

Biological Analysis Report

WAS-SECT-2018-06-26-01

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

Event Description: **Black And Quincy Creek SCI**
Request ID: **RQ-2018-05-14-18**
Customer: **WAS-SECT**
Project ID: **SMP**

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Date Certified: 20-SEP-2018 16:58



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, InvertZool, 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 CR 158

Collection Date/Time: 06/26/2018 08:50

Field ID: G1WA0072

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003265	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.4	U	ug/L	P347981	
		Phaeophytin-a	1.0	U	ug/L	P347981	
		Chlorophyll-a, Uncorrected	1.2	I	ug/L	P347981	
2003266	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	461.1		MPN/100 mL	P347723	

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: Black Creek upstream of CR 158

Collection Date/Time: 06/26/2018 08:50

Field ID: G1WA0072

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003269	SOP-PCR-1.0	HF183-purified-qPCR**	24	UJ	GEU/100 mL	P348835	LCS, SUR
	SOP-PCR-1.4	BacR-purified-qPCR**	1.45E+05	J	TSC/100 mL	P348835	LCS, SUR
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:

SOP-PCR-1.0: Quality control failure(s) observed. See QA report for details. Precision data unavailable for Analysis Batch A85514.

SOP-PCR-1.4: Quality control failure(s) observed. See QA report for details.

Sample Location: Black Creek upstream of CR 158

Collection Date/Time: 06/26/2018 08:50

Field ID: G1WA0072

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2003267	SOP-IZ06	Stream Condition Index (SCI)**	67	A	Points		
		Macroinvert-FW-Qual-DipnetX20-#Taxa -Rep2**	31		# Taxa		

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P347981

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 9223 Quanti-Tray

Batch ID: P347723

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

Reference Method: SOP-PCR-1.0

Batch ID: P348835

Component	Result	Code	Units
HF183-purified-qPCR	47	U	GEU/100 mL

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.4
Batch ID: P348835

Component	Result	Code	Units
BacR-purified-qPCR	510	U	TSC/100 mL
BacR-purified-qPCR	510	U	TSC/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P347981

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	92.9		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P348835

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-purified-qPCR	97.2	31.8	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P348835

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-purified-qPCR	86.0	68.0	P/P	50 - 175
BacR-purified-qPCR	46.6	68.0	F/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P348835

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003269	HF183-purified-qPCR	98.3		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P348835

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2003269	BacR-purified-qPCR	67.0		P	50 - 175
2004528	BacR-purified-qPCR	65.3		P	50 - 175
2009401	BacR-purified-qPCR	74.3	84.2	P/P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P347981

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P347981

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003156	Chlorophyll-a, Corrected	6.61	Sample	P	0 - 25
2003156	Chlorophyll-a, Uncorrected	7.43	Sample	P	0 - 25

Reference Method: SM 9223 Quanti-Tray
Batch ID: P347723

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2003130	Escherichia Coli-Quanti-Tray	48.8	Sample	P	0 - 80

Reference Method: SOP-PCR-1.4
Batch ID: P348835

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2009401	BacR-purified-qPCR	12.7	Spike	P	0 - 25
2009401	BacR-purified-qPCR	12.7	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: 2003269
Field Sample ID: G1WA0072

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	21.0	F	30 - 300
SOP-PCR-1.4	SKETA-qPCR	13.0	F	30 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	92.9							6.61	
	Chlorophyll-a, Uncorrected								7.43	
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray								48.8	
SOP-PCR-1.0	HF183-purified-qPCR	31.8	97.2		98.3					
SOP-PCR-1.4	BacR-purified-qPCR	86.0	68.0	46.6	74.3	84.2	67.0			12.7 12.7
		68.0			65.3					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2003265

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	2003266
SOP-IZ06 / E31780	No. Taxa of FW macroinverts, qual samp, 20 dipnets.	2003267
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2003269
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2003269
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2003269

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	06/26/2018	06/26/2018 14:50	Mariam Hanna	07/05/2018 08:30	Carina A. Tull	2003265
SM 9223 Quanti-Tray	06/26/2018	06/26/2018 14:25	Peterson Janvier	06/27/2018 11:30	Peterson Janvier	2003266
SOP-IZ06	06/26/2018	07/30/2018 14:31	Mariam Hanna	09/14/2018 13:44	Lisa Homann	2003267
SOP-PCR-1.0	06/26/2018	06/26/2018 13:35	Mailin Lopez	07/26/2018 16:14	Sarah Menz	2003269
SOP-PCR-1.4	06/26/2018	06/26/2018 13:35	Mailin Lopez	07/27/2018 10:55	Mailin Lopez	2003269
SOP-PCR-4.0	06/26/2018	06/26/2018 13:35	Angela Smith	07/16/2018 10:36	Puja Jasrotia	2003269