

Biological Analysis Report

SE-DIST-2019-12-20-01

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

Event Description: **SMP Okee Finale**
Request ID: **RQ-2019-12-16-57**
Customer: **SE-DIST**
Project ID: **SMP**

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Date Certified: 16-JAN-2020 09:30



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: L-63N canal @ SR 70

Collection Date/Time: 12/19/2019 11:00

Field ID: G1SE0023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2145845	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	47.6	AQ	MPN/100 mL	P376396	

Sample Location: Taylor Creek @ 70

Collection Date/Time: 12/19/2019 11:15

Field ID: G1SE0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2145842	SM 10200 H (mod.)	Chlorophyll-a, Corrected	13		ug/L	P376628	
		Phaeophytin-a	2.7		ug/L	P376628	
		Chlorophyll-a, Uncorrected	16		ug/L	P376628	

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: 12/19/2019 11:40

Field ID: G1SE0001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2145841	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.6	A	ug/L	P376628	
		Phaeophytin-a	2.2	I	ug/L	P376628	
		Chlorophyll-a, Uncorrected	7.1	A	ug/L	P376628	

Ref. Method and Comment:

SM 10200 H (mod.): Laboratory duplicate result is 2.2 I for Phaeophytin-a. Precision data is unavailable due to the small amount of analyte in the QC sample.

Sample Location: Popash Slough @ 67th Dr.

Collection Date/Time: 12/19/2019 12:40

Field ID: G1SE0027

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2145848	SOP-PCR-1.0	HF183-qPCR**	280	U	GEU/100 mL	P375939	
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P375939	

Ref. Method and Comment:

SOP-PCR-1.0: Precision data unavailable for Analysis batch A96756
 SOP-PCR-1.4: Precision data unavailable for Analysis Batch A96817.

Sample Location: Taylor Creek @ 98

Collection Date/Time: 12/19/2019 13:10

Field ID: G1SE0025

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2145843	SM 10200 H (mod.)	Chlorophyll-a, Corrected	69		ug/L	P376628	
		Phaeophytin-a	22		ug/L	P376628	
		Chlorophyll-a, Uncorrected	84		ug/L	P376628	

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: Lemkin Creek @ 78

Collection Date/Time: 12/19/2019 13:30

Field ID: G1SE0026

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G1SE0026

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2145849	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P375939	
	SOP-PCR-1.4	BacR-qPCR**	3.8E+03	I	TSC/100 mL	P375939	

Ref. Method and Comment:

SOP-PCR-1.0: Precision data unavailable for Analysis batch A96756

SOP-PCR-1.4: Precision data unavailable for Analysis Batch A96817.

Sample Location: L-63 @ SE 59th Blvd.

Collection Date/Time: 12/19/2019 14:40

Field ID: G1SE0029

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2145846	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	51.2	Q	MPN/100 mL	P376396	

Sample Location: L-63 canal @ SE 86th Blvd.

Collection Date/Time: 12/19/2019 15:00

Field ID: G1SE0022

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2145844	SM 10200 H (mod.)	Chlorophyll-a, Corrected	23		ug/L	P376628	
		Phaeophytin-a	4.2		ug/L	P376628	
		Chlorophyll-a, Uncorrected	27		ug/L	P376628	
2145847	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	26.5	Q	MPN/100 mL	P376396	

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

Reference Method: SM 10200 H (mod.)

Batch ID: P376628

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.89	U	ug/L
Chlorophyll-a, Uncorrected	0.65	U	ug/L
Phaeophytin-a	0.98	U	ug/L

Reference Method: SM 9223 Quanti-Tray

Batch ID: P376396

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

Reference Method: SOP-PCR-1.0

Batch ID: P375939

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

Reference Method: SOP-PCR-1.4

Batch ID: P375939

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: P376628

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	95.5		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P375939

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	118	136	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P375939

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	115	115	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P375939

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2143950	HF183-qPCR	113		P	50 - 175
2144991	HF183-qPCR	105		P	50 - 175
2145194	HF183-qPCR	76.8		P	50 - 175
2145195	HF183-qPCR	86.6		P	50 - 175
2145274	HF183-qPCR	121		P	50 - 175
2145350	HF183-qPCR	107		P	50 - 175
2145351	HF183-qPCR	107		P	50 - 175
2145371	HF183-qPCR	78.0		P	50 - 175
2145497	HF183-qPCR	106		P	50 - 175
2145848	HF183-qPCR	102		P	50 - 175
2145849	HF183-qPCR	104		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P375939

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2145194	BacR-qPCR	69.2		P	50 - 175
2145195	BacR-qPCR	64.6		P	50 - 175
2145274	BacR-qPCR	87.1		P	50 - 175
2145350	BacR-qPCR	75.6		P	50 - 175
2145351	BacR-qPCR	109		P	50 - 175
2145497	BacR-qPCR	78.0		P	50 - 175
2145848	BacR-qPCR	73.2		P	50 - 175
2145849	BacR-qPCR	83.2		P	50 - 175

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P376628

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145841	Chlorophyll-a, Corrected	0.414	Sample	P	0 - 25
2145841	Chlorophyll-a, Uncorrected	0.624	Sample	P	0 - 25

Reference Method: SM 9223 Quanti-Tray
Batch ID: P376396

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145845	Escherichia Coli-Quanti-Tray	1.47	Sample	P	0 - 80

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

Quality Assurance Report Surrogates

Lab Sample ID: 2145848
Field Sample ID: G1SE0027

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	82.6	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	82.0	P	50 - 300

Lab Sample ID: 2145849
Field Sample ID: G1SE0026

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	93.8	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	86.9	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	95.5						0.414	
	Chlorophyll-a, Uncorrected							0.624	
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray							1.47	
SOP-PCR-1.0	HF183-qPCR	136	118	105	76.8	86.6			
SOP-PCR-1.4	BacR-qPCR	115	115	121	69.2	64.6	87.1		
				75.6					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2145841, 2145842, 2145843, 2145844
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	2145845, 2145846, 2145847

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2145848, 2145849
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2145848, 2145849

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	12/20/2019	12/20/2019 15:20	Jessica Fetgatter	01/03/2020 09:29	Yuliya Danyuk	2145841, 2145842, 2145843, 2145844
SM 9223 Quanti-Tray	12/20/2019	12/20/2019 16:46	Jessica Sherman	12/21/2019 13:35	Jennifer Mihalic	2145845, 2145846, 2145847
SOP-PCR-1.0	12/20/2019	12/20/2019 14:30	Mailin Lopez	01/07/2020 15:18	Lauren Campbell	2145848, 2145849
SOP-PCR-1.4	12/20/2019	12/20/2019 14:30	Mailin Lopez	01/10/2020 14:32	Lauren Campbell	2145848, 2145849