

Biological Analysis Report

NE-DIST-2019-12-19-01

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

Overflow Analyses Performed By:
ALS Environmental - Jacksonville
9143 Philips Highway, Suite 200
Jacksonville, FL 32256
DOH Accreditation E82502

Event Description: **SCI Reference Nassau**
Request ID: **RQ-2019-10-21-07**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Jacksonville, FL 32256-7577
Attn: Jeremy Parrish

For additional information please contact
Cheryl Swanson - Administrator
Jacqueline Savage - Microbiology
Diane Power - Bench Biology
Andrew Tintle - Aquatic Toxicology
Puja Jasrotia, Ph.D. - Molecular Biology
Amelia Rankin - Taxonomy (Invertebrate & Algal)
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8177

Certified by: Puja Jasrotia, Environmental Manager

Date Certified: 12-MAR-2020 13:39



NON-CONFORMANCE REPORT INCLUDED

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, 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: Calkins Creek at Turner Cemetery Road

Collection Date/Time: 12/17/2019 10:45

Field ID: 19010076

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2145258	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.82	UQ	ug/L	P376627	
		Phaeophytin-a	0.90	UQ	ug/L	P376627	
		Chlorophyll-a, Uncorrected	0.60	UQ	ug/L	P376627	
2145269	SM 9223 B Quanti-Tray	Escherichia Coli-Quanti-Tray	21		MPN/100 mL		
2145274	SOP-PCR-1.0	HF183-qPCR**	140	UQ	GEU/100 mL	P375939	
	SOP-PCR-1.3	GFD-purified-qPCR**	180	I JQ	TSC/100 mL	P376042	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	2.0E+03	I Q	TSC/100 mL	P375939	
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	UQ	TSC/100 mL	P375939	

Ref. Method and Comment:

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

SOP-PCR-1.3: Quality control failure(s) observed. See QA report for details.

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

Sample Location: Calkins Creek at Turner Cemetery Road

Collection Date/Time: 12/17/2019 10:45

Field ID: 19010076

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2145263	SOP-IZ06	Stream Condition Index (SCI)**	82		Points	P378714	
		Macroinvert-FW-Qual-DipnetX20-#Taxa -Rep2**	37		# Taxa	P378714	

Non-Conformance Report

NCR ID: 8084

Event(s)

NE-DIST-2019-12-19-01

Job(s)

Sample(s)

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Samples arrived late

Observation: Samples arrived one or more days late by FedEx, samples received within the acceptable temperature range.

Resolution: Customer J.Parrish was contacted by phone. Samples will be qualified as appropriate.

Authorized by/Date: Joshua Ayres 1/2/2020

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
Please address questions to:

Chemistry Colin Wright (850) 245-8085
Biology Cheryl Swanson (850) 245-8177

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P376627

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.82	U	ug/L
Chlorophyll-a, Uncorrected	0.60	U	ug/L
Phaeophytin-a	0.90	U	ug/L

Quality Assurance Report Method Blank Results

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

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

Reference Method: SOP-PCR-1.3
Batch ID: P376042

Component	Result	Code	Units
GFD-purified-qPCR	340	U	TSC/100 mL

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

Component	Result	Code	Units
BacR-qPCR	3.0E+03	U	TSC/100 mL

Reference Method: SOP-PCR-1.5
Batch ID: P375939

Component	Result	Code	Units
DG3-qPCR	2.6E+03	U	TSC/100 mL

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P376627

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	94.5		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-1.3
Batch ID: P376042

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	131	38.5	P/F	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

Reference Method: SOP-PCR-1.5
Batch ID: P375939

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.5
Batch ID: P375939

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	122	104	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-1.3
Batch ID: P376042

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2140112	GFD-purified-qPCR	234		F	50 - 175
2143850	GFD-purified-qPCR	146		P	50 - 175
2144382	GFD-purified-qPCR	170		P	50 - 175
2144383	GFD-purified-qPCR	160		P	50 - 175
2144384	GFD-purified-qPCR	170	173	P/P	50 - 175
2145194	GFD-purified-qPCR	224		F	50 - 175
2145195	GFD-purified-qPCR	164		P	50 - 175
2145274	GFD-purified-qPCR	205		F	50 - 175
2146108	GFD-purified-qPCR	199		F	50 - 175
2146109	GFD-purified-qPCR	184		F	50 - 175
2146110	GFD-purified-qPCR	190		F	50 - 175
2146111	GFD-purified-qPCR	184		F	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 Matrix Spike Accuracy

Reference Method: SOP-PCR-1.5
Batch ID: P375939

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2144382	DG3-qPCR	125		P	50 - 175
2144383	DG3-qPCR	118		P	50 - 175
2144384	DG3-qPCR	114	110	P/P	50 - 175
2145274	DG3-qPCR	107		P	50 - 175
2145350	DG3-qPCR	106		P	50 - 175
2145351	DG3-qPCR	96.8		P	50 - 175
2145497	DG3-qPCR	96.4		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P376627

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2145217	Chlorophyll-a, Corrected	1.35	Sample	P	0 - 25
2145217	Chlorophyll-a, Uncorrected	2.18	Sample	P	0 - 25
2145217	Phaeophytin-a	7.81	Sample	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P376042

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2144384	GFD-purified-qPCR	1.88	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P375939

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2144384	DG3-qPCR	3.99	Spike	P	0 - 25

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

Quality Assurance Report Surrogates

Lab Sample ID: 2145274
Field Sample ID: 19010076

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	87.6	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	92.1	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	92.3	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	94.5						1.35	
	Chlorophyll-a, Uncorrected							2.18	
	Phaeophytin-a							7.81	
SOP-PCR-1.0	HF183-qPCR	136	118	105	76.8	86.6			
SOP-PCR-1.3	GFD-purified-qPCR	38.5	131	121	160	170			1.88
				173					
SOP-PCR-1.4	BacR-qPCR	115	115	69.2	64.6	87.1			
				75.6					
SOP-PCR-1.5	DG3-qPCR	104	122	125	118	114			3.99
				110					

Reference Method Descriptions

Method	Description	Associated Samples
SM 10200 H (mod.)	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2145258
SM 9223 B Quanti-Tray	E. coli by Colilert/QT by ALS in Jacksonville	2145269
SOP-IZ06	No. Taxa of FW macroinverts, qual samp, 20 dipnets.	2145263
SOP-PCR-1.0	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2145274
SOP-PCR-1.3	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2145274
SOP-PCR-1.4	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2145274
SOP-PCR-1.5	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2145274

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	12/19/2019	12/19/2019 12:00	Jessica Fetgatter	01/02/2020 14:43	Yuliya Danyuk	2145258
SM 9223 B Quanti-Tray	12/17/2019	12/17/2019 15:24		12/18/2019 15:41	ALS Environmental, Jax	2145269
SOP-IZ06	12/19/2019	02/11/2020 08:18	Cathy Sherrer	02/24/2020 07:43	Lisa Homann	2145263
	12/19/2019	02/11/2020 08:18	Cathy Sherrer	02/28/2020 07:43	Lisa Homann	2145263
SOP-PCR-1.0	12/19/2019	12/19/2019 15:45	Mailin Lopez	01/07/2020 15:18	Lauren Campbell	2145274
SOP-PCR-1.3	12/19/2019	12/19/2019 15:45	Angela Smith	12/23/2019 12:16	Mailin Lopez	2145274
SOP-PCR-1.4	12/19/2019	12/19/2019 15:45	Mailin Lopez	01/10/2020 14:32	Lauren Campbell	2145274
SOP-PCR-1.5	12/19/2019	12/19/2019 15:45	Mailin Lopez	01/06/2020 13:14	Mailin Lopez	2145274