

Biological Analysis Report

WQ-ASSESS-2017-06-27-01

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

Event Description: **East Quincy, Tallahassee**

Request ID: **RQ-2017-05-15-16**

Customer: **WQ-ASSESS**

Project ID: **SMP**

Send Reports to:

FL Dept. of Environmental Protection
Division Of Water Facilities, FL DEP
2600 Blair Stone Rd.
Tallahassee, FL 32399-2400
Attn: curtis musson

For additional information please contact

Cheryl Swanson - Administrator
J. Marshall Faircloth - Aquatic Toxicology
Jacqueline Savage - Bench Biology
Jacqueline Savage - Microbiology
Daisys Matthews - Molecular Biology
Jennifer Walters - Taxonomy (Invertebrate & Algal)
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8177

Certified by: Cheryl A. Swanson, Environmental Manager

Date Certified: 07-AUG-2017 12:07



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, Microbiology and Molecular.

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: QC BLANK

Collection Date/Time: 06/27/2017 07:10

Field ID: G1WA0052_06272017B

Matrix: W-EQPMT-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909281	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P327956	
		Phaeophytin-a	0.40	U	ug/L	P327956	
		Chlorophyll/Phaeophytin Ratio	1.1			P327956	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P327956	

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: Swamp Creek upstream of Railroad

Collection Date/Time: 06/27/2017 10:55

Field ID: G1WA0052_06272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909282	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.6	I	ug/L	P327956	
		Phaeophytin-a	0.72	I	ug/L	P327956	
		Chlorophyll/Phaeophytin Ratio	1.5			P327956	
		Chlorophyll-a, Uncorrected	2.1		ug/L	P327956	

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: Swamp Creek upstream of Railroad

Collection Date/Time: 06/27/2017 10:55

Field ID: G1WA0052_06272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909287	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	228.2		MPN/100 mL	P327840	

Sample Location: Swamp Creek upstream of Railroad

Collection Date/Time: 06/27/2017 10:55

Field ID: G1WA0052_06272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909294	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P327320	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Ref. Method and Comment:

SOP-PCR-1.0: No amplification of HF183 marker.

Sample Location: Swamp Creek upstream of Railroad QC DUP

Collection Date/Time: 06/27/2017 10:55

Field ID: G1WA0052_06272017D

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909283	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.8		ug/L	P327956	
		Phaeophytin-a	0.61	I	ug/L	P327956	
		Chlorophyll/Phaeophytin Ratio	1.5			P327956	
		Chlorophyll-a, Uncorrected	2.2		ug/L	P327956	

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: Swamp Creek upstream of Railroad QC DUP

Collection Date/Time: 06/27/2017 10:55

Field ID: G1WA0052_06272017D

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909288	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	185.0		MPN/100 mL	P327840	

Sample Location: Central Drainage Ditch downstream of Orange Ave. Collection Date/Time: 06/27/2017 13:45

Field ID: G1WA0026_06272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909279	SM 10200 H (mod.)	Chlorophyll-a, Corrected	11		ug/L	P327956	
		Phaeophytin-a	1.3		ug/L	P327956	
		Chlorophyll/Phaeophytin Ratio	1.6			P327956	
		Chlorophyll-a, Uncorrected	12		ug/L	P327956	

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: Central Drainage Ditch downstream of Orange Ave. Collection Date/Time: 06/27/2017 13:45

Field ID: G1WA0026_06272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909289	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	1732.9		MPN/100 mL	P327840	

Sample Location: Central Drainage Ditch downstream of Orange Ave. Collection Date/Time: 06/27/2017 13:45

Field ID: G1WA0026_06272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909295	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P327320	
	SOP-PCR-1.2	GULL2-qPCR**	5.6E+03	U	TSC/100 mL	P327320	LCS
	SOP-PCR-1.3	GFD-purified-qPCR**	4.8	TJ	TSC/100 mL	P328245	LCS, MS, RPD
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P327320	LCS
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				

Ref. Method and Comment:

SOP-PCR-1.0: No amplification of HF183 marker.

SOP-PCR-1.2: No amplification of GULL2 marker.

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

SOP-PCR-1.4: No amplification of BACR marker.

Sample Location: Salem Branch downstream of SR 159

Collection Date/Time: 06/27/2017 11:50

Field ID: G1WA0053_06272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909290	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	110.6		MPN/100 mL	P327840	

Sample Location: Salem Branch downstream of SR 159

Collection Date/Time: 06/27/2017 11:50

Field ID: G1WA0053_06272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909298	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Harbinwood Estates Drain

Collection Date/Time: 06/27/2017 12:25

Field ID: G1WA0034_06272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909291	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	45.5		MPN/100 mL	P327840	

Sample Location: Harbinwood Estates Drain

Collection Date/Time: 06/27/2017 12:25

Field ID: G1WA0034_06272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909299	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: Megginnis Arm Run Downstream of Sharer

Collection Date/Time: 06/27/2017 13:00

Field ID: G1WA0033_06272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909284	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.75	I	ug/L	P327956	
		Phaeophytin-a	0.40	U	ug/L	P327956	
		Chlorophyll/Phaeophytin Ratio	1.7			P327956	
		Chlorophyll-a, Uncorrected	0.82	I	ug/L	P327956	

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: Megginnis Arm Run Downstream of Sharer

Collection Date/Time: 06/27/2017 13:00

Field ID: G1WA0033_06272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909292	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	51.2		MPN/100 mL	P327840	

Sample Location: Megginnis Arm Run Downstream of Sharer

Collection Date/Time: 06/27/2017 13:00

Field ID: G1WA0033_06272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909300	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Sample Location: AJ Henry Park Pond Middle

Collection Date/Time: 06/27/2017 08:15

Field ID: G1WA0058_06272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909285	SM 10200 H (mod.)	Chlorophyll-a, Corrected	48		ug/L	P327956	
		Phaeophytin-a	6.3		ug/L	P327956	
		Chlorophyll/Phaeophytin Ratio	1.6			P327956	
		Chlorophyll-a, Uncorrected	54		ug/L	P327956	

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: Lake Arrowhead at boat dock at Turtle Crk Ln near outlet

Collection Date/Time: 06/27/2017 08:55

Field ID: G1WA0004_06272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909286	SM 10200 H (mod.)	Chlorophyll-a, Corrected	17		ug/L	P327956	
		Phaeophytin-a	1.2		ug/L	P327956	
		Chlorophyll/Phaeophytin Ratio	1.7			P327956	
		Chlorophyll-a, Uncorrected	19		ug/L	P327956	

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: Tallavanna Lake Middle Collection Date/Time: 06/27/2017 09:53

Field ID: G1WA0045_06272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909280	SM 10200 H (mod.)	Chlorophyll-a, Corrected	150		ug/L	P327956	
		Phaeophytin-a	38		ug/L	P327956	
		Chlorophyll/Phaeophytin Ratio	1.6			P327956	
		Chlorophyll-a, Uncorrected	180		ug/L	P327956	

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: Tallavanna Lake Middle Collection Date/Time: 06/27/2017 09:53

Field ID: G1WA0045_06272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909293	SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray	24.3		MPN/100 mL	P327840	

Sample Location: Tallavanna Lake Middle Collection Date/Time: 06/27/2017 09:53

Field ID: G1WA0045_06272017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909301	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
 Batch ID: P327956

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 9223 Quanti-Tray
 Batch ID: P327840

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

Quality Assurance Report Method Blank Results

Reference Method: SOP-PCR-1.0
Batch ID: P327320

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

Reference Method: SOP-PCR-1.2
Batch ID: P327320

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

Reference Method: SOP-PCR-1.3
Batch ID: P328245

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

Reference Method: SOP-PCR-1.4
Batch ID: P327320

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: P327956

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	109		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P327320

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	57.3	82.8	P/P	50 - 175
HF183-qPCR	55.4	95.2	P/P	50 - 175

Reference Method: SOP-PCR-1.2
Batch ID: P327320

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	97.2	36.4	P/F	50 - 300

Reference Method: SOP-PCR-1.3
Batch ID: P328245

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	14.7	103	F/P	50 - 175
GFD-purified-qPCR	20.1	123	F/P	50 - 175

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.4

Batch ID: P327320

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	60.7	39.2	P/F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P327320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1905382	HF183-qPCR	80.4	91.4	P	50 - 175
1906733	HF183-qPCR	106		P	50 - 175
1908185	HF183-qPCR	114		P/P	50 - 175
1908186	HF183-qPCR	100		P	50 - 175
1908552	HF183-qPCR	122	91.4	P	50 - 175
1908553	HF183-qPCR	126		P	50 - 175
1908580	HF183-qPCR	113		P	50 - 175
1908807	HF183-qPCR	145		P	50 - 175
1909048	HF183-qPCR	115		P	50 - 175
1909294	HF183-qPCR	102		P	50 - 175
1909295	HF183-qPCR	98.8		P	50 - 175
1909876	HF183-qPCR	111		P	50 - 175

Reference Method: SOP-PCR-1.2

Batch ID: P327320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909295	GULL2-qPCR	103		P	50 - 300

Reference Method: SOP-PCR-1.3

Batch ID: P328245

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1870630	GFD-purified-qPCR	147	91.4	P	50 - 175
1879803	GFD-purified-qPCR	146		P	50 - 175
1879804	GFD-purified-qPCR	105		P	50 - 175
1902820	GFD-purified-qPCR	72.0		P	50 - 175
1909295	GFD-purified-qPCR	27.7		F	50 - 175
1909893	GFD-purified-qPCR	116		P	50 - 175
1912403	GFD-purified-qPCR	107		P	50 - 175
1912569	GFD-purified-qPCR	40.0		F	50 - 175
1912910	GFD-purified-qPCR	71.4		P	50 - 175
1913825	GFD-purified-qPCR	94.1		P	50 - 175
1913826	GFD-purified-qPCR	83.0		P	50 - 175
1913827	GFD-purified-qPCR	108		P	50 - 175
1913828	GFD-purified-qPCR	81.2		P/P	50 - 175
1913829	GFD-purified-qPCR	59.8		P	50 - 175
1913830	GFD-purified-qPCR	60.7		P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.4

Batch ID: P327320

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1905382	BacR-qPCR	58.0		P	50 - 175
1906733	BacR-qPCR	51.3		P	50 - 175
1909295	BacR-qPCR	73.8		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)

Batch ID: P327956

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909405	Chlorophyll/Phaeophytin Ratio	0.0	Sample	P	0 - 25
1909405	Chlorophyll-a, Corrected	0.305	Sample	P	0 - 25
1909405	Chlorophyll-a, Uncorrected	0.998	Sample	P	0 - 25

Reference Method: SM 9223 Quanti-Tray

Batch ID: P327840

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909085	Escherichia Coli-Quanti-Tray	24.9	Sample	P	0 - 80
1909249	Escherichia Coli-Quanti-Tray	14.4	Sample	P	0 - 80

Reference Method: SOP-PCR-1.0

Batch ID: P327320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908185	HF183-qPCR	23.4	Sample	P	0 - 25
1908185	HF183-qPCR	21.9	Spike	P	0 - 25
1910177	HF183-qPCR	1.57	Spike	P	0 - 25

Reference Method: SOP-PCR-1.2

Batch ID: P327320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1879804	GULL2-qPCR	11.1	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3

Batch ID: P328245

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913828	GFD-purified-qPCR	11.8	Spike	P	0 - 25
1918018	GFD-purified-qPCR	55.0	Spike	F	0 - 25

Quality Assurance Report Precision

Reference Method: SOP-PCR-1.4
Batch ID: P327320

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1902819	BacR-qPCR	10.8	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: 1909294
Field Sample ID: G1WA0052_06272017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	100	P	50 - 300

Lab Sample ID: 1909295
Field Sample ID: G1WA0026_06272017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	110	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	105	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	114	P	50 - 300

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery			MS % Recovery			LCS	Precision SMP	MS
SM 10200 H (mod.)	Chlorophyll/Phaeophytin Ratio								0.0	
	Chlorophyll-a, Corrected	109							0.305	
	Chlorophyll-a, Uncorrected								0.998	
SM 9223 Quanti-Tray	Escherichia Coli-Quanti-Tray								24.9	14.4
SOP-PCR-1.0	HF183-qPCR	57.3	95.2	55.4	114	91.4	100		23.4	21.9
		82.8			80.4					1.57
SOP-PCR-1.2	GULL2-qPCR	36.4	97.2		103					11.1
SOP-PCR-1.3	GFD-purified-qPCR	14.7	123	20.1	116	107	40.0			55.0
		103			71.4					11.8
SOP-PCR-1.4	BacR-qPCR	39.2	60.7		58.0	73.8	51.3			10.8

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, phaeophytin and ratio by spectrophotometry	1909279, 1909280, 1909281, 1909282, 1909283, 1909284, 1909285, 1909286
SM 9223 Quanti-Tray / E31780	Escherichia coli by Colilert 18 Quanti-Tray method - non-chlorinated water systems	1909287, 1909288, 1909289, 1909290, 1909291, 1909292, 1909293
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1909294, 1909295
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalium Gull2 genetic marker with quantitative polymerase chain reaction	1909295

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
SOP-PCR-1.3 / E31780	Detection and quantification of bird specific Helicobacter GFD genetic marker with quantitative polymerase chain reaction	1909295
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1909295
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1909294, 1909295, 1909298, 1909299, 1909300, 1909301

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 10200 H (mod.)	06/27/2017	06/27/2017 15:55	Cathy Sherrer	07/05/2017	Jennifer Mihalic	1909279, 1909280, 1909281, 1909282, 1909283, 1909284, 1909285, 1909286
SM 9223 Quanti-Tray	06/27/2017	06/27/2017 16:50	Carina A. Tull	06/28/2017 12:45	Morgan Lane	1909287, 1909288, 1909289, 1909290, 1909291, 1909292, 1909293
SOP-PCR-1.0	06/27/2017	06/28/2017 09:00	Sarah Menz	07/07/2017	Puja Jasrotia	1909294, 1909295
SOP-PCR-1.2	06/27/2017	06/28/2017 09:00	Puja Jasrotia	07/13/2017	Sarah Menz	1909295
SOP-PCR-1.3	06/27/2017	06/28/2017 09:00	Puja Jasrotia	07/21/2017	Sarah Menz	1909295
SOP-PCR-1.4	06/27/2017	06/28/2017 09:00	Puja Jasrotia	07/13/2017	Sarah Menz	1909295
SOP-PCR-4.0	06/27/2017	06/28/2017 09:00	Avril Wood	07/06/2017	Puja Jasrotia	1909294, 1909295, 1909298, 1909299, 1909300, 1909301