Biological Analysis Report

WQAP-2016-02-23-03

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

Event Description:	**Tanyard Branch, Megginnis Arm Run, Quincy Creek and Little River**
Request ID:	**RQ-2016-02-22-66**
Customer:	**WQAP**
Project ID:	**SMP**

Send Reports to:
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Date Certified: 16-MAY-2016 09:40

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: AlgalBio, 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: TANYARD BRANCH 100 METERS UPSTREAM OF RALPH STROMS RD **Collection Date/Time: 02/23/2016 09:15**

Field ID: G1WA0005 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774023	SM 5210 B	Biochemical Oxygen Demand-5 Day	1.4	IJ	mg/L	P299433	LCS
1774028	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.9		ug/L	P299971	
		Phaeophytin-a	0.49	I	ug/L	P299971	
		Chlorophyll/Phaeophytin Ratio	1.6			P299971	
		Chlorophyll-a, Uncorrected	3.3		ug/L	P299971	

Ref. Method and Comment:
SM 5210 B: Dilution water blank is within laboratory historical limit of 0.50 mg/L. Refer to QA report for QC exceeding limits. Precision data is unavailable due to the small amount of analyte in the QC sample.

Sample Location: TANYARD BRANCH 100 METERS UPSTREAM OF RALPH STROMS RD **Collection Date/Time: 02/23/2016 09:15**

Field ID: G1WA0005 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774031	SOP-IZ06	Stream Condition Index (SCI)**	30	A	Points		
		Macroinvert-FW-Qual-DipnetX20-#Taxa -Rep2**	28		# Taxa		

Sample Location: QUINCY CREEK 100 METERS UPSTREAM OF RALPH STROMS RD **Collection Date/Time: 02/23/2016 08:40**

Field ID: G1WA0018 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774021	SM 5210 B	Biochemical Oxygen Demand-5 Day	1.9	IJ	mg/L	P299433	LCS
1774026	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.4		ug/L	P299970	
		Phaeophytin-a	1.2	I	ug/L	P299970	
		Chlorophyll/Phaeophytin Ratio	1.5			P299970	
		Chlorophyll-a, Uncorrected	3.2		ug/L	P299970	

Ref. Method and Comment:
SM 5210 B: Dilution water blank is within laboratory historical limit of 0.50 mg/L. Refer to QA report for QC exceeding limits. Precision data is unavailable due to the small amount of analyte in the QC sample.

Sample Location: QUINCY CREEK UPSTREAM OF SR 12 **Collection Date/Time: 02/23/2016 11:30**

Field ID: G1WA0019 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774022	SM 5210 B	Biochemical Oxygen Demand-5 Day	1.2	IJ	mg/L	P299433	LCS
1774027	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.5	I	ug/L	P299971	
		Phaeophytin-a	0.71	I	ug/L	P299971	
		Chlorophyll/Phaeophytin Ratio	1.5			P299971	
		Chlorophyll-a, Uncorrected	2.0		ug/L	P299971	

Ref. Method and Comment:
SM 5210 B: Dilution water blank is within laboratory historical limit of 0.50 mg/L. Refer to QA report for QC exceeding limits. Precision data is unavailable due to the small amount of analyte in the QC sample.

Sample Location: LITTLE RIVER 100 METERS UPSTREAM OF SR 12 **Collection Date/Time: 02/23/2016 12:05**

Field ID: G1WA0020 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774024	SM 5210 B	Biochemical Oxygen Demand-5 Day	2.2	J	mg/L	P299433	LCS
1774029	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.3	I	ug/L	P299971	
		Phaeophytin-a	0.67	I	ug/L	P299971	
		Chlorophyll/Phaeophytin Ratio	1.5			P299971	
		Chlorophyll-a, Uncorrected	2.8		ug/L	P299971	

Ref. Method and Comment:
SM 5210 B: Dilution water blank is within laboratory historical limit of 0.50 mg/L. Refer to QA report for QC exceeding limits. Precision data is unavailable due to the small amount of analyte in the QC sample.

Sample Location: MEGGINNS ARM RUN AR MERIDIAN WOODS DRIVEWAY **Collection Date/Time: 02/23/2016 13:30**

Field ID: G1WA0009 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774025	SM 5210 B	Biochemical Oxygen Demand-5 Day	0.99	IJ	mg/L	P299433	LCS
1774030	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.73	I	ug/L	P299971	
		Phaeophytin-a	0.45	U	ug/L	P299971	
		Chlorophyll/Phaeophytin Ratio	1.9			P299971	
		Chlorophyll-a, Uncorrected	0.67	I	ug/L	P299971	

Ref. Method and Comment:
SM 5210 B: Dilution water blank is within laboratory historical limit of 0.50 mg/L. Refer to QA report for QC exceeding limits. Precision data is unavailable due to the small amount of analyte in the QC sample.

Sample Location: MEGGINNS ARM RUN AR MERIDIAN WOODS DRIVEWAY **Collection Date/Time: 02/23/2016 13:30**

Field ID: G1WA0009 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1774005	SOP-AB05	Dominant sample taxon**	Chlorophyceae				

Ref. Method and Comment:
SOP-AB05: The dominant taxon was Mougeotia sp..

Quality Assurance Report
Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P299970

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

Reference Method: SM 10200 H (mod.)
Batch ID: P299971

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.76	U	ug/L
Chlorophyll-a, Uncorrected	0.55	U	ug/L
Phaeophytin-a	0.55	U	ug/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 5210 B
Batch ID: P299433

Component	Result	Code	Units
Biochemical Oxygen Demand-5 Day	0.35	I	mg/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P299970

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	102		P	84 - 116

Reference Method: SM 10200 H (mod.)
Batch ID: P299971

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	98.9		P	84 - 116

Reference Method: SM 5210 B
Batch ID: P299433

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Biochemical Oxygen Demand-5 Day	130		F	84 - 116

Quality Assurance Report
Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P299970

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1773811	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1773811	Chlorophyll-a, Corrected	6.78	Sample	P	0 - 25
1773811	Chlorophyll-a, Uncorrected	9.82	Sample	P	0 - 25
1773811	Phaeophytin-a	22.4	Sample	P	0 - 25

Reference Method: SM 10200 H (mod.)
Batch ID: P299971

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1774266	Chlorophyll/Phaeophytin Ratio	6.45	Sample	P	0 - 25
1774266	Chlorophyll-a, Corrected	3.47	Sample	P	0 - 25
1774266	Chlorophyll-a, Uncorrected	1.26	Sample	P	0 - 25
1774266	Phaeophytin-a	11.9	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/Phaeophytin Ratio				6.45	
	Chlorophyll-a, Corrected	102			6.78	
	Chlorophyll-a, Corrected	98.9			3.47	
	Chlorophyll-a, Uncorrected				9.82	
	Chlorophyll-a, Uncorrected				1.26	
	Phaeophytin-a				22.4	
	Phaeophytin-a				11.9	
SM 5210 B	Biochemical Oxygen Demand-5 Day	130				

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1774026, 1774027, 1774028, 1774029, 1774030
SM 5210 B / E31780	BOD, NOT nitrogen-inhibited	1774021, 1774022, 1774023, 1774024, 1774025
SOP-AB05 / E31780	Qualitative assessment of algal taxa present without counts	1774005
SOP-IZ06 / E31780	No. Taxa of FW macroinverts, qual samp, 20 dipnets.	1774031

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	02/23/2016	02/23/2016 15:45	Ryan Coker	03/08/2016	Amelia G. Rankin	1774026, 1774027, 1774028, 1774029, 1774030
SM 5210 B	02/23/2016			02/24/2016 08:50	Amelia G. Rankin	1774021, 1774022, 1774023, 1774024, 1774025
SOP-AB05	02/23/2016			02/23/2016	Maosen Hua	1774005
SOP-IZ06	02/23/2016	04/13/2016	Elizabeth Lovern	05/09/2016	Todd R. Risk	1774031
	02/23/2016	04/13/2016	Elizabeth Lovern	05/13/2016	Todd R. Risk	1774031