Biological Analysis Report

WQAP-2016-04-27-05

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

Event Description: **Moriah Creek, Wakulla River Below Highway 98 Bridge**
Request ID: **RQ-2016-04-25-64**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
MS #3560
Tallahassee, FL 32399-2400
Attn: Katrina Sanders

For additional information please contact
Loretta Wolfe - Administrator
J. Marshall Faircloth - Aquatic Toxicology
Jacqueline Savage - Bench Biology
Jacqueline Savage - Microbiology
Daisys Matthews - Molecular Biology
Cheryl Swanson - Taxonomy (Invertebrate & Algal)
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8177

Certified by: Daisys Matthews,

Date Certified: 27-JUL-2016 07:58

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 groups are included in this report: Chlorophyll/Grain Size/BOD and InvertZool.

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: WAKULLA RIVER BELOW US 98 **Collection Date/Time: 04/27/2016 09:30**

Field ID: G1WA0028 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1793561	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.57	I	ug/L	P303477	
		Phaeophytin-a	0.83	I	ug/L	P303477	
		Chlorophyll/Phaeophytin Ratio	1.3			P303477	
		Chlorophyll-a, Uncorrected	1.1	I	ug/L	P303477	

Sample Location: WAKULLA RIVER BELOW US 98 **Collection Date/Time: 04/27/2016 09:30**

Field ID: G1WA0028D Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1793565	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.73	I	ug/L	P303477	
		Phaeophytin-a	0.53	I	ug/L	P303477	
		Chlorophyll/Phaeophytin Ratio	1.4			P303477	
		Chlorophyll-a, Uncorrected	1.1	I	ug/L	P303477	

Sample Location: WAKULLA RIVER BELOW US 98 **Collection Date/Time: 04/27/2016 09:45**

Field ID: G1WA0028B Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1793566	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P303477	
		Phaeophytin-a	0.40	U	ug/L	P303477	
		Chlorophyll/Phaeophytin Ratio	0.98			P303477	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P303477	

Sample Location: MORIAH CREEK AT ST MARKS RIVER **Collection Date/Time: 04/27/2016 11:00**

Field ID: G1WA0037 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1793562	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P303477	
		Phaeophytin-a	0.40	U	ug/L	P303477	
		Chlorophyll/Phaeophytin Ratio	4.3			P303477	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P303477	

Sample Location: MORIAH CREEK AT US 98 **Collection Date/Time: 04/27/2016 13:00**

Field ID: G1WA0027 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1793563	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P303477	
		Phaeophytin-a	0.40	U	ug/L	P303477	
		Chlorophyll/Phaeophytin Ratio	2.1			P303477	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P303477	

Sample Location: MORIAH CREEK100 METERS UPSTREAM OF NEWPORT RD. **Collection Date/Time: 04/27/2016 13:05**

Field ID: G1WA0057 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes

Field ID: G1WA0057 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1793564	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P303477	
		Phaeophytin-a	0.40	U	ug/L	P303477	
		Chlorophyll/Phaeophytin Ratio	2.7			P303477	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P303477	

Sample Location: MORIAH CREEK100 METERS UPSTREAM OF NEWPORT RD. **Collection Date/Time: 04/27/2016 13:05**

Field ID: G1WA0057 Matrix: BIOLOGICAL

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1793567	SOP-IZ06	Stream Condition Index (SCI)**	55	A	Points		
		Macroinvert-FW-Qual-DipnetX20-#Taxa -Rep2**	26		# Taxa		

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P303477

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L
Phaeophytin-a	0.40	U	ug/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P303477

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	109		P	84 - 116

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P303477

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1793653	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1793653	Chlorophyll-a, Corrected	12.1	Sample	P	0 - 25
1793653	Chlorophyll-a, Uncorrected	10.9	Sample	P	0 - 25
1793653	Phaeophytin-a	4.09	Sample	P	0 - 25

* 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
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SM 10200 H (mod.)	Chlorophyll/Phaeophytin Ratio				0.0	
	Chlorophyll-a, Corrected	109			12.1	
	Chlorophyll-a, Uncorrected				10.9	
	Phaeophytin-a				4.09	

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1793561, 1793562, 1793563, 1793564, 1793565, 1793566
SOP-IZ06 / E31780	No. Taxa of FW macroinverts, qual samp, 20 dipnets.	1793567

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	04/27/2016	04/27/2016 16:05	Meiqin Chen	05/03/2016	Kim M. Spencer	1793561, 1793562, 1793563, 1793564, 1793565, 1793566
SOP-IZ06	04/27/2016	06/10/2016	Elizabeth Lovern	07/20/2016	Todd R. Risk	1793567