

Biological Analysis Report

WQ-ASSESS-2017-04-11-01

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

Event Description: **Black, Tanyard, Soapstone, Little, Qunicy, Juniper**

Request ID: **RQ-2017-04-10-19**

Customer: **WQ-ASSESS**

Project ID: **SMP**

Send Reports to:

FL Dept. of Environmental Protection
Division Of Water Facilities, FL DEP
2600 Blair Stone Rd.
Tallahassee, FL 32399-2400
Attn: Curtis Musson

For additional information please contact

Cheryl Swanson - Administrator
J. Marshall Faircloth - Aquatic Toxicology
Jacqueline Savage - Bench Biology
Jacqueline Savage - Microbiology
Daisys Matthews - Molecular Biology
Jennifer Walters - Taxonomy (Invertebrate & Algal)
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8177

Certified by: Jennifer Walters, Environmental Manager

Date Certified: 05-MAY-2017 09:44



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 groups are included in this report: Chlorophyll/Grain Size/BOD, Microbiology and Molecular.

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: Black Creek upstream of Bloxham Cutoff

Collection Date/Time: 04/11/2017 08:30

Field ID: G1WA0023_04112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1887553	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P323327	
		Phaeophytin-a	0.40	U	ug/L	P323327	
		Chlorophyll/Phaeophytin Ratio	1.0			P323327	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P323327	

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: Soapstone Branch 100m upstream of SR 375

Collection Date/Time: 04/11/2017 09:00

Field ID: G1WA0012_04112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1887554	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P323519	RPD
		Phaeophytin-a	0.40	U	ug/L	P323519	RPD
		Chlorophyll/Phaeophytin Ratio	0.96			P323519	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P323519	RPD

Ref. Method and Comment:

SM 10200 H (mod.): Quality control failure(s) observed. See QA report for details.

Sample Location: Black Creek upstream of SR 375

Collection Date/Time: 04/11/2017 09:30

Field ID: G1WA0047_04112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1887561	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	24.6		MPN/100 mL	P323476	

Sample Location: Black Creek upstream of SR 375

Collection Date/Time: 04/11/2017 09:30

Field ID: G1WA0047_04112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1887568	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Juniper Creek upstream of Juniper Creek Rd.

Collection Date/Time: 04/11/2017 10:35

Field ID: G1WA0059_04112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1887562	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	168.2	A	MPN/100 mL	P323476	

Sample Location: Juniper Creek upstream of Juniper Creek Rd.

Collection Date/Time: 04/11/2017 10:35

Field ID: G1WA0059_04112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1887569	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Quincy Creek upstream of SR 65

Collection Date/Time: 04/11/2017 11:20

Field ID: G1WA0049_04112017

Matrix: W-SURF-FRH

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

Field ID: G1WA0049_04112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1887559	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P323519	RPD
		Phaeophytin-a	0.40	U	ug/L	P323519	RPD
		Chlorophyll/Phaeophytin Ratio	1.6			P323519	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P323519	RPD

Ref. Method and Comment:
 SM 10200 H (mod.): Quality control failure(s) observed. See QA report for details.

Sample Location: Quincy Creek upstream of SR 65

Collection Date/Time: 04/11/2017 11:20

Field ID: G1WA0049_04112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1887563	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	2419.6	J	MPN/100 mL	P323476	

Ref. Method and Comment:
 SM 9223 Quanti-Tray: All Quanti-Tray wells were positive. Result may be higher than reported.

Sample Location: Quincy Creek upstream of SR 65

Collection Date/Time: 04/11/2017 11:20

Field ID: G1WA0049_04112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1887571	SOP-PCR-1.0	HF183-qPCR**	4.78E+04		GEU/100 mL	P323082	

Sample Location: Quincy Creek 100m upstream of Ralph Strong Rd

Collection Date/Time: 04/11/2017 12:55

Field ID: G1WA0018_04112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1887560	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.65	I	ug/L	P323519	RPD
		Phaeophytin-a	0.40	U	ug/L	P323519	RPD
		Chlorophyll/Phaeophytin Ratio	1.6			P323519	
		Chlorophyll-a, Uncorrected	0.71	I	ug/L	P323519	RPD

Ref. Method and Comment:
 SM 10200 H (mod.): Quality control failure(s) observed. See QA report for details.

Sample Location: Quincy Creek 100m upstream of Ralph Strong Rd

Collection Date/Time: 04/11/2017 12:55

Field ID: G1WA0018_04112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1887564	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1732.9		MPN/100 mL	P323476	

Sample Location: Quincy Creek 100m upstream of Ralph Strong Rd

Collection Date/Time: 04/11/2017 12:55

Field ID: G1WA0018_04112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1887572	SOP-PCR-1.0	HF183-qPCR**	5.45E+03		GEU/100 mL	P323082	

Sample Location: Tanyard Branch 100m upstream of Ralph Strong Rd

Collection Date/Time: 04/11/2017 12:40

Field ID: G1WA0005_04112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1887555	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.0	I	ug/L	P323519	RPD
		Phaeophytin-a	0.40	U	ug/L	P323519	RPD
		Chlorophyll/Phaeophytin Ratio	1.6			P323519	
		Chlorophyll-a, Uncorrected	1.2	I	ug/L	P323519	RPD

Ref. Method and Comment:
SM 10200 H (mod.): Quality control failure(s) observed. See QA report for details.

Sample Location: Little River 100m upstream of SR 12

Collection Date/Time: 04/11/2017 14:00

Field ID: G1WA0020_04112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1887556	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.1	I	ug/L	P323519	RPD
		Phaeophytin-a	0.55	I	ug/L	P323519	RPD
		Chlorophyll/Phaeophytin Ratio	1.5			P323519	
		Chlorophyll-a, Uncorrected	1.5		ug/L	P323519	RPD

Ref. Method and Comment:
SM 10200 H (mod.): Quality control failure(s) observed. See QA report for details.

Sample Location: Little River 100m upstream of SR 12

Collection Date/Time: 04/11/2017 14:00

Field ID: G1WA0020_04112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1887565	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	98.5		MPN/100 mL	P323476	

Sample Location: Little River 100m upstream of SR 12

Collection Date/Time: 04/11/2017 14:00

Field ID: G1WA0020_04112017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1887570	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Little River 100m upstream of SR 12

Collection Date/Time: 04/11/2017 14:00

Field ID: G1WA0020_04112017D

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1887557	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.78	I	ug/L	P323519	RPD
		Phaeophytin-a	0.40	U	ug/L	P323519	RPD
		Chlorophyll/Phaeophytin Ratio	1.6			P323519	
		Chlorophyll-a, Uncorrected	0.93	I	ug/L	P323519	RPD

Ref. Method and Comment:
SM 10200 H (mod.): Quality control failure(s) observed. See QA report for details.

Sample Location: Little River 100m upstream of SR 12

Collection Date/Time: 04/11/2017 14:00

Field ID: G1WA0020_04112017D

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1887566	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	142.1		MPN/100 mL	P323476	

Sample Location: Blank DI Water

Collection Date/Time: 04/11/2017 14:10

Field ID: G1WA0020_04112017B

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1887558	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P323519	RPD
		Phaeophytin-a	0.40	U	ug/L	P323519	RPD
		Chlorophyll/Phaeophytin Ratio	0.99			P323519	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P323519	RPD

Ref. Method and Comment:
 SM 10200 H (mod.): Quality control failure(s) observed. See QA report for details.

Sample Location: Blank DI Water

Collection Date/Time: 04/11/2017 14:10

Field ID: G1WA0020_04112017B

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1887567	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1.0	U	MPN/100 mL	P323476	

Non-Conformance Report

NCR ID: 6403

Event(s)

WQ-ASSESS-2017-04-11-01

Job(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Receiving

Observation: Sample collection time for field IDs: G1WA0047_04112017 and G1WA0020_04112017B not recorded on field sheet.

Resolution: Sample collection times taken from sample containers.

Authorized by/Date: John Watts 5/5/2017

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: SM 10200 H (mod.)

Batch ID: P323327

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: P323519

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 Method Blank Results

Reference Method: SM 9223 Quanti-Tray
 Batch ID: P323476

Component	Result	Code	Units
Escherichia Coli-Quanti-Tray	1.0	U	MPN/100 mL

Reference Method: SOP-PCR-1.0
 Batch ID: P323082

Component	Result	Code	Units
HF183-qPCR	280	U	GEU/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
 Batch ID: P323327

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	89.7		P	84 - 116

Reference Method: SM 10200 H (mod.)
 Batch ID: P323519

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	90.3		P	84 - 116

Reference Method: SOP-PCR-1.0
 Batch ID: P323082

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	69.8	87.9	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
 Batch ID: P323082

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1882482	HF183-qPCR	73.8		P	50 - 175
1886930	HF183-qPCR	118		P	50 - 175
1886931	HF183-qPCR	100		P	50 - 175
1887090	HF183-qPCR	88.7	100	P/P	50 - 175
1887093	HF183-qPCR	98.1		P	50 - 175
1887094	HF183-qPCR	103		P	50 - 175
1887231	HF183-qPCR	87.1		P	50 - 175
1887232	HF183-qPCR	80.6		P	50 - 175
1887233	HF183-qPCR	92.4		P	50 - 175
1887571	HF183-qPCR	122		P	50 - 175
1887572	HF183-qPCR	114		P	50 - 175

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
 Batch ID: P323327

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887407	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1887407	Chlorophyll-a, Corrected	2.87	Sample	P	0 - 25
1887407	Chlorophyll-a, Uncorrected	4.10	Sample	P	0 - 25

Reference Method: SM 10200 H (mod.)
 Batch ID: P323519

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887725	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1887725	Chlorophyll-a, Corrected	48.8	Sample	F	0 - 25
1887725	Chlorophyll-a, Uncorrected	49.7	Sample	F	0 - 25
1887725	Phaeophytin-a	54.8	Sample	F	0 - 25

Reference Method: SM 9223 Quanti-Tray
 Batch ID: P323476

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1886929	Escherichia Coli-Quanti-Tray	68.9	Sample	P	0 - 80
1887562	Escherichia Coli-Quanti-Tray	18.2	Sample	P	0 - 80

Reference Method: SOP-PCR-1.0
 Batch ID: P323082

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1887090	HF183-qPCR	12.3	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: 1887571
 Field Sample ID: G1WA0049_04112017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	97.2	P	50 - 300

Lab Sample ID: 1887572
 Field Sample ID: G1WA0018_04112017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	91.8	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							0.0	
	Chlorophyll/Phaeophytin Ratio							0.0	
	Chlorophyll-a, Corrected	89.7						2.87	
	Chlorophyll-a, Corrected	90.3						48.8	
	Chlorophyll-a, Uncorrected							4.10	
	Chlorophyll-a, Uncorrected							49.7	
	Phaeophytin-a							54.8	
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray							68.9	18.2
SOP-PCR-1.0	HF183-qPCR	87.9	69.8	118	100	88.7			12.3
				100					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1887553, 1887554, 1887555, 1887556, 1887557, 1887558, 1887559, 1887560
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	1887561, 1887562, 1887563, 1887564, 1887565, 1887566, 1887567
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1887571, 1887572
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1887568, 1887569, 1887570

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	04/11/2017	04/12/2017 09:53	Elizabeth Lovern	04/12/2017	Kim M. Spencer	1887553
	04/11/2017	04/12/2017 09:53	Elizabeth Lovern	04/17/2017	Kim M. Spencer	1887554, 1887555, 1887556, 1887557, 1887558, 1887559, 1887560
SM 9223 Quanti-Tray	04/11/2017	04/11/2017 16:40	Morgan Lane	04/12/2017 10:45	Brian Cumbie	1887561, 1887562, 1887563, 1887564, 1887565, 1887566, 1887567
SOP-PCR-1.0	04/11/2017	04/12/2017 09:00	Avril Wood	04/13/2017	Sarah Menz	1887571, 1887572
SOP-PCR-4.0	04/11/2017	04/12/2017 09:00	Avril Wood	04/20/2017	Puja Jasrotia	1887568, 1887569, 1887570