

Biological Analysis Report

SW-DIST-2018-09-12-01

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

Overflow Analyses Performed By:
Pace Analytical Services
110 Bayview Blvd
Oldsmar, FL 34677
DOH Accreditation E84129

Event Description: **Snug, PP#1, Basin V, Mckay Tidal**
Request ID: **RQ-2018-09-10-17**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: judy.ashton@dep.state.fl.us

For additional information please contact
Cheryl Swanson - Administrator
J. Marshall Faircloth - Aquatic Toxicology
Jacqueline Savage - Bench Biology
Jacqueline Savage - Microbiology
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: 23-OCT-2018 16:16



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: Snug Harbor - TP428

Collection Date/Time: 09/11/2018 10:05

Field ID: G1SW0099

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2024430	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.9		ug/L	P352163	
		Phaeophytin-a	2.6		ug/L	P352163	
		Chlorophyll-a, Uncorrected	7.8		ug/L	P352163	
2024438	SM 9222 D	Fecal Coliforms-Membrane Filter	13	B	cfu/100 mL		
2024440	Enterolert/QT	Enterococci-Quanti-Tray	1350		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.

Sample Location: Pinellas Pt. Basin V TP455

Collection Date/Time: 09/11/2018 10:50

Field ID: G1SW0100

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2024431	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.0		ug/L	P352163	
		Phaeophytin-a	1.6		ug/L	P352163	
		Chlorophyll-a, Uncorrected	4.1		ug/L	P352163	
2024439	SM 9222 D	Fecal Coliforms-Membrane Filter	100	B	cfu/100 mL		
2024441	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	460		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.

Sample Location: PP Ditch #1 @ 71st St.

Collection Date/Time: 09/11/2018 11:30

Field ID: G5SW0134

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2024429	SM 10200 H (mod.)	Chlorophyll-a, Corrected	5.2		ug/L	P352163	
		Phaeophytin-a	4.5		ug/L	P352163	
		Chlorophyll-a, Uncorrected	8.1		ug/L	P352163	
2024434	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P351391	
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P351391	MS
	SOP-PCR-1.3	GFD-purified-qPCR**	170	U	TSC/100 mL	P353346	LCS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P351391	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
2024437	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	465		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.

Sample Location: McKay Creek Tidal off Hickory

Collection Date/Time: 09/11/2018 12:10

Field ID: G5SW0130

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2024442	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	228		MPN/100 mL		

**Quality Assurance Report
Method Blank Results**

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P352163

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: SOP-PCR-1.0
Batch ID: P351391

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

Reference Method: SOP-PCR-1.2
Batch ID: P351391

Component	Result	Code	Units
GULL2-qPCR	1.7E+04	U	TSC/100 mL

Reference Method: SOP-PCR-1.3
Batch ID: P353346

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

Reference Method: SOP-PCR-1.4
Batch ID: P351391

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 10200 H (mod.)
Batch ID: P352163

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	91.4		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P351391

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	100	110	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P351391

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	107	168	P/P	50 - 300

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.3
Batch ID: P353346

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	53.0	37.4	P/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P351391

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	83.3	164	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P351391

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2023677	HF183-qPCR	102	99.3	P/P	50 - 175
2023678	HF183-qPCR	83.0		P	50 - 175
2024325	HF183-qPCR	100		P	50 - 175
2024326	HF183-qPCR	99.4		P	50 - 175
2024434	HF183-qPCR	93.0		P	50 - 175
2025579	HF183-qPCR	91.2		P	50 - 175
2026784	HF183-qPCR	93.3		P	50 - 175
2026785	HF183-qPCR	76.1		P	50 - 175
2026786	HF183-qPCR	97.3		P	50 - 175
2026787	HF183-qPCR	95.2		P	50 - 175
2026788	HF183-qPCR	94.9		P	50 - 175
2026789	HF183-qPCR	85.3		P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P351391

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024434	GULL2-qPCR	78.0		P	50 - 300
2025579	GULL2-qPCR	77.0		P	50 - 300
2026784	GULL2-qPCR	109		P	50 - 300
2026785	GULL2-qPCR	58.9		P	50 - 300
2026786	GULL2-qPCR	96.2		P	50 - 300
2026787	GULL2-qPCR	87.4		P	50 - 300
2026788	GULL2-qPCR	73.3		P	50 - 300
2026789	GULL2-qPCR	45.6		F	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P353346

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024434	GFD-purified-qPCR	63.4		P	50 - 175
2025579	GFD-purified-qPCR	73.7	66.7	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4
Batch ID: P351391

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2024434	BacR-qPCR	73.1		P	50 - 175
2025579	BacR-qPCR	77.2		P	50 - 175
2026784	BacR-qPCR	77.9		P	50 - 175
2026785	BacR-qPCR	74.8		P	50 - 175
2026786	BacR-qPCR	69.4		P	50 - 175
2026787	BacR-qPCR	67.5		P	50 - 175
2026788	BacR-qPCR	69.2		P	50 - 175
2026789	BacR-qPCR	65.7		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P352163

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2024295	Chlorophyll-a, Corrected	2.86	Sample	P	0 - 25
2024295	Chlorophyll-a, Uncorrected	1.30	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P351391

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2023677	HF183-qPCR	3.16	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P351391

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2023677	GULL2-qPCR	11.5	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P353346

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2025579	GFD-purified-qPCR	10.1	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P351391

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2023677	BacR-qPCR	11.7	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: 2024434
 Field Sample ID: G5SW0134

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	109	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	109	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	101	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	91.4						2.86	
	Chlorophyll-a, Uncorrected							1.30	
SOP-PCR-1.0	HF183-qPCR	110	100	102	99.3	83.0			3.16
SOP-PCR-1.2	GULL2-qPCR	168	107	78.0	77.0	109			11.5
				58.9					
SOP-PCR-1.3	GFD-purified-qPCR	37.4	53.0	63.4	73.7	66.7			10.1
SOP-PCR-1.4	BacR-qPCR	164	83.3	73.1	77.2	77.9			11.7
				74.8					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
Enterolert/QT / E84129	Enterococci by Enterolert Quanti-Tray method by Pace Analytical Services in Oldsmar	2024440
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2024429, 2024430, 2024431
SM 9222 D / E84129	Fecal coliforms by membrane filter method by Pace Analytical in Oldsmar	2024438, 2024439
SM 9223 Quanti-Tray / E84129	Escherichia coli by Colilert-18 Quanti-Tray method by Pace Analytical Services in Oldsmar	2024437, 2024441, 2024442
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2024434
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2024434
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2024434
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2024434
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	2024434

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
Enterolert/QT	09/11/2018	09/11/2018 14:35		09/12/2018 14:47	Pace Analytical-Tampa	2024440
SM 10200 H (mod.)	09/12/2018	09/12/2018 13:19	Mariam Hanna	09/21/2018 11:15	Carina A. Tull	2024429, 2024430, 2024431
SM 9222 D	09/11/2018	09/11/2018 15:16		09/12/2018 14:20	Pace Analytical-Tampa	2024438, 2024439
SM 9223 Quanti-Tray	09/11/2018	09/11/2018 14:54		09/12/2018 10:06	Pace Analytical-Tampa	2024437, 2024441, 2024442
SOP-PCR-1.0	09/12/2018	09/12/2018 13:45	Angela Smith	09/24/2018 09:05	Mailin Lopez	2024434
SOP-PCR-1.2	09/12/2018	09/12/2018 13:45	Angela Smith	10/18/2018 09:38	Mailin Lopez	2024434
SOP-PCR-1.3	09/12/2018	09/12/2018 13:45	Mailin Lopez	10/23/2018 09:36	Sarah Menz	2024434
SOP-PCR-1.4	09/12/2018	09/12/2018 13:45	Angela Smith	10/17/2018 14:40	Mailin Lopez	2024434
SOP-PCR-4.0	09/12/2018	09/12/2018 13:45	Angela Smith	10/05/2018 13:59	Sarah Menz	2024434