

Biological Analysis Report

SE-DIST-2019-12-11-01

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

Event Description: **SMP-Kevin Run**
Request ID: **RQ-2019-12-09-10**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Puja Jasrotia, Environmental Manager

Date Certified: 06-JAN-2020 11:55

A handwritten signature in black ink, appearing to be 'Puja Jasrotia', with a horizontal line underneath it.

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 by the Florida Department of Health Environmental Laboratory Certification Program 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: Popash Slough @ 67th Dr.

Collection Date/Time: 12/10/2019 11:45

Field ID: G1SE0027

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2142378	SM 10200 H (mod.)	Chlorophyll-a, Corrected	24		ug/L	P376126	
		Phaeophytin-a	4.6		ug/L	P376126	
		Chlorophyll-a, Uncorrected	28		ug/L	P376126	
2142382	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	26.5	Q	MPN/100 mL	P375950	
2142386	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P375600	
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P375600	

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: Taylor Creek @ 39th St.

Collection Date/Time: 12/10/2019 12:15

Field ID: G1SE0024

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2142379	SM 10200 H (mod.)	Chlorophyll-a, Corrected	24		ug/L	P376126	
		Phaeophytin-a	7.1		ug/L	P376126	
		Chlorophyll-a, Uncorrected	29		ug/L	P376126	
2142383	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	16.9	Q	MPN/100 mL	P375950	

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: Taylor Creek @ 441

Collection Date/Time: 12/10/2019 12:45

Field ID: G1SE0001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2142380	SM 10200 H (mod.)	Chlorophyll-a, Corrected	15		ug/L	P376126	
		Phaeophytin-a	9.2		ug/L	P376126	
		Chlorophyll-a, Uncorrected	21		ug/L	P376126	
2142384	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	15.6	Q	MPN/100 mL	P375950	

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: L-62 upstream of S-154C

Collection Date/Time: 12/10/2019 13:55

Field ID: G1SE0028

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2142381	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.0	U	ug/L	P376126	
		Phaeophytin-a	1.1	U	ug/L	P376126	
		Chlorophyll-a, Uncorrected	1.6	I	ug/L	P376126	
2142385	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1.0	UQ	MPN/100 mL	P375950	

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.

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P376126

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.82	U	ug/L
Chlorophyll-a, Uncorrected	0.60	U	ug/L
Phaeophytin-a	0.90	U	ug/L

Reference Method: SM 9223 Quanti-Tray
Batch ID: P375950

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

Reference Method: SOP-PCR-1.0
Batch ID: P375600

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

Reference Method: SOP-PCR-1.4
Batch ID: P375600

Component	Result	Code	Units
BacR-qPCR	3.0E+03	U	TSC/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P376126

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	90.9		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P375600

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	121	113	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P375600

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	107	82.7	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P375600

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2142386	HF183-qPCR	98.5		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P375600

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2142578	HF183-qPCR	121		P	50 - 175
2142579	HF183-qPCR	101		P	50 - 175
2142633	HF183-qPCR	98.4		P	50 - 175
2142634	HF183-qPCR	98.4		P	50 - 175
2142645	HF183-qPCR	113		P	50 - 175
2142646	HF183-qPCR	109		P	50 - 175
2142647	HF183-qPCR	91.8	91.1	P/P	50 - 175
2143076	HF183-qPCR	103		P	50 - 175
2143091	HF183-qPCR	109		P	50 - 175
2143092	HF183-qPCR	116		P	50 - 175
2143093	HF183-qPCR	112		P	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P375600

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2142386	BacR-qPCR	70.4		P	50 - 175
2142579	BacR-qPCR	113		P	50 - 175
2142633	BacR-qPCR	74.6		P	50 - 175
2142634	BacR-qPCR	76.0		P	50 - 175
2142645	BacR-qPCR	93.8		P	50 - 175
2142646	BacR-qPCR	83.5		P	50 - 175
2142647	BacR-qPCR	79.3	80.2	P/P	50 - 175
2143076	BacR-qPCR	92.9		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)

Batch ID: P376126

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2142388	Chlorophyll-a, Corrected	10.1	Sample	P	0 - 25
2142388	Chlorophyll-a, Uncorrected	11.0	Sample	P	0 - 25

Reference Method: SM 9223 Quanti-Tray

Batch ID: P375950

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2142329	Escherichia Coli-Quanti-Tray	7.83	Sample	P	0 - 80
2143072	Escherichia Coli-Quanti-Tray	7.17	Sample	P	0 - 80

Reference Method: SOP-PCR-1.0

Batch ID: P375600

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2142647	HF183-qPCR	0.727	Spike	P	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.4
Batch ID: P375600

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2142647	BacR-qPCR	1.05	Spike	P	0 - 25

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Surrogates

Lab Sample ID: 2142386
Field Sample ID: G1SE0027

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	85.8	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	84.8	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	90.9						10.1	
	Chlorophyll-a, Uncorrected							11.0	
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray							7.83	7.17
SOP-PCR-1.0	HF183-qPCR	113	121	98.5	121	101			0.727
				98.4					
SOP-PCR-1.4	BacR-qPCR	82.7	107	70.4	113	74.6			1.05
				76.0					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2142378, 2142379, 2142380, 2142381
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	2142382, 2142383, 2142384, 2142385
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2142386
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2142386

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	12/11/2019	12/11/2019 13:26	Jessica Fetgatter	12/18/2019 10:08	Yuliya Danyuk	2142378, 2142379, 2142380, 2142381
SM 9223 Quanti-Tray	12/11/2019	12/11/2019 16:27	Anthony Mirabito	12/12/2019 10:27	Anthony Mirabito	2142382, 2142383, 2142384, 2142385
SOP-PCR-1.0	12/11/2019	12/11/2019 13:50	Angela Smith	12/12/2019 09:58	Lauren Campbell	2142386
SOP-PCR-1.4	12/11/2019	12/11/2019 13:50	Angela Smith	01/03/2020 09:42	Lauren Campbell	2142386