is between 4 and 10 units. This value does not represent the field pH.

SM 2540 D-97: The precision data is unavailable due to the small amount of analyte in the QC sample.

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

Sample Location: HOLE IN THE WALL

Collection Date/Time: 04/26/2011 02:26 PM

Field ID: 9445

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	QC Failures	Units	Cert #
1346988	EPA 300.0 Rev. 2.1	Chloride	6.0			mg Cl/L	E31780
		Sulfate	2.4			mg SO4/L	
	SM 2120 B	Color (apparent)	5	U		PCU	
	SM 2320 B-97	Alkalinity	143	A		mg CaCO3/L	
	SM 2540 C-97	TDS	161	A		mg/L	
	SM 2540 D-97	TSS	4	U		mg/L	
	SM 4500 F-C-97	Fluoride	0.067	I		mg F/L	
1346992	EPA 350.1 Rev. 2.0	Ammonia-N	0.010	U		mg N/L	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.11	I		mg N/L	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.6			mg N/L	
	EPA 365.1 Rev. 2.0	Total-P	0.020			mg P/L	
	SM 5310 B-00	Organic Carbon	1.0	U		mg C/L	
1346996	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.023			mg P/L	
1347000	EPA 200.7 Rev. 4.4	Boron	17	I		ug/L	
		Calcium	50.8			mg/L	
		Iron	30	U		ug/L	
		Magnesium	5.86			mg/L	
		Manganese	1.7	I		ug/L	

Field ID: 9445

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	QC Failures	Units	Cert #
1347000	EPA 200.7 Rev. 4.4	Potassium	0.37	I		mg/L	E31780
		Sodium	3.3			mg/L	
		Strontium	60.3			ug/L	
		Zinc	5.0	U		ug/L	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U		ug/L	
		Arsenic	0.38	I		ug/L	
		Barium	10.3			ug/L	
1347004	EPA 200.7 Rev. 4.4 dissolved	Silica	7.91			mg/L	

Ref. Method and Comment:

SM 2120 B: The precision data is unavailable due to the small amount of analyte in the QC sample. The pH of the aliquot used to measure the color is between 4 and 10 units. This value does not represent the field pH.

SM 2540 D-97: The precision data is unavailable due to the small amount of analyte in the QC sample.

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

Sample Location: TWIN CAVE**Collection Date/Time: 04/26/2011 11:56 AM****Field ID: 8666**

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	QC Failures	Units	Cert #
1346986	EPA 300.0 Rev. 2.1	Chloride	5.0			mg Cl/L	E31780
		Sulfate	2.9			mg SO4/L	
	SM 2120 B	Color (apparent)	5	U		PCU	
	SM 2320 B-97	Alkalinity	161			mg CaCO3/L	
	SM 2540 C-97	TDS	174			mg/L	
	SM 2540 D-97	TSS	4	U		mg/L	
	SM 4500 F-C-97	Fluoride	0.083	I		mg F/L	
1346990	EPA 350.1 Rev. 2.0	Ammonia-N	0.010	U		mg N/L	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.089	I		mg N/L	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.5			mg N/L	
	EPA 365.1 Rev. 2.0	Total-P	0.015			mg P/L	
	SM 5310 B-00	Organic Carbon	1.0	U		mg C/L	
1346994	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.015			mg P/L	
1346998	EPA 200.7 Rev. 4.4	Boron	17	I		ug/L	
		Calcium	55.5			mg/L	
		Iron	30	U		ug/L	
		Magnesium	7.35			mg/L	
		Manganese	1.0	U		ug/L	
		Potassium	0.30	U		mg/L	
		Sodium	2.6			mg/L	
	EPA 200.8 Rev. 5.4	Strontium	74.8			ug/L	
		Zinc	5.0	U		ug/L	
		Aluminum	5.0	U		ug/L	
		Arsenic	0.46	I		ug/L	
		Barium	12.2			ug/L	
	EPA 200.7 Rev. 4.4 dissolved	Silica	8.25			mg/L	

Field ID: 8666

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	QC Failures	Units	Cert #
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Ref. Method and Comment:

SM 2120 B: The precision data is unavailable due to the small amount of analyte in the QC sample. The pH of the aliquot used to measure the color is between 4 and 10 units. This value does not represent the field pH.

SM 2540 D-97: The precision data is unavailable due to the small amount of analyte in the QC sample.

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

Quality Control Report

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 200.7 Rev. 4.4	Boron	102	102	104	105		0.473
	Calcium	102	98.6	104		0.859	
	Iron	105	104	103	105	6.53	
	Magnesium	105	103	103	105	1.47	
	Manganese	103	101	103	103	14.4	
	Potassium	103	104	105	107		1.07
	Sodium	103	104	104		1.21	
	Strontium	102	103	102	102	1.51	
	Zinc	101	96.4	99.6	101		1.07
EPA 200.7 Rev. 4.4 dissolved	Silica	98.8	96.6			1.69	
EPA 200.8 Rev. 5.4	Aluminum	99.4	99.1	101	101	18.3	
	Arsenic	98.8	98.5	99.0	99.8		0.749
	Barium	102	102	103	103		0.452
EPA 300.0 Rev. 2.1	Chloride	100	100	103	101		2.68
	Sulfate	97.8	98.7	100	98.1		1.46
EPA 350.1 Rev. 2.0	Ammonia-N	96.3	103	102			0.783
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.8	98.6	103			3.96
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	94.8	98.3			3.02
EPA 365.1 Rev. 2.0	Total-P	106					0.0890
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.4	95.0	98.1			2.13
	O-Phosphate-P	102	94.8	98.0			2.87
SM 2320 B-97	Alkalinity	102				0.728	1.79
	Alkalinity	101				1.36	
SM 2540 C-97	TDS					2.48	
	TDS					6.21	
	TDS					1.79	
SM 4500 F-C-97	Fluoride	100	99.8	99.8			0.0
	Fluoride	101	100	99.4			0.490
SM 5310 B-00	Organic Carbon	97.0	98.8	97.8			0.916
	Organic Carbon	97.8	95.1	96.0			0.730

Reference Method Descriptions

Method:	Description
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects
EPA 200.7 Rev. 4.4 dissolved	Silica, dissolved, in field filtered, aqueous matrices as mg SiO2/L
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L
EPA 365.1 Rev. 2.0	Low Level Total Phosphorus in fresh water matrices

Reference Method Descriptions

Method:

EPA 365.1 Rev. 2.0 dissolved
SM 2120 B
SM 2320 B-97
SM 2540 C-97
SM 2540 D-97
SM 4500 F-C-97
SM 5310 B-00

Description

Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L
True Color measured at 450 nm or Apparent Color
Alkalinity in aqueous matrices as mg CaCO₃/L
Total Dissolved Solids in aqueous matrices
Total Suspended Solids in aqueous matrices
Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)
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 200.7 Rev. 4.4	04/27/2011	05/11/2011	Elliott D. Healy	05/12/2011	Elisa J Lutz	1346998, 1346999, 1347000, 1347001
EPA 200.7 Rev. 4.4 dissolved	04/27/2011			04/27/2011	Elisa J Lutz	1347002, 1347003, 1347004, 1347005
EPA 200.8 Rev. 5.4	04/27/2011	05/11/2011	Elliott D. Healy	05/11/2011	Charles J. Peterson	1346998, 1346999, 1347000, 1347001
EPA 300.0 Rev. 2.1	04/27/2011			05/05/2011	Gary Dearman	1346988
	04/27/2011			05/06/2011	Gary Dearman	1346986, 1346987, 1346989
EPA 350.1 Rev. 2.0	04/27/2011			04/28/2011	Diana M. Dunbar	1346990, 1346991, 1346992, 1346993
EPA 351.2 Rev. 2.0	04/27/2011	05/04/2011	Bryan A. Werth	05/05/2011	Christopher Armour	1346990, 1346991, 1346992, 1346993
EPA 353.2 Rev. 2.0	04/27/2011			05/02/2011	Sima Feizi	1346990, 1346991, 1346992, 1346993
EPA 365.1 Rev. 2.0	04/27/2011	04/29/2011	Megan E. Faircloth	05/02/2011	Megan E. Faircloth	1346990, 1346991, 1346992, 1346993
EPA 365.1 Rev. 2.0 dissolved	04/27/2011			04/27/2011 15:41	Pallavi R. Gadwal	1346994
	04/27/2011			04/27/2011 15:52	Pallavi R. Gadwal	1346995
	04/27/2011			04/27/2011 15:53	Pallavi R. Gadwal	1346996, 1346997
SM 2120 B	04/27/2011			04/27/2011 14:30	Blanca Fach	1346986, 1346987, 1346988, 1346989
SM 2320 B-97	04/27/2011			05/06/2011	Dale L. Simmons	1346988, 1346989
	04/27/2011			05/09/2011	Dale L. Simmons	1346986, 1346987
SM 2540 C-97	04/27/2011			05/02/2011	Yijie Li	1346986, 1346987, 1346989
	04/27/2011			05/03/2011	Yijie Li	1346988
SM 2540 D-97	04/27/2011			05/02/2011	Yijie Li	1346986, 1346987, 1346989
	04/27/2011			05/03/2011	Yijie Li	1346988
SM 4500 F-C-97	04/27/2011			05/06/2011	Dale L. Simmons	1346986, 1346988, 1346989
	04/27/2011			05/07/2011	Dale L. Simmons	1346987
SM 5310 B-00	04/27/2011			05/10/2011	Rochelle Y Jackson	1346990, 1346991, 1346992, 1346993