Chemical Analysis Report

NE-DIST-2019-06-25-01

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

Event Description: **Alachua County March SMP**
Request ID: **RQ-2019-06-24-11**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256
Attn: Jeremy Parrish

For additional information please contact
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This Report replaces the previous Report Serial Number: 0114661

Report Comment: Corrected the Y, I, and U qualifiers for the results in the W-ICP test.

Revision certified by: Colin Wright, Program Administrator

Date Certified: 19-SEP-2019 09:22

NON-CONFORMANCE REPORT INCLUDED

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: Metals.

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 by the Florida Department of Health Environmental Laboratory Certification Program 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: BIVENS ARM LAKE- WEST OF US 441 AND SOUTH OF SW 16TH STREET

Collection Date/Time: 06/24/2019 13:55

Field ID: G1NE0904

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2098374	EPA 200.7 Rev. 4.4	Barium	8.7	Y	ug/L	P366332	
		Calcium	28.0	Y	mg/L	P366332	
		Iron	32	IY	ug/L	P366332	
		Magnesium	2.42	Y	mg/L	P366332	
		Potassium	2.1	Y	mg/L	P366332	
		Sodium	6.1	Y	mg/L	P366332	
		Zinc	5.0	UY	ug/L	P366332	
	EPA 200.8 Rev. 5.4	Aluminum	203	Y	ug/L	P366332	
		Antimony	0.27	Y	ug/L	P366332	
		Arsenic	1.16	Y	ug/L	P366332	
		Boron**	23.2	Y	ug/L	P366332	
		Cadmium	0.020	UY	ug/L	P366332	
		Chromium	0.40	UY	ug/L	P366332	
		Copper	0.50	IY	ug/L	P366332	
		Lead	0.66	Y	ug/L	P366332	
		Nickel	0.50	UY	ug/L	P366332	
		Selenium	0.20	UY	ug/L	P366332	
		Silver	0.010	UY	ug/L	P366332	
		Thallium	0.10	UY	ug/L	P366332	

Ref. Method and Comment:
EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium are unavailable because of high analyte concentration in the QC sample. The analysis was from an improperly preserved sample.
EPA 200.8 Rev. 5.4: The analysis was from an improperly preserved sample.

Sample Location: TUMBLIN CREEK- S OF SW 5TH AVE **Collection Date/Time: 06/24/2019 15:00**

Field ID: G1NE0914 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2098375	EPA 200.7 Rev. 4.4	Barium	23.3	Y	ug/L	P366332	
		Calcium	48.7	Y	mg/L	P366332	
		Iron	280	Y	ug/L	P366332	
		Magnesium	12.7	Y	mg/L	P366332	
		Potassium	2.6	Y	mg/L	P366332	
		Sodium	13.5	Y	mg/L	P366332	
		Zinc	5.7	IY	ug/L	P366332	
	EPA 200.8 Rev. 5.4	Aluminum	120	Y	ug/L	P366332	
		Antimony	0.24	Y	ug/L	P366332	
		Arsenic	0.76	Y	ug/L	P366332	
		Boron**	42.4	Y	ug/L	P366332	
		Cadmium	0.021	IY	ug/L	P366332	
		Chromium	0.67	IY	ug/L	P366332	
		Copper	1.02	Y	ug/L	P366332	
		Lead	0.94	Y	ug/L	P366332	
		Nickel	0.50	UY	ug/L	P366332	
		Selenium	0.29	IY	ug/L	P366332	
		Silver	0.010	UY	ug/L	P366332	
		Thallium	0.10	UY	ug/L	P366332	

Ref. Method and Comment:
EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium are unavailable because of high analyte concentration in the QC sample. The analysis was from an improperly preserved sample.
EPA 200.8 Rev. 5.4: The analysis was from an improperly preserved sample.

Sample Location: TUMBLIN CREEK- W of us 441 **Collection Date/Time: 06/24/2019 15:40**

Field ID: G1NE0902 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2098376	EPA 200.7 Rev. 4.4	Barium	21.3	Y	ug/L	P366332	
		Calcium	54.3	Y	mg/L	P366332	
		Iron	150	Y	ug/L	P366332	
		Magnesium	7.39	Y	mg/L	P366332	
		Potassium	3.3	Y	mg/L	P366332	
		Sodium	14.9	Y	mg/L	P366332	
		Zinc	5.0	UY	ug/L	P366332	
	EPA 200.8 Rev. 5.4	Aluminum	68	Y	ug/L	P366332	
		Antimony	0.45	Y	ug/L	P366332	
		Arsenic	0.94	Y	ug/L	P366332	
		Boron**	52.8	Y	ug/L	P366332	
		Cadmium	0.020	UY	ug/L	P366332	
		Chromium	0.40	UY	ug/L	P366332	
		Copper	1.09	Y	ug/L	P366332	
		Lead	0.27	IY	ug/L	P366332	
		Nickel	0.50	UY	ug/L	P366332	
		Selenium	0.46	IY	ug/L	P366332	
		Silver	0.010	UY	ug/L	P366332	
		Thallium	0.10	UY	ug/L	P366332	

Ref. Method and Comment:
EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium are unavailable because of high analyte concentration in the QC sample. The analysis was from an improperly preserved sample.
EPA 200.8 Rev. 5.4: The analysis was from an improperly preserved sample.

Non-Conformance Report

NCR ID: 7745

Event(s)	Job(s)	Sample(s)	Test(s)
NE-DIST-2019-06-25-01	TLH-2019-06-25-86	2098374	
NE-DIST-2019-06-25-01	TLH-2019-06-25-86	2098375	
NE-DIST-2019-06-25-01	TLH-2019-06-25-86	2098376	

NCR Type: SHIPPING/RECEIVING **NCR Category: Preservation Not Intact**

Observation: Samples not preserved properly, customer indicated that the metals samples were preserved with sulfuric acid.

Resolution: Michael Thompson was notified by phone.
Data will be qualified as appropriate.

Authorized by/Date: Joshua Ayres 6/26/2019

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry	Colin Wright	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report
Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P366332

Component	Result	Code	Units
Barium	1.0	U	ug/L
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P366332

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P366332

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	100		P	85 - 115
Calcium	101		P	85 - 115
Iron	105		P	85 - 115
Magnesium	103		P	85 - 115
Potassium	107		P	85 - 115
Sodium	101		P	85 - 115
Zinc	97.1		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P366332

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	103		P	85 - 115
Antimony	102		P	85 - 115
Arsenic	106		P	85 - 115
Boron	102		P	85 - 115
Cadmium	103		P	85 - 115
Chromium	102		P	85 - 115
Copper	105		P	85 - 115
Lead	101		P	85 - 115
Nickel	106		P	85 - 115
Selenium	104		P	85 - 115
Silver	109		P	85 - 115
Thallium	104		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P366332

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2098240	Barium	96.8	96.9	P/P	80 - 120
2098240	Iron	100	104	P/P	80 - 120
2098240	Magnesium	103		P	80 - 120
2098240	Potassium	103	99.3	P/P	80 - 120
2098240	Sodium	98.9		P	80 - 120
2098240	Zinc	99.1	99.1	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P366332

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2098240	Aluminum	101	98.8	P/P	80 - 120
2098240	Antimony	105	104	P/P	80 - 120
2098240	Arsenic	109	109	P/P	80 - 120
2098240	Boron	103	102	P/P	80 - 120
2098240	Cadmium	106	103	P/P	80 - 120
2098240	Chromium	98.7	97.3	P/P	80 - 120
2098240	Copper	102	102	P/P	80 - 120
2098240	Lead	103	101	P/P	80 - 120
2098240	Nickel	100	99.9	P/P	80 - 120
2098240	Selenium	107	105	P/P	80 - 120
2098240	Silver	107	106	P/P	80 - 120
2098240	Thallium	109	108	P/P	80 - 120

Quality Assurance Report
Precision

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P366332

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2098240	Barium	0.0590	Spike	P	0 - 20
2098240	Calcium	0.674	Spike	P	0 - 20
2098240	Iron	3.14	Spike	P	0 - 20
2098240	Magnesium	2.39	Spike	P	0 - 20
2098240	Potassium	1.96	Spike	P	0 - 20
2098240	Sodium	0.692	Spike	P	0 - 20
2098240	Zinc	0.0365	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P366332

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2098240	Aluminum	1.80	Spike	P	0 - 20
2098240	Antimony	1.54	Spike	P	0 - 20
2098240	Arsenic	0.167	Spike	P	0 - 20
2098240	Boron	0.937	Spike	P	0 - 20
2098240	Cadmium	2.84	Spike	P	0 - 20
2098240	Chromium	1.36	Spike	P	0 - 20
2098240	Copper	0.378	Spike	P	0 - 20
2098240	Lead	1.80	Spike	P	0 - 20
2098240	Nickel	0.187	Spike	P	0 - 20
2098240	Selenium	1.17	Spike	P	0 - 20
2098240	Silver	0.620	Spike	P	0 - 20
2098240	Thallium	1.00	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 200.7 Rev. 4.4
Run ID: A92399
Included Lab Sample IDs: 2098374, 2098375, 2098376

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	101	101	P/P	90 - 110
Calcium	101	100	P/P	90 - 110
Iron	102	102	P/P	90 - 110
Magnesium	102	102	P/P	90 - 110
Potassium	101	101	P/P	90 - 110
Sodium	102	102	P/P	90 - 110
Zinc	99.8	98.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A92489
Included Lab Sample IDs: 2098374, 2098375, 2098376

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	103	104	P/P	90 - 110
Antimony	97.0	95.5	P/P	90 - 110
Arsenic	102	101	P/P	90 - 110
Boron	104	104	P/P	90 - 110
Cadmium	100	98.9	P/P	90 - 110
Chromium	101	97.5	P/P	90 - 110
Copper	104	103	P/P	90 - 110
Lead	99.8	100	P/P	90 - 110
Nickel	102	101	P/P	90 - 110
Selenium	101	100	P/P	90 - 110
Silver	105	104	P/P	90 - 110
Thallium	98.1	97.6	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 200.7 Rev. 4.4	Barium	100	96.8	96.9			0.0590
	Calcium	101					0.674
	Iron	105	100	104			3.14
	Magnesium	103	103				2.39
	Potassium	107	103	99.3			1.96
	Sodium	101	98.9				0.692
	Zinc	97.1	99.1	99.1			0.0365
EPA 200.8 Rev. 5.4	Aluminum	103	101	98.8			1.80
	Antimony	102	105	104			1.54
	Arsenic	106	109	109			0.167
	Boron	102	103	102			0.937
	Cadmium	103	106	103			2.84
	Chromium	102	98.7	97.3			1.36
	Copper	105	102	102			0.378
	Lead	101	103	101			1.80
	Nickel	106	100	99.9			0.187
	Selenium	104	107	105			1.17
	Silver	109	107	106			0.620
	Thallium	104	109	108			1.00

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2098374, 2098375, 2098376
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2098374, 2098375, 2098376

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	06/25/2019	06/26/2019 14:10	Elliott D. Healy	06/27/2019 13:48	Betina Topolski	2098374
	06/25/2019	06/26/2019 14:10	Elliott D. Healy	06/27/2019 13:55	Betina Topolski	2098375
	06/25/2019	06/26/2019 14:10	Elliott D. Healy	06/27/2019 14:03	Betina Topolski	2098376
EPA 200.8 Rev. 5.4	06/25/2019	06/26/2019 14:10	Elliott D. Healy	07/01/2019 19:29	Robert K Palmer	2098374
	06/25/2019	06/26/2019 14:10	Elliott D. Healy	07/01/2019 19:38	Robert K Palmer	2098375
	06/25/2019	06/26/2019 14:10	Elliott D. Healy	07/01/2019 19:48	Robert K Palmer	2098376