

Biological Analysis Report

SW-DIST-2018-03-29-01

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

Overflow Analyses Performed By:
Advanced Environmental Laboratories - Tampa
9610 Princess Palm Avenue
Tampa, Florida 33619
DOH Accreditation E84589

Event Description: **Mullet/Alligator/Moccasin**
Request ID: **RQ-2018-03-26-06**
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

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
Cheryl Swanson - Taxonomy (Invertebrate & Algal)
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8177

Certified by: Puja Jasrotia, Environmental Manager

Date Certified: 28-SEP-2018 11:19



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: Allen Creek @ Belleair Rd

Collection Date/Time: 03/28/2018 09:50

Field ID: G1SW0096

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1979093	SM 10200 H (mod.)	Chlorophyll-a, Corrected	1.2	I	ug/L	P342760	
		Phaeophytin-a	1.9		ug/L	P342760	
		Chlorophyll-a, Uncorrected	2.4		ug/L	P342760	
1979108	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P344786	
	SOP-PCR-1.2	GULL2-qPCR**	5.6E+03	U	TSC/100 mL	P344786	
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P344786	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
1979112	EPA 1603	Escherichia coli-Membrane Filter**	580		cfu/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.

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

SOP-PCR-1.2: No amplification of GULL2 marker. Precision data unavailable for Analysis Batch A83764.

SOP-PCR-1.4: No amplification of BACR marker. Precision data unavailable for Analysis Batch A83742.

Sample Location: Allen Creek @ Belleair Rd DUP

Collection Date/Time: 03/28/2018 10:10

Field ID: G1SW0096_DUP

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1979094	SM 10200 H (mod.)	Chlorophyll-a, Corrected	21		ug/L	P342760	
		Phaeophytin-a	22		ug/L	P342760	
		Chlorophyll-a, Uncorrected	35		ug/L	P342760	
1979109	SOP-PCR-1.0	HF183-qPCR**	94	U	GEU/100 mL	P344786	
	SOP-PCR-1.2	GULL2-qPCR**	5.6E+03	U	TSC/100 mL	P344786	
	SOP-PCR-1.3	GFD-purified-qPCR**	400	IJ	TSC/100 mL	P344748	LCS, MS
	SOP-PCR-1.4	BacR-qPCR**	1.0E+03	U	TSC/100 mL	P344786	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
1979113	EPA 1603	Escherichia coli-Membrane Filter**	560		cfu/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.

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

SOP-PCR-1.2: No amplification of GULL2 marker. Precision data unavailable for Analysis Batch A83764.

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

SOP-PCR-1.4: No amplification of BACR marker. Precision data unavailable for Analysis Batch A83742.

Sample Location: BLANK 03282018

Collection Date/Time: 03/28/2018 12:05

Field ID: BLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1979095	SM 10200 H (mod.)	Chlorophyll-a, Corrected	0.55	U	ug/L	P342760	
		Phaeophytin-a	0.40	U	ug/L	P342760	
		Chlorophyll-a, Uncorrected	0.40	U	ug/L	P342760	
1979110	SOP-PCR-4.0	HF183 - Human Source Marker**	Below Threshold				
1979114	EPA 1603	Escherichia coli-Membrane Filter**	4	U	cfu/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: Moccasin Creek Tidal

Collection Date/Time: 03/28/2018 11:50

Field ID: G1SW0051

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1979096	SM 10200 H (mod.)	Chlorophyll-a, Corrected	11		ug/L	P342878	
		Phaeophytin-a	2.6		ug/L	P342878	
		Chlorophyll-a, Uncorrected	13		ug/L	P342878	
1979115	SM 9230 C	Enterococci-Membrane Filter	96		cfu/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: Bishop Creek Tidal

Collection Date/Time: 03/28/2018 11:20

Field ID: G1SW0054

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1979098	SM 10200 H (mod.)	Chlorophyll-a, Corrected	2.5		ug/L	P342878	
		Phaeophytin-a	1.1	I	ug/L	P342878	
		Chlorophyll-a, Uncorrected	3.3		ug/L	P342878	
1979111	SOP-PCR-1.0	HF183-qPCR**	140	U	GEU/100 mL	P344786	
	SOP-PCR-1.2	GULL2-qPCR**	620	T	TSC/100 mL	P344786	
	SOP-PCR-1.4	BacR-qPCR**	1.5E+03	U	TSC/100 mL	P344786	
	SOP-PCR-4.0	HF183 - Human Source Marker**	Above Threshold				
1979117	SM 9230 C	Enterococci-Membrane Filter	200		cfu/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.

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

SOP-PCR-1.2: Precision data unavailable for Analysis Batch A83764.

SOP-PCR-1.4: No amplification of BACR marker. Precision data unavailable for Analysis Batch A83742.

Sample Location: Mullet Creek Tidal

Collection Date/Time: 03/28/2018 11:00

Field ID: G1SW0095

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1979097	SM 10200 H (mod.)	Chlorophyll-a, Corrected	3.1	A	ug/L	P342878	
		Phaeophytin-a	1.4		ug/L	P342878	
		Chlorophyll-a, Uncorrected	4.0	A	ug/L	P342878	
1979116	SM 9230 C	Enterococci-Membrane Filter	570		cfu/100 mL		

Ref. Method and Comment:

SM 10200 H (mod.): Laboratory duplicate result is 1.2 I for Phaeophytin-a. Precision data is unavailable due to the small amount of analyte in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)

Batch ID: P342760

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

Quality Assurance Report Method Blank Results

Reference Method: SM 10200 H (mod.)
Batch ID: P342878

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: P344786

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: P344786

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

Reference Method: SOP-PCR-1.3
Batch ID: P344748

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

Reference Method: SOP-PCR-1.4
Batch ID: P344786

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: P342760

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	103		P	84 - 116

Reference Method: SM 10200 H (mod.)
Batch ID: P342878

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chlorophyll-a, Corrected	104		P	84 - 116

Reference Method: SOP-PCR-1.0
Batch ID: P344786

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
HF183-qPCR	60.9	115	P/P	50 - 175
HF183-qPCR	117	115	P/P	50 - 175

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SOP-PCR-1.2

Batch ID: P344786

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GULL2-qPCR	65.2	95.9	P/P	50 - 300
GULL2-qPCR	67.4	95.9	P/P	50 - 300

Reference Method: SOP-PCR-1.3

Batch ID: P344748

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
GFD-purified-qPCR	134	29.1	P/F	50 - 175

Reference Method: SOP-PCR-1.4

Batch ID: P344786

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
BacR-qPCR	101	71.9	P/P	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.0

Batch ID: P344786

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1977968	HF183-qPCR	96.0		P	50 - 175
1978108	HF183-qPCR	99.1		P	50 - 175
1978110	HF183-qPCR	104		P	50 - 175
1978111	HF183-qPCR	107		P	50 - 175
1978684	HF183-qPCR	109	96.7	P/P	50 - 175
1978942	HF183-qPCR	104		P	50 - 175
1979108	HF183-qPCR	106		P	50 - 175
1979109	HF183-qPCR	98.5		P	50 - 175
1979111	HF183-qPCR	104		P	50 - 175
1979368	HF183-qPCR	97.0		P	50 - 175
1981725	HF183-qPCR	101		P	50 - 175

Reference Method: SOP-PCR-1.2

Batch ID: P344786

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978108	GULL2-qPCR	76.4		P	50 - 300
1978110	GULL2-qPCR	99.1		P	50 - 300
1978942	GULL2-qPCR	67.2		P	50 - 300
1979108	GULL2-qPCR	71.5		P	50 - 300
1979109	GULL2-qPCR	72.3		P	50 - 300
1979111	GULL2-qPCR	78.4		P	50 - 300

Reference Method: SOP-PCR-1.3

Batch ID: P344748

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978108	GFD-purified-qPCR	57.3		P	50 - 175
1978110	GFD-purified-qPCR	214		F	50 - 175

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SOP-PCR-1.3
Batch ID: P344748

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1978942	GFD-purified-qPCR	142		P	50 - 175
1979109	GFD-purified-qPCR	194	182	F/F	50 - 175
1982100	GFD-purified-qPCR	92.9		P	50 - 175

Reference Method: SOP-PCR-1.4
Batch ID: P344786

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1977968	BacR-qPCR	58.2		P	50 - 175
1978110	BacR-qPCR	74.1		P	50 - 175
1978111	BacR-qPCR	95.6		P	50 - 175
1978942	BacR-qPCR	96.3		P	50 - 175
1979108	BacR-qPCR	64.3		P	50 - 175
1979109	BacR-qPCR	77.8		P	50 - 175
1979111	BacR-qPCR	69.3		P	50 - 175

Quality Assurance Report Precision

Reference Method: SM 10200 H (mod.)
Batch ID: P342760

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979024	Chlorophyll-a, Uncorrected	1.47	Sample	P	0 - 25

Reference Method: SM 10200 H (mod.)
Batch ID: P342878

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979097	Chlorophyll-a, Corrected	12.2	Sample	P	0 - 25
1979097	Chlorophyll-a, Uncorrected	13.3	Sample	P	0 - 25

Reference Method: SOP-PCR-1.0
Batch ID: P344786

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1978684	HF183-qPCR	12.2	Spike	P	0 - 25
1978684	HF183-qPCR	12.2	Spike	P	0 - 25

Reference Method: SOP-PCR-1.3
Batch ID: P344748

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1979109	GFD-purified-qPCR	5.94	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: 1979108
Field Sample ID: G1SW0096

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	93.9	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	107	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	93.1	P	50 - 300

Lab Sample ID: 1979109
Field Sample ID: G1SW0096_DUP

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	98.2	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	108	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	91.6	P	50 - 300

Lab Sample ID: 1979111
Field Sample ID: G1SW0054

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
SOP-PCR-1.0	SKETA-qPCR	98.3	P	50 - 300
SOP-PCR-1.2	SKETA-qPCR	107	P	50 - 300
SOP-PCR-1.4	SKETA-qPCR	96.4	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	103								
	Chlorophyll-a, Corrected	104							12.2	
	Chlorophyll-a, Uncorrected								1.47	
	Chlorophyll-a, Uncorrected								13.3	
SOP-PCR-1.0	HF183-qPCR	60.9	115	117	99.1	96.0	104			12.2 12.2
		115			107					
SOP-PCR-1.2	GULL2-qPCR	65.2	95.9	67.4	76.4	99.1	67.2			
		95.9			71.5					
SOP-PCR-1.3	GFD-purified-qPCR	29.1	134		57.3	92.9	214			5.94
					142					
SOP-PCR-1.4	BacR-qPCR	71.9	101		58.2	74.1	95.6			
					96.3					

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 1603 / E84589	Escherichia coli by membrane filter method using modified mTEC by Advanced Environmental Tampa Lab for SWD	1979112, 1979113, 1979114
SM 10200 H (mod.) / E31780	Phytoplankton chlorophyll-a corrected, uncorrected, and phaeophytin by spectrophotometry	1979093, 1979094, 1979095, 1979096, 1979097, 1979098
SM 9230 C / E84589	Enterococci by membrane filter method by Advanced Environmental Overflow Laboratories for SWD	1979115, 1979116, 1979117
SOP-PCR-1.0 / E31780	Detection and quantification of human-specific HF183 Bacteroides genetic marker with quantitative polymerase chain reaction	1979108, 1979109, 1979111
SOP-PCR-1.2 / E31780	Detection and quantification of coastal bird specific Catellicoccus marimammalum Gull2 genetic marker with quantitative polymerase chain reaction	1979108, 1979109, 1979111

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	1979109
SOP-PCR-1.4 / E31780	Detection and quantification of Ruminant specific Bacteroidetes BacR genetic marker with quantitative polymerase chain reaction	1979108, 1979109, 1979111
SOP-PCR-4.0 / E31780	Preparation of Samples by Filtration and held for qPCR Analysis	1979108, 1979109, 1979110, 1979111

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 1603	03/28/2018	03/28/2018 15:30		03/29/2018 13:30	AEL - Tampa	1979112, 1979113, 1979114
SM 10200 H (mod.)	03/29/2018	03/29/2018 14:19	Cathy Sherrer	04/04/2018 11:35	Jennifer Mihalic	1979093, 1979094, 1979095
	03/29/2018	03/29/2018 14:19	Cathy Sherrer	04/05/2018 08:45	Jennifer Mihalic	1979096, 1979097, 1979098
SM 9230 C	03/28/2018	03/28/2018 15:30		03/29/2018 13:30	AEL - Tampa	1979115, 1979116, 1979117
SOP-PCR-1.0	03/29/2018	03/29/2018 14:30	Puja Jasrotia	05/08/2018 09:15	Sarah Menz	1979108, 1979109, 1979111
SOP-PCR-1.2	03/29/2018	03/29/2018 14:30	Puja Jasrotia	05/08/2018 15:31	Sarah Menz	1979108, 1979109, 1979111
SOP-PCR-1.3	03/29/2018	03/29/2018 14:30	Sarah Menz	05/10/2018 09:52	Sarah Menz	1979109
SOP-PCR-1.4	03/29/2018	03/29/2018 14:30	Puja Jasrotia	05/08/2018 12:54	Sarah Menz	1979108, 1979109, 1979111
SOP-PCR-4.0	03/29/2018	03/29/2018 14:30	Angela Smith	05/07/2018 13:02	Puja Jasrotia	1979108, 1979109, 1979110, 1979111