

Biological Analysis Report

BSSP-2016-08-31-01

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

Event Description: **Reference Stream Sampling**
Request ID: **RQ-2016-08-22-50**
Customer: **BSSP**
Project ID: **SCIREF**

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Certified by: Daisys Matthews,

Date Certified: 23-NOV-2016 08:49

A handwritten signature in cursive script that reads "D Matthews". The signature is written in dark ink on a white background.

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 and Microbiology.

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: BETHEL CREEK @ MILL CR RD

Collection Date/Time: 08/30/2016 10:20

Field ID: Bethel@Mil

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1828492	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.61	I	ug/L	P311336	
		Phaeophytin-a	0.41	I	ug/L	P311336	
		Chlorophyll/Phaeophytin Ratio	1.4			P311336	
		Chlorophyll-a, Uncorrected	0.89	I	ug/L	P311336	
1828498	SOP-PCR01	HF183-qPCR**	1.4E+04	U	GEU/100 mL	P312287	

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.

SOP-PCR01: No amplification of HF183 marker. Precision data unavailable due to inhibition in QC sample.

Sample Location: BETHEL CREEK @ MILL CR RD

Collection Date/Time: 08/30/2016 10:20

Field ID: Bethel@Mil

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1828494	SOP-IZ06	Stream Condition Index (SCI)**	69	A	Points		
		Macroinvert-FW-Qual-DipnetX20-#Taxa	23		# Taxa		
		-Rep2**					

Sample Location: AUCILLA RIVER

Collection Date/Time: 08/30/2016 14:15

Field ID: AUC@7BRIDG

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1828493	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.0	I	ug/L	P311336	
		Phaeophytin-a	0.40	U	ug/L	P311336	
		Chlorophyll/Phaeophytin Ratio	1.6			P311336	
		Chlorophyll-a, Uncorrected	1.1	I	ug/L	P311336	
1828499	SOP-PCR01	HF183-qPCR**	1.0E+03	U	GEU/100 mL	P310508	

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.

SOP-PCR01: No amplification of HF183 marker.

Sample Location: AUCILLA RIVER

Collection Date/Time: 08/30/2016 14:15

Field ID: AUC@7BRIDG

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1828495	SOP-IZ06	Stream Condition Index (SCI)**	78	A	Points		
		Macroinvert-FW-Qual-DipnetX20-#Taxa	30		# Taxa		
		-Rep2**					

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P311336

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: SOP-PCR01
 Batch ID: P310508

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

Reference Method: SOP-PCR01
 Batch ID: P312287

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: P311336

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	97.2		P	84 - 116

Reference Method: SOP-PCR01
 Batch ID: P310508

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	74.2	82.6	P/P	50 - 175

Reference Method: SOP-PCR01
 Batch ID: P312287

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	75.3	51.4	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR01
 Batch ID: P310508

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1827925	HF183-qPCR	95.2		P	50 - 175
1827926	HF183-qPCR	82.1		P	50 - 175
1827927	HF183-qPCR	97.5	97.1	P/P	50 - 175
1827928	HF183-qPCR	88.2		P	50 - 175
1827949	HF183-qPCR	121		P	50 - 175
1828499	HF183-qPCR	113		P	50 - 175
1828797	HF183-qPCR	102		P	50 - 175
1828798	HF183-qPCR	82.6		P	50 - 175
1828799	HF183-qPCR	87.9		P	50 - 175
1828801	HF183-qPCR	92.0		P	50 - 175

Reference Method: SOP-PCR01
 Batch ID: P312287

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR01
 Batch ID: P312287

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1828498	HF183-qPCR	106		P	50 - 175
1828800	HF183-qPCR	113		P	50 - 175
1829657	HF183-qPCR	107		P	50 - 175
1830496	HF183-qPCR	108		P	50 - 175
1832615	HF183-qPCR	94.6		P	50 - 175
1832617	HF183-qPCR	104		P	50 - 175
1832692	HF183-qPCR	109		P	50 - 175
1833516	HF183-qPCR	107		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
 Batch ID: P311336

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1828759	Chlorophyll-a, Uncorrected	11.5	Sample	P	0 - 25

Reference Method: SOP-PCR01
 Batch ID: P310508

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1827927	HF183-qPCR	0.375	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: 1828498
 Field Sample ID: Bethel@Mil

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR01	SKETA-qPCR	105	P	50 - 300

Lab Sample ID: 1828499
 Field Sample ID: AUC@7BRIDG

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR01	SKETA-qPCR	118	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision	MS
			LCS	SMP	
SM 10200 H (mod.)	Chlorophyll-a, Corrected	97.2			

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Uncorrected							11.5	
SOP-PCR01	HF183-qPCR	82.6	74.2	95.2	82.1	97.5			0.375
				97.1					
	HF183-qPCR	51.4	75.3	106	113	107			
				108					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1828492, 1828493
SOP-IZ06 / E31780	No. Taxa of FW macroinverts, qual samp, 20 dipnets.	1828494, 1828495
SOP-PCR01 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1828498, 1828499

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.) SOP-IZ06	08/31/2016	08/31/2016 13:10	Jennifer Mihalic	09/15/2016	Kim M. Spencer	1828492, 1828493
	08/31/2016	10/31/2016	Cathy Sherrer	11/18/2016	Lisa Homann	1828495
	08/31/2016	10/31/2016	Cathy Sherrer	11/22/2016	Lisa Homann	1828495
	08/31/2016	10/31/2016	Elizabeth Lovern	11/17/2016	Stephen Blake Spencer	1828494
	08/31/2016	10/31/2016	Elizabeth Lovern	11/22/2016	Stephen Blake Spencer	1828494
SOP-PCR01	08/31/2016	08/31/2016 12:00	Puja Jasrotia	09/14/2016	Sarah Menz	1828499
	08/31/2016	08/31/2016 12:00	Sarah Menz	10/03/2016	Sarah Menz	1828498