

Biological Analysis Report

SW-DIST-2016-06-03-01

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

Overflow Analyses Performed By:
Advanced Environmental Laboratories - Tampa
9610 Princess Palm Avenue
Tampa, Florida 33619
DOH Accreditation E84589

Event Description: **Gap Creek Ref. Stream**
Request ID: **RQ-2016-05-30-43**
Customer: **SW-DIST**
Project ID: **SCIREF**

Send Reports to:
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Certified by: Jacqueline Savage, Environmental Specialist III

Date Certified: 01-AUG-2016 09:08



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, Microbiology and Overflow.

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: GAP CREEK REF. SITE

Collection Date/Time: 06/02/2016 12:00

Field ID: TP108

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1804873	SM 10200 H (mod.)	Chlorophyll-a, Corrected	9.5		ug/L	P306247	
		Phaeophytin-a	1.7		ug/L	P306247	
		Chlorophyll/Phaeophytin Ratio	1.6			P306247	
		Chlorophyll-a, Uncorrected	11		ug/L	P306247	
1804877	SOP-PCR01	HF183-qPCR**	1.61E+03	T	GEU/100 mL	P304687	
1807226	SM 9222 D	Fecal Coliforms-Membrane Filter	1	U	cfu/100 mL		

Ref. Method and Comment:

SM 10200 H (mod.): Precision data is not available for at least one component due to the small amount of analyte in the QC sample. Refer to QA report for available precision data.

Sample Location: GAP CREEK REF. SITE

Collection Date/Time: 06/02/2016 12:00

Field ID: TP108 3

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1804859	SOP-AB05	Dominant sample taxon**	Chlorophyceae				

Ref. Method and Comment:

SOP-AB05: Rank study, rank 3: The dominant taxon was *Cladophora glomerata*..

Sample Location: GAP CREEK REF. SITE

Collection Date/Time: 06/02/2016 12:00

Field ID: TP108 4

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1804860	SOP-AB05	Dominant sample taxon**	Chlorophyceae				

Ref. Method and Comment:

SOP-AB05: Rank study, rank 4: The dominant taxon was *Oedogonium* sp..

Sample Location: GAP CREEK REF. SITE

Collection Date/Time: 06/02/2016 12:00

Field ID: TP108 5

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1804861	SOP-AB05	Dominant sample taxon**	Chlorophyceae				

Ref. Method and Comment:

SOP-AB05: Rank study, rank 5: The co-dominant taxa were *Cladophora glomerata* and *Oedogonium* sp..

Sample Location: GAP CREEK REF. SITE

Collection Date/Time: 06/02/2016 12:00

Field ID: TP108 6

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1804862	SOP-AB05	Dominant sample taxon**	Xanthophyceae				

Ref. Method and Comment:

SOP-AB05: Rank study, rank 6: The dominant taxon was *Vaucheria* sp..

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P306247

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

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P306247

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

Reference Method: SOP-PCR01
Batch ID: P304687

Component	Result	Code	Units
HF183-qPCR	4.1E+03	U	GEU/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P306247

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	98.5		P	84 - 116

Reference Method: SOP-PCR01
Batch ID: P304687

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	133	76.4	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR01
Batch ID: P304687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1800938	HF183-qPCR	130	133	P/P	50 - 175
1801844	HF183-qPCR	124		P	50 - 175
1802424	HF183-qPCR	171		P	50 - 175
1802641	HF183-qPCR	143		P	50 - 175
1804877	HF183-qPCR	147		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P306247

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1804830	Chlorophyll/Phaeophytin Ratio	6.45	Sample	P	0 - 25
1804830	Chlorophyll-a, Corrected	10.6	Sample	P	0 - 25
1804830	Chlorophyll-a, Uncorrected	21.3	Sample	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR01
Batch ID: P304687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1800938	HF183-qPCR	2.20	Spike	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 Surrogates

Lab Sample ID: 1804877
Field Sample ID: TP108

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR01	SKETA-qPCR	134	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll/Phaeophytin Ratio				6.45	
	Chlorophyll-a, Corrected	98.5			10.6	
	Chlorophyll-a, Uncorrected				21.3	
SOP-PCR01	HF183-qPCR	76.4 133	130 133 124 171			2.20

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1804873
SM 9222 D / E84589	Fecal coliforms by membrane filter method by Advanced Environmental Overflow Laboratories for SWD	1807226
SOP-AB05 / E31780	Qualitative assessment of algal taxa present without counts	1804859, 1804860, 1804861, 1804862
SOP-PCR01 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1804877

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	06/03/2016	06/03/2016 14:30	Amelia G. Rankin	06/15/2016	Kim M. Spencer	1804873
SM 9222 D	06/02/2016			06/02/2016 17:05	AEL - Tampa	1807226
SOP-AB05	06/03/2016			06/06/2016	Ashrafi Begum	1804859, 1804860, 1804861, 1804862
SOP-PCR01	06/03/2016	06/03/2016 13:15	Jonathan M. Woods	06/13/2016	Sarah Menz	1804877