

Biological Analysis Report

SE-DIST-2016-03-24-01

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

Event Description: **MOSQTUNK3/21**
Request ID: **RQ-2016-03-21-55**
Customer: **SE-DIST**
Project ID: **SCIREF**

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Date Certified: 14-JUN-2016 11:28



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, InvertZool 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: 1.3E+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: Mosquito Creek @ CR-710

Collection Date/Time: 03/23/2016 12:55

Field ID: 26010408_03232016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1783070	SM 5210 B	Biochemical Oxygen Demand-5 Day	0.20	UJ	mg/L	P301362	LCS
1783071	SM 10200 H (mod.)	Chlorophyll-a, Corrected	6.2		ug/L	P301575	
		Phaeophytin-a	5.4		ug/L	P301575	
		Chlorophyll/Phaeophytin Ratio	1.4			P301575	
		Chlorophyll-a, Uncorrected	9.6		ug/L	P301575	
1783072	Enterolert/QT	Enterococci-Quanti-Tray**	268.4	AQ	MPN/100 mL	P301350	
	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray**	474.8	AQ	MPN/100 mL	P301350	
1783073	SM 9222 D	Fecal Coliforms-Membrane Filter	440	Q	cfu/100 mL	P301058	
1783075	SOP-PCR01	HF183-qPCR**	650	T	GEU/100 mL	P300885	

Ref. Method and Comment:

SM 5210 B: Refer to QA report for QC exceeding limits. Precision data is unavailable due to the small amount of analyte in the QC sample.

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.

SM 9222 D: Precision data is unavailable for this duplicate due to the high amount of analyte in the QC sample.

SOP-PCR01: Analyte detected at a level below the current MDL.

Sample Location: Mosqtunk Bio Ref Station

Collection Date/Time: 03/23/2016 12:00

Field ID: 26010408_03232016

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1783074	SOP-IZ06	Stream Condition Index (SCI)**	63	A	Points		
		Macroinvert-FW-Qual-DipnetX20-#Taxa-Rep2**	31		# Taxa		

Quality Assurance Report Method Blank Results

Reference Method: Enterolert/QT

Batch ID: P301350

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

Reference Method: SM 10200 H (mod.)

Batch ID: P301575

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

Reference Method: SM 5210 B

Batch ID: P301362

Component	Result	Code	Units
Biochemical Oxygen Demand-5 Day	0.20	U	mg/L

Reference Method: SM 9222 D

Batch ID: P301058

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

Quality Assurance Report Method Blank Results

Reference Method: SM 9223 Quanti-Tray
Batch ID: P301350

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

Reference Method: SOP-PCR01
Batch ID: P300885

Component	Result	Code	Units
HF183-qPCR	4.1E+03	U	GEU/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P301575

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	98.2		P	84 - 116

Reference Method: SM 5210 B
Batch ID: P301362

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Biochemical Oxygen Demand-5 Day	77.8		F	84 - 116

Reference Method: SOP-PCR01
Batch ID: P300885

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	117	146	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR01
Batch ID: P300885

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1782644	HF183-qPCR	130		P	50 - 175
1782645	HF183-qPCR	115		P	50 - 175
1782646	HF183-qPCR	134	137	P/P	50 - 175
1783075	HF183-qPCR	129		P	50 - 175
1783335	HF183-qPCR	120		P	50 - 175
1783336	HF183-qPCR	121		P	50 - 175
1783337	HF183-qPCR	107		P	50 - 175
1783338	HF183-qPCR	94.5		P	50 - 175
1783339	HF183-qPCR	165		P	50 - 175
1783340	HF183-qPCR	86.0		P	50 - 175
1783341	HF183-qPCR	113		P	50 - 175
1783342	HF183-qPCR	102		P	50 - 175

Quality Assurance Report Precision

Reference Method: Enterolert/QT
Batch ID: P301350

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1783072	Enterococci-Quanti-Tray	5.29	Sample	P	0 - 80

Reference Method: SM 10200 H (mod.)
Batch ID: P301575

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1783173	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1783173	Chlorophyll-a, Corrected	3.76	Sample	P	0 - 25
1783173	Chlorophyll-a, Uncorrected	5.89	Sample	P	0 - 25

Reference Method: SM 9223 Quanti-Tray
Batch ID: P301350

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1783072	Escherichia Coli-Quanti-Tray	5.75	Sample	P	0 - 80

Reference Method: SOP-PCR01
Batch ID: P300885

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1782646	HF183-qPCR	2.32	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: 1783075
Field Sample ID: 26010408_03232016

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR01	SKETA-qPCR	135	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
Enterolert/QT	Enterococci-Quanti-Tray				5.29	
SM 10200 H (mod.)	Chlorophyll/Phaeophytin Ratio				0.0	
	Chlorophyll-a, Corrected	98.2			3.76	
	Chlorophyll-a, Uncorrected				5.89	
SM 5210 B	Biochemical Oxygen Demand-5 Day	77.8				
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray				5.75	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			LCS	Precision SMP	MS
SOP-PCR01	HF183-qPCR	146	117	130	115	134			2.32
				137					

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
Enterolert/QT / E31780	Enterococci by Enterolert Quanti-Tray method - non-chlorinated water systems	1783072
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1783071
SM 5210 B / E31780	BOD, NOT nitrogen-inhibited	1783070
SM 9222 D / E31780	Fecal coliforms by membrane filter method - non-chlorinated water systems	1783073
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	1783072
SOP-IZ06 / E31780	No. Taxa of FW macroinverts, qual samp, 20 dipnets.	1783074
SOP-PCR01 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1783075

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	03/24/2016	03/24/2016 13:40	Ryan Coker	03/25/2016 15:00	Ryan Coker	1783072
SM 10200 H (mod.)	03/24/2016	03/24/2016 13:40	Meiqin Chen	04/04/2016	Kim M. Spencer	1783071
SM 5210 B	03/24/2016			03/25/2016 08:35	Jennifer Mihalic	1783070
SM 9222 D	03/24/2016	03/24/2016 13:30	Brian Cumbie	03/25/2016 14:40	Jennifer Mihalic	1783073
SM 9223 Quanti-Tray	03/24/2016	03/24/2016 13:40	Ryan Coker	03/25/2016 11:35	Ryan Coker	1783072
SOP-IZ06	03/24/2016	05/11/2016	Elizabeth Lovern	06/08/2016	Lisa Homann	1783074
	03/24/2016	05/11/2016	Elizabeth Lovern	06/10/2016	Lisa Homann	1783074
SOP-PCR01	03/24/2016	03/24/2016 11:35	Jonathan M. Woods	04/06/2016	Sarah Menz	1783075