

Biological Analysis Report

SO-DIST-2018-09-21-02

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

Overflow Analyses Performed By:
Sanders Laboratories
10090 Bavaria Road
Ft. Myers, FL 33913
DOH Accreditation E85457

Event Description: **Gators & Ditches**
Request ID: **RQ-2018-07-23-14**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
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FLDEP South District Office
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Fort Myers, FL 33901-3381
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Date Certified: 08-NOV-2018 11:00



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, Molecular and Overflow.

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: Alligator @ Jacaranda

Collection Date/Time: 09/20/2018 10:00

Field ID: G2SD0026

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2027451	Colilert-18	Escherichia Coli-Quanti-Tray**	42.8		MPN/100 mL		

Sample Location: Woodmere Creek@Heron Rd

Collection Date/Time: 09/20/2018 10:20

Field ID: G2SD0027

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2027448	Enterolert/QT	ENTEROCOCCI-ENTEROLERT	388		MPN/100 mL		

Sample Location: Woodmere Creek@Heron Rd

Collection Date/Time: 09/20/2018 10:20

Field ID: G2SD0027

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2027445	SOP-PCR-1.0	HF183-qPCR**	3.29E+03		GEU/100 mL	P353497	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Sample Location: EnglewoodDitch@IndianAv

Collection Date/Time: 09/20/2018 10:40

Field ID: G2SD0022

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2027452	Colilert-18	Escherichia Coli-Quanti-Tray**	52.8		MPN/100 mL		

Sample Location: TrailerParkCanal@Mouth

Collection Date/Time: 09/20/2018 11:20

Field ID: G3SD0072

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2027439	SM 10200 H (mod.)	Chlorophyll-a, Corrected	13		ug/L	P353079	
		Phaeophytin-a	2.9		ug/L	P353079	
		Chlorophyll-a, Uncorrected	16		ug/L	P353079	

Sample Location: ClevelandCemeteryDitch

Collection Date/Time: 09/20/2018 12:15

Field ID: G3SD0076

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2027440	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.5		ug/L	P353081	
		Phaeophytin-a	2.2		ug/L	P353081	
		Chlorophyll-a, Uncorrected	5.9		ug/L	P353081	
2027450	Enterolert/QT	ENTEROCOCCI-ENTEROLERT	41.9		MPN/100 mL		

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: P353079

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L
Phaeophytin-a	0.60	U	ug/L

Reference Method: SM 10200 H (mod.)
Batch ID: P353081

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.55	U	ug/L
Chlorophyll-a, Uncorrected	0.40	U	ug/L
Phaeophytin-a	0.60	U	ug/L

Reference Method: SOP-PCR-1.0
Batch ID: P353497

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: P353079

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	103		P	84 - 116

Reference Method: SM 10200 H (mod.)
Batch ID: P353081

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	100		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P353497

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	108	187	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P353497

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2023642	HF183-qPCR	85.1		P	50 - 175
2023643	HF183-qPCR	85.9		P	50 - 175
2023644	HF183-qPCR	106		P	50 - 175
2023645	HF183-qPCR	95.6		P	50 - 175
2026896	HF183-qPCR	68.3		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P353497

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2026986	HF183-qPCR	92.9		P	50 - 175
2026987	HF183-qPCR	61.3	54.7	P/P	50 - 175
2026988	HF183-qPCR	78.4		P	50 - 175
2027411	HF183-qPCR	90.0		P	50 - 175
2027445	HF183-qPCR	79.0		P	50 - 175
2030524	HF183-qPCR	94.6		P	50 - 175
2034865	HF183-qPCR	83.6		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P353079

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027094	Chlorophyll-a, Corrected	0.725	Sample	P	0 - 25
2027094	Chlorophyll-a, Uncorrected	0.555	Sample	P	0 - 25
2027094	Phaeophytin-a	12.1	Sample	P	0 - 25

Reference Method: SM 10200 H (mod.)
Batch ID: P353081

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2027481	Chlorophyll-a, Uncorrected	15.7	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P353497

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2026987	HF183-qPCR	11.3	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: 2027445
Field Sample ID: G2SD0027

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	123	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	103						0.725	
	Chlorophyll-a, Corrected	100							
	Chlorophyll-a, Uncorrected							0.555	
	Chlorophyll-a, Uncorrected							15.7	
	Phaeophytin-a							12.1	
SOP-PCR-1.0	HF183-qPCR	187	108	85.1	85.9	106	95.6		11.3

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
Colilert-18 / E85457	Escherichia coli by Colilert 18 Quanti-Tray method by Sanders Laboratories in Fort Myers	2027451, 2027452
Enterolert/QT / E85457	Enterococci by Enterolert Quanti-Tray method by Sanders Laboratories in Fort Myers	2027448, 2027450
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2027439, 2027440
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2027445
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2027445

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Colilert-18	09/20/2018	09/20/2018 17:35		09/21/2018 15:09	Sanders-Fort Myers	2027451, 2027452
Enterolert/QT	09/20/2018	09/20/2018 15:36		09/21/2018 15:46	Sanders-Fort Myers	2027448, 2027450
SM 10200 H (mod.)	09/21/2018	09/21/2018 14:40	Mariam Hanna	10/04/2018 09:05	Peterson Janvier	2027439
	09/21/2018	09/21/2018 14:40	Mariam Hanna	10/04/2018 16:45	Peterson Janvier	2027440
SOP-PCR-1.0	09/21/2018	09/21/2018 11:45	Sarah Menz	10/24/2018 14:19	Mailin Lopez	2027445
SOP-PCR-4.0	09/21/2018	09/21/2018 11:45	Angela Smith	10/23/2018 09:59	Sarah Menz	2027445