

Biological Analysis Report

NE-DIST-2019-02-05-01

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: **GTM NERR-Guana River SMP = 7 sites**
Request ID: **RQ-2019-02-04-05**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd.
Tallahassee, FL 32399
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Certified by: Cheryl A. Swanson, Program Administrator

Date Certified: 06-MAR-2019 10:06



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: DEPGR3

Collection Date/Time: 02/04/2019 09:47

Field ID: GTMGR3NUT

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2059312	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.9		ug/L	P358636	
		Phaeophytin-a	1.0	I	ug/L	P358636	
		Chlorophyll-a, Uncorrected	5.7		ug/L	P358636	
2059319	ASTM D650399	ENTEROCOCCI-ENTEROLERT	10	U	MPN/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	7	B	cfu/100 mL		
2059326	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P358030	LCS
	SOP-PCR-1.2	GULL2-qPCR**	1.0E+04	I	TSC/100 mL	P358030	
	SOP-PCR-1.3	GFD-purified-qPCR**	4.43E+03	J	TSC/100 mL	P357824	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P358030	
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P358030	

Ref. Method and Comment:

SOP-PCR-1.2: Duplicate was analyzed and result is 8.40E+03 U.

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

Sample Location: DEPGR2

Collection Date/Time: 02/04/2019 10:10

Field ID: GTMGRNUT

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2059313	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.8		ug/L	P358636	
		Phaeophytin-a	1.0	I	ug/L	P358636	
		Chlorophyll-a, Uncorrected	4.5		ug/L	P358636	
2059320	ASTM D650399	ENTEROCOCCI-ENTEROLERT	30		MPN/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	11	B	cfu/100 mL		
2059327	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P358030	LCS
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P358030	
	SOP-PCR-1.3	GFD-purified-qPCR**	8.87E+03	J	TSC/100 mL	P357824	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P358030	
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P358030	

Ref. Method and Comment:

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

Sample Location: DEPGR1

Collection Date/Time: 02/04/2019 10:34

Field ID: GTMGR1NUT

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2059314	SM 10200 H (mod.)	Chlorophyll-a, Corrected	4.4		ug/L	P358636	
		Phaeophytin-a	1.6	I	ug/L	P358636	
		Chlorophyll-a, Uncorrected	5.5		ug/L	P358636	
2059321	ASTM D650399	ENTEROCOCCI-ENTEROLERT	10		MPN/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	26	B	cfu/100 mL		
2059328	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P358312	
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P358312	RPD
	SOP-PCR-1.3	GFD-purified-qPCR**	1.38E+04	J	TSC/100 mL	P357824	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P358312	
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P358312	

Field ID: GTMGR1NUT

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
Ref. Method and Comment: SOP-PCR-1.3: Quality control failure(s) observed. See QA report for details.							

Sample Location: DEPGL4

Collection Date/Time: 02/04/2019 11:39

Field ID: GTMGL4NUT

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2059315	SM 10200 H (mod.)	Chlorophyll-a, Corrected	20		ug/L	P358636	
		Phaeophytin-a	1.3	I	ug/L	P358636	
		Chlorophyll-a, Uncorrected	21		ug/L	P358636	
2059322	ASTM D650399	ENTEROCOCCI-ENTEROLERT	10	U	MPN/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	2	B	cfu/100 mL		
2059329	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P358030	LCS
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	U	TSC/100 mL	P358030	
	SOP-PCR-1.3	GFD-purified-qPCR**	1.32E+03		TSC/100 mL	P357824	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P358030	
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P358030	

Sample Location: DEPGL3

Collection Date/Time: 02/04/2019 12:00

Field ID: GTMLMNUT

Matrix: W-BRACKISH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2059316	SM 10200 H (mod.)	Chlorophyll-a, Corrected	24		ug/L	P358636	
		Phaeophytin-a	3.5	I	ug/L	P358636	
		Chlorophyll-a, Uncorrected	27		ug/L	P358636	
2059323	ASTM D650399	ENTEROCOCCI-ENTEROLERT	10	U	MPN/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	5	B	cfu/100 mL		
2059330	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P358312	
	SOP-PCR-1.2	GULL2-qPCR**	1.7E+04	U	TSC/100 mL	P358312	RPD
	SOP-PCR-1.3	GFD-purified-qPCR**	7.11E+03	J	TSC/100 mL	P357824	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P358312	
	SOP-PCR-1.5	DG3-qPCR**	2.6E+03	U	TSC/100 mL	P358312	

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

Sample Location: DEPGL2

Collection Date/Time: 02/04/2019 12:24

Field ID: GTMGL2NUT

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2059317	SM 10200 H (mod.)	Chlorophyll-a, Corrected	13		ug/L	P358636	
		Phaeophytin-a	5.2		ug/L	P358636	
		Chlorophyll-a, Uncorrected	17		ug/L	P358636	
2059324	ASTM D650399	ENTEROCOCCI-ENTEROLERT	120		MPN/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	2	U	cfu/100 mL		
2059331	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P358312	
	SOP-PCR-1.2	GULL2-qPCR**	1.7E+04	U	TSC/100 mL	P358312	RPD
	SOP-PCR-1.3	GFD-purified-qPCR**	2.47E+05	J	TSC/100 mL	P357824	LCS, MS

Field ID: GTMGL2NUT

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2059331	SOP-PCR-1.4	BacR-qPCR**	3.0E+03	U	TSC/100 mL	P358312	
	SOP-PCR-1.5	DG3-qPCR**	2.6E+03	U	TSC/100 mL	P358312	

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

Sample Location: DEPL1

Collection Date/Time: 02/04/2019 12:53

Field ID: GTMGL1NUT

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2059318	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.0		ug/L	P358636	
		Phaeophytin-a	1.3	I	ug/L	P358636	
		Chlorophyll-a, Uncorrected	2.9		ug/L	P358636	
2059325	ASTM D650399	ENTEROCOCCI-ENTEROLERT	10	U	MPN/100 mL		
	SM 9222 D	Fecal Coliforms-Membrane Filter	16	B	cfu/100 mL		
2059332	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P358312	
	SOP-PCR-1.2	GULL2-qPCR**	8.4E+03	UJ	TSC/100 mL	P358312	RPD
	SOP-PCR-1.3	GFD-purified-qPCR**	5.75E+03	AJ	TSC/100 mL	P357824	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P358312	
	SOP-PCR-1.5	DG3-qPCR**	1.3E+03	U	TSC/100 mL	P358312	

Ref. Method and Comment:
 SOP-PCR-1.2: Quality control failure(s) observed. See QA report for details.
 SOP-PCR-1.3: Quality control failure(s) observed. See QA report for details.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P358636

Component	Result	Code	Units
Chlorophyll-a, Corrected	0.62	U	ug/L
Chlorophyll-a, Uncorrected	0.45	U	ug/L
Phaeophytin-a	0.68	U	ug/L

Reference Method: SOP-PCR-1.0

Batch ID: P358030

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

Reference Method: SOP-PCR-1.0

Batch ID: P358312

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

Reference Method: SOP-PCR-1.2

Batch ID: P358030

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.2
Batch ID: P358312

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

Reference Method: SOP-PCR-1.3
Batch ID: P357824

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

Reference Method: SOP-PCR-1.4
Batch ID: P358030

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

Reference Method: SOP-PCR-1.4
Batch ID: P358312

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

Reference Method: SOP-PCR-1.5
Batch ID: P358030

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

Reference Method: SOP-PCR-1.5
Batch ID: P358312

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: P358636

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	107		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P358030

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	96.4	186	P/F	50 - 175

Reference Method: SOP-PCR-1.0
Batch ID: P358312

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

Reference Method: SOP-PCR-1.0
Batch ID: P358312

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	108	124	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P358030

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	198	112	P/P	50 - 300

Reference Method: SOP-PCR-1.2
Batch ID: P358312

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	128	125	P/P	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P357824

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	185	43.3	F/F	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P358030

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	96.6	72.5	P/P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P358312

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	102	102	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P358030

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	86.5	97.4	P/P	50 - 175

Reference Method: SOP-PCR-1.5
Batch ID: P358312

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
DG3-qPCR	86.5	136	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0
Batch ID: P358030

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

Reference Method: SOP-PCR-1.0

Batch ID: P358030

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2057014	HF183-qPCR	59.8		P	50 - 175
2058129	HF183-qPCR	85.2		P	50 - 175
2058284	HF183-qPCR	97.0		P	50 - 175
2058446	HF183-qPCR	79.0		P	50 - 175
2058642	HF183-qPCR	95.0		P	50 - 175
2058643	HF183-qPCR	79.3		P	50 - 175
2058644	HF183-qPCR	83.6		P	50 - 175
2058645	HF183-qPCR	89.6		P	50 - 175
2058899	HF183-qPCR	74.8		P	50 - 175
2058900	HF183-qPCR	78.4		P	50 - 175
2059326	HF183-qPCR	80.1	71.8	P/P	50 - 175
2059327	HF183-qPCR	86.0		P	50 - 175
2059329	HF183-qPCR	81.6		P	50 - 175

Reference Method: SOP-PCR-1.0

Batch ID: P358312

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058130	HF183-qPCR	84.8		P	50 - 175
2058447	HF183-qPCR	63.6		P	50 - 175
2058484	HF183-qPCR	86.3		P	50 - 175
2058676	HF183-qPCR	61.5		P	50 - 175
2058677	HF183-qPCR	65.5		P	50 - 175
2059328	HF183-qPCR	93.6		P	50 - 175
2059330	HF183-qPCR	75.8		P	50 - 175
2059331	HF183-qPCR	91.4		P	50 - 175
2059332	HF183-qPCR	97.2	96.9	P/P	50 - 175
2060474	HF183-qPCR	109		P	50 - 175
2060793	HF183-qPCR	89.4		P	50 - 175
2061286	HF183-qPCR	91.4		P	50 - 175
2061287	HF183-qPCR	88.0		P	50 - 175

Reference Method: SOP-PCR-1.2

Batch ID: P358030

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2059326	GULL2-qPCR	160	167	P/P	50 - 300
2059327	GULL2-qPCR	169		P	50 - 300
2059329	GULL2-qPCR	169		P	50 - 300

Reference Method: SOP-PCR-1.2

Batch ID: P358312

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058484	GULL2-qPCR	92.4		P	50 - 300
2059328	GULL2-qPCR	152		P	50 - 300
2059330	GULL2-qPCR	101		P	50 - 300
2059331	GULL2-qPCR	107		P	50 - 300
2059332	GULL2-qPCR	110	225	P/P	50 - 300
2060793	GULL2-qPCR	94.5		P	50 - 300

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3

Batch ID: P357824

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2059326	GFD-purified-qPCR	299		F	50 - 175
2059327	GFD-purified-qPCR	278		F	50 - 175
2059328	GFD-purified-qPCR	279		F	50 - 175
2059329	GFD-purified-qPCR	132		P	50 - 175
2059330	GFD-purified-qPCR	242		F	50 - 175
2059331	GFD-purified-qPCR	215		F	50 - 175
2059332	GFD-purified-qPCR	338	290	F/F	50 - 175
2060474	GFD-purified-qPCR	262		F	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P358030

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2059326	BacR-qPCR	86.0	79.5	P/P	50 - 175
2059327	BacR-qPCR	99.5		P	50 - 175
2059329	BacR-qPCR	70.6		P	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P358312

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058130	BacR-qPCR	80.4		P	50 - 175
2058447	BacR-qPCR	83.5		P	50 - 175
2058484	BacR-qPCR	86.1		P	50 - 175
2058676	BacR-qPCR	75.7		P	50 - 175
2058677	BacR-qPCR	70.1		P	50 - 175
2059328	BacR-qPCR	68.1		P	50 - 175
2059330	BacR-qPCR	63.0		P	50 - 175
2059331	BacR-qPCR	72.6		P	50 - 175
2059332	BacR-qPCR	101	100	P/P	50 - 175
2060474	BacR-qPCR	97.9		P	50 - 175
2060793	BacR-qPCR	89.8		P	50 - 175
2061286	BacR-qPCR	91.1		P	50 - 175
2061287	BacR-qPCR	88.9		P	50 - 175

Reference Method: SOP-PCR-1.5

Batch ID: P358030

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2059326	DG3-qPCR	118	111	P/P	50 - 175
2059327	DG3-qPCR	114		P	50 - 175
2059329	DG3-qPCR	98.4		P	50 - 175

Reference Method: SOP-PCR-1.5

Batch ID: P358312

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2059328	DG3-qPCR	112		P	50 - 175
2059330	DG3-qPCR	86.7		P	50 - 175
2059331	DG3-qPCR	102		P	50 - 175
2059332	DG3-qPCR	101	98.9	P/P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P358636

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059364	Chlorophyll-a, Corrected	0.938	Sample	P	0 - 25
2059364	Chlorophyll-a, Uncorrected	0.229	Sample	P	0 - 25
2059364	Phaeophytin-a	7.08	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P358030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059326	HF183-qPCR	11.0	Spike	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P358312

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059332	HF183-qPCR	0.315	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P358030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059326	GULL2-qPCR	3.59	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2
Batch ID: P358312

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059332	GULL2-qPCR	68.3	Spike	F	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P357824

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059332	GFD-purified-qPCR	15.3	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P358030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059326	BacR-qPCR	7.90	Spike	P	0 - 25

Reference Method: SOP-PCR-1.4
Batch ID: P358312

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: SOP-PCR-1.4
Batch ID: P358312

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059332	BacR-qPCR	0.749	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P358030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059326	DG3-qPCR	6.13	Spike	P	0 - 25

Reference Method: SOP-PCR-1.5
Batch ID: P358312

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2059332	DG3-qPCR	2.18	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: 2059326
Field Sample ID: GTMGR3NUT

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	93.2	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	85.2	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	93.1	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	95.0	P	50 - 300

Lab Sample ID: 2059327
Field Sample ID: GTMGRNUT

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	101	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	93.3	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	105	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	102	P	50 - 300

Lab Sample ID: 2059328
Field Sample ID: GTMGR1NUT

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	95.0	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	94.3	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	98.4	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	90.7	P	50 - 300

Quality Assurance Report Surrogates

Lab Sample ID: 2059329
Field Sample ID: GTMGL4NUT

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	87.3	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	81.1	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	97.5	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	93.7	P	50 - 300

Lab Sample ID: 2059330
Field Sample ID: GTMLMNUT

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	83.7	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	99.2	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	99.0	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	93.5	P	50 - 300

Lab Sample ID: 2059331
Field Sample ID: GTMGL2NUT

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	90.4	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	103	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	103	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	98.8	P	50 - 300

Lab Sample ID: 2059332
Field Sample ID: GTMGL1NUT

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	103	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	106	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	101	P	50 - 300
SOP-PCR-1.5	SKETA-qPCR	96.5	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	107						0.938	
	Chlorophyll-a, Uncorrected							0.229	
	Phaeophytin-a							7.08	
SOP-PCR-1.0	HF183-qPCR	186	96.4	85.2	97.0	59.8			11.0
	HF183-qPCR	124	108	79.0	93.6	91.4			0.315
SOP-PCR-1.2	GULL2-qPCR	112	198	97.2	160	167	169		3.59
	GULL2-qPCR	125	128	169	152	101	107		68.3
SOP-PCR-1.3	GFD-purified-qPCR	43.3	185	110	299	278	279		15.3
SOP-PCR-1.4	BacR-qPCR	72.5	96.6	132	86.0	79.5	99.5		7.90
				70.6					

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery		MS % Recovery			Precision SMP	MS
SOP-PCR-1.4	BacR-qPCR	102	102	68.1	63.0	72.6		0.749
SOP-PCR-1.5	DG3-qPCR	97.4	86.5	118	111	114		6.13
				98.4				
	DG3-qPCR	136	86.5	112	86.7	102		2.18
				101				

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
ASTM D650399 / E82502	Enterococci by Enterolert Quanti-Tray Method by ALS Environmental Laboratory in Jacksonville	2059319, 2059320, 2059321, 2059322, 2059323, 2059324, 2059325
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	2059312, 2059313, 2059314, 2059315, 2059316, 2059317, 2059318
SM 9222 D / E82502	Fecal coliforms by membrane filter method by ALS Environmental Laboratories in Jacksonville	2059319, 2059320, 2059321, 2059322, 2059323, 2059324, 2059325
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	2059326, 2059327, 2059328, 2059329, 2059330, 2059331, 2059332
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	2059326, 2059327, 2059328, 2059329, 2059330, 2059331, 2059332
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	2059326, 2059327, 2059328, 2059329, 2059330, 2059331, 2059332
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	2059326, 2059327, 2059328, 2059329, 2059330, 2059331, 2059332
SOP-PCR-1.5 / E31780	Detection and quantification of canine-specific DG3 Bacteroides genetic marker with quantitative polymerase chain reaction	2059326, 2059327, 2059328, 2059329, 2059330, 2059331, 2059332

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
ASTM D650399	02/04/2019	02/04/2019 17:26	Edwin Gonzalez-Soto	02/05/2019 18:06	ALS Environmental, Jax	2059319, 2059320, 2059321
	02/04/2019	02/04/2019 17:57		02/05/2019 18:06	ALS Environmental, Jax	2059322, 2059323, 2059324, 2059325
SM 10200 H (mod.)	02/05/2019	02/05/2019 13:10		02/07/2019 14:10	Carina A. Tull	2059312, 2059313, 2059314, 2059315, 2059316, 2059317, 2059318
SM 9222 D	02/04/2019	02/04/2019 17:25	Angela Smith	02/05/2019 16:31	ALS Environmental, Jax	2059319, 2059320, 2059321
	02/04/2019	02/04/2019 18:04		02/05/2019 16:54	ALS Environmental, Jax	2059322, 2059323, 2059324, 2059325
SOP-PCR-1.0	02/05/2019	02/05/2019 13:00		02/06/2019 14:45	Mailin Lopez	2059326, 2059327, 2059329
SOP-PCR-1.2	02/05/2019	02/05/2019 13:00	Angela Smith	02/26/2019 11:19	Mailin Lopez	2059328, 2059330, 2059331, 2059332
	02/05/2019	02/05/2019 13:00	Angela Smith	02/08/2019 08:53	Mailin Lopez	2059326, 2059327, 2059329
SOP-PCR-1.3	02/05/2019	02/05/2019 13:00	Angela Smith	02/28/2019 11:09	Mailin Lopez	2059328, 2059330, 2059331, 2059332
	02/05/2019	02/05/2019 13:00	Sarah Menz	03/04/2019 13:19	Sarah Menz	2059326, 2059327, 2059328, 2059329, 2059330, 2059331, 2059332
SOP-PCR-1.4	02/05/2019	02/05/2019 13:00	Angela Smith	02/07/2019 09:22	Mailin Lopez	2059326, 2059327, 2059329
SOP-PCR-1.5	02/05/2019	02/05/2019 13:00	Angela Smith	02/27/2019 11:28	Mailin Lopez	2059328, 2059330, 2059331, 2059332
	02/05/2019	02/05/2019 13:00	Angela Smith	02/25/2019 13:06	Sarah Menz	2059326, 2059327, 2059328, 2059329, 2059330, 2059331, 2059332