

Biological Analysis Report

CEN-DIST-2019-02-14-01

Florida Department of Environmental Protection
Central Laboratory
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DOH Accreditation E31780

Overflow Analyses Performed By:
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DOH Accreditation E1031026

Event Description: **Crane Crk / Eau X2**
Request ID: **RQ-2019-02-11-38**
Customer: **CEN-DIST**
Project ID: **SMP**

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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 11-APR-2019 11:20



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 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: Crane Creek @ 200m upstream of RR bridge

Collection Date/Time: 02/13/2019 10:55

Field ID: G5CE0097

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2062512	SM 9230 C	Enterococci-Membrane Filter**	1460	B	cfu/100 mL		
2062516	SM 10200 H (mod.)	Chlorophyll-a, Corrected	7.4		ug/L	P359473	
		Phaeophytin-a	2.5		ug/L	P359473	
		Chlorophyll-a, Uncorrected	9.2		ug/L	P359473	
2062519	SOP-PCR-1.0	HF183-qPCR**	1.72E+03		GEU/100 mL	P361000	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold			P358575	

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: Eau Gallie River downstream of US Hwy 1 Bridge

Collection Date/Time: 02/13/2019 11:33

Field ID: G5CE0096

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2062513	SM 9230 C	Enterococci-Membrane Filter**	920	B	cfu/100 mL		
2062517	SM 10200 H (mod.)	Chlorophyll-a, Corrected	30		ug/L	P359473	
		Phaeophytin-a	2.7		ug/L	P359473	
		Chlorophyll-a, Uncorrected	33		ug/L	P359473	
2062520	SOP-PCR-1.0	HF183-qPCR**	1.38E+03	A	GEU/100 mL	P361000	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold			P358952	

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: Eau Gallie River @ Boat Ramp

Collection Date/Time: 02/13/2019 11:40

Field ID: G5CE0088

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2062514	SM 9230 C	Enterococci-Membrane Filter**	730	B	cfu/100 mL		
2062518	SM 10200 H (mod.)	Chlorophyll-a, Corrected	22		ug/L	P359473	
		Phaeophytin-a	2.9		ug/L	P359473	
		Chlorophyll-a, Uncorrected	25		ug/L	P359473	
2062521	SOP-PCR-1.0	HF183-qPCR**	970		GEU/100 mL	P361000	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold			P358952	

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: Crane Creek @ 200m upstream of RR bridge

Collection Date/Time: 02/13/2019 10:58

Field ID: G5CE0097_DUP

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2062515	SM 9230 C	Enterococci-Membrane Filter**	1440	B	cfu/100 mL		

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P359473

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: P361000

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: P359473

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	110		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P361000

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	121	260	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P361000

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2062519	HF183-qPCR	99.5		P	50 - 175
2062520	HF183-qPCR	102	83.9	P/P	50 - 175
2062521	HF183-qPCR	93.2		P	50 - 175
2068505	HF183-qPCR	73.4		P	50 - 175
2068506	HF183-qPCR	69.8		P	50 - 175
2068510	HF183-qPCR	75.3		P	50 - 175
2070103	HF183-qPCR	113		P	50 - 175
2072476	HF183-qPCR	111		P	50 - 175
2072951	HF183-qPCR	93.6		P	50 - 175
2072952	HF183-qPCR	110		P	50 - 175
2072953	HF183-qPCR	106		P	50 - 175
2072954	HF183-qPCR	81.4		P	50 - 175
2072955	HF183-qPCR	125		P	50 - 175

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
 Batch ID: P359473

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062380	Chlorophyll-a, Corrected	1.14	Sample	P	0 - 25
2062380	Chlorophyll-a, Uncorrected	1.52	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
 Batch ID: P361000

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2062520	HF183-qPCR	19.0	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: 2062519
 Field Sample ID: G5CE0097

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	92.7	P	50 - 300

Lab Sample ID: 2062520
 Field Sample ID: G5CE0096

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	92.4	P	50 - 300

Lab Sample ID: 2062521
 Field Sample ID: G5CE0088

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	78.0	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	110						1.14	
	Chlorophyll-a, Uncorrected							1.52	
SOP-PCR-1.0	HF183-qPCR	260	121	113	111	99.5			19.0
				102					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2062516, 2062517, 2062518

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SM 9230 C / E1031026	Enterococci by membrane filter method by ERD Laboratory	2062512, 2062513, 2062514, 2062515
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2062519, 2062520, 2062521
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2062519, 2062520, 2062521

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	02/14/2019	02/14/2019 13:30	Jennifer Mihalic	02/22/2019 08:25	Carina A. Tull	2062516, 2062517, 2062518
SM 9230 C	02/13/2019	02/13/2019 16:00		02/15/2019 15:30	Environmental Research & Design, Inc.	2062512, 2062513, 2062514, 2062515
SOP-PCR-1.0	02/14/2019	02/14/2019 12:45	Sarah Menz	03/29/2019 08:38	Mailin Lopez	2062519, 2062520, 2062521
SOP-PCR-4.0	02/14/2019	02/14/2019 12:45	Angela Smith	04/10/2019 15:42	Sarah Menz	2062519, 2062520, 2062521