

Biological Analysis Report

SO-DIST-2019-05-30-01

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

Event Description: **Wilderness Waterway**
Request ID: **RQ-2019-05-13-42**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
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FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
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Certified by: Puja Jasrotia, Environmental Manager

Date Certified: 26-JUN-2019 16:16

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 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: $1.3\text{E}+03$, 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: ENRE 10 near Boat Ramp

Collection Date/Time: 05/29/2019 10:15

Field ID: G1SD0074

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089842	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.0		ug/L	P365451	
		Phaeophytin-a	0.75	U	ug/L	P365451	
		Chlorophyll-a, Uncorrected	3.5		ug/L	P365451	

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: ENRE 10 off Chokoloskee

Collection Date/Time: 05/29/2019 10:35

Field ID: G1SD0075

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089843	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.6		ug/L	P365451	
		Phaeophytin-a	1.0	I	ug/L	P365451	
		Chlorophyll-a, Uncorrected	4.4		ug/L	P365451	

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: ENRE10 Lopez River

Collection Date/Time: 05/29/2019 10:50

Field ID: G5SD0092

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089837	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.1	I	ug/L	P365451	
		Phaeophytin-a	0.82	U	ug/L	P365451	
		Chlorophyll-a, Uncorrected	2.6		ug/L	P365451	
2089846	Enterolert/QT	Enterococci-Quant- Tray	10.0	UQ	MPN/100 mL	P365025	
2089851	SM 9222 D	Fecal Coliforms-Membrane Filter	2	UQ	cfu/100 mL	P365878	

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.

Enterolert/QT: Laboratory duplicate result is 10.0 U. Precision data is unavailable due to the small amount of analyte in the QC sample.

SM 9222 D: Laboratory duplicate result is 2 U. Precision data for this duplicate is unavailable due to the colony count falling outside of method acceptable range.

Sample Location: ENRE9 Lopez River

Collection Date/Time: 05/29/2019 11:10

Field ID: G5SD0093

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089838	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.7		ug/L	P365451	
		Phaeophytin-a	1.7	I	ug/L	P365451	
		Chlorophyll-a, Uncorrected	3.8		ug/L	P365451	
2089847	Enterolert/QT	Enterococci-Quant- Tray	10.0	UQ	MPN/100 mL	P365025	
2089852	SM 9222 D	Fecal Coliforms-Membrane Filter	2	UQ	cfu/100 mL	P365878	

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.

Enterolert/QT: Precision data is unavailable due to the small amount of analyte in the QC sample.

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range.

Sample Location: ENRE11 Sunday Bay

Collection Date/Time: 05/29/2019 11:30

Field ID: G5SD0094

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089839	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.1		ug/L	P365451	
		Phaeophytin-a	2.2	I	ug/L	P365451	
		Chlorophyll-a, Uncorrected	5.5		ug/L	P365451	
2089848	Enterolert/QT	Enterococci-Quanti-Tray	20.0	Q	MPN/100 mL	P365025	
2089853	SM 9222 D	Fecal Coliforms-Membrane Filter	2	UQ	cfu/100 mL	P365878	

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.

Enterolert/QT: Precision data is unavailable due to the small amount of analyte in the QC sample.

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range.

Sample Location: ENRE 11 at Huston Bay

Collection Date/Time: 05/29/2019 11:50

Field ID: G5SD0026

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089840	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.6	I	ug/L	P365451	
		Phaeophytin-a	1.2	U	ug/L	P365451	
		Chlorophyll-a, Uncorrected	2.6		ug/L	P365451	
2089849	Enterolert/QT	Enterococci-Quanti-Tray	10.0	UQ	MPN/100 mL	P365025	
2089854	SM 9222 D	Fecal Coliforms-Membrane Filter	2	UQ	cfu/100 mL	P365878	

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.

Enterolert/QT: Precision data is unavailable due to the small amount of analyte in the QC sample.

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range.

Sample Location: ENRE 11 at Huston Bay

Collection Date/Time: 05/29/2019 11:55

Field ID: G5SD0026_DUP

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089841	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.4		ug/L	P365451	
		Phaeophytin-a	0.75	U	ug/L	P365451	
		Chlorophyll-a, Uncorrected	2.4		ug/L	P365451	
2089850	Enterolert/QT	Enterococci-Quanti-Tray	10.0	Q	MPN/100 mL	P365025	
2089855	SM 9222 D	Fecal Coliforms-Membrane Filter	2	UQ	cfu/100 mL	P365878	

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.

Enterolert/QT: Precision data is unavailable due to the small amount of analyte in the QC sample.

SM 9222 D: Precision data for QC sample is unavailable due to the colony count falling outside of method acceptable range.

Sample Location: ENRE9 @CopelandCauseway

Collection Date/Time: 05/29/2019 13:20

Field ID: G1SD0073

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089844	SM 10200 H (mod.)	Chlorophyll-a, Corrected	11		ug/L	P365451	
		Phaeophytin-a	2.2	U	ug/L	P365451	
		Chlorophyll-a, Uncorrected	12		ug/L	P365451	

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: ENRE 9

Collection Date/Time: 05/29/2019 13:35

Field ID: G1SD0090

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089845	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.0	A	ug/L	P365451	
		Phaeophytin-a	1.2	I	ug/L	P365451	
		Chlorophyll-a, Uncorrected	3.8	A	ug/L	P365451	

Ref. Method and Comment:

SM 10200 H (mod.): Laboratory duplicate result is 1.1 I for Phaeophytin-a. Precision data is unavailable due to the small amount of analyte in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: Enterolert/QT

Batch ID: P365025

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

Reference Method: SM 10200 H (mod.)

Batch ID: P365451

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.69	U	ug/L
Chlorophyll-a, Uncorrected	0.50	U	ug/L
Phaeophytin-a	0.75	U	ug/L

Reference Method: SM 9222 D

Batch ID: P365878

Component	Result	Code	Units
Fecal Coliforms-Membrane Filter	2	U	cfu/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)

Batch ID: P365451

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	97.6		P	84 - 116

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)

Batch ID: P365451

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089845	Chlorophyll-a, Corrected	6.52	Sample	P	0 - 25
2089845	Chlorophyll-a, Uncorrected	7.50	Sample	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 Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision		
				LCS	SMP	MS
SM 10200 H (mod.)	Chlorophyll-a, Corrected	97.6			6.52	
	Chlorophyll-a, Uncorrected				7.50	

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
Enterolert/QT / E31780	Enterococci by Enterolert Quanti-Tray method - non-chlorinated water systems	2089846, 2089847, 2089848, 2089849, 2089850
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2089837, 2089838, 2089839, 2089840, 2089841, 2089842, 2089843, 2089844, 2089845
SM 9222 D / E31780	Fecal coliforms by membrane filter method - non-chlorinated water systems	2089851, 2089852, 2089853, 2089854, 2089855

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	05/30/2019	05/30/2019 13:51	Edwin Gonzalez-Soto	05/31/2019 16:37	Edwin Gonzalez-Soto	2089846, 2089847, 2089848, 2089849, 2089850
SM 10200 H (mod.)	05/30/2019	05/30/2019 13:55	Jennifer Mihalic	06/10/2019 09:59	Jennifer Mihalic	2089837, 2089838, 2089839, 2089840, 2089841, 2089842, 2089843, 2089844, 2089845
SM 9222 D	05/30/2019	05/30/2019 15:35	Peterson Janvier	05/31/2019 15:50	Peterson Janvier	2089851, 2089852, 2089853, 2089854, 2089855