Chemical Analysis Report

SO-DIST-2019-08-09-02

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

Event Description: **Cypress HA**
Request ID: **RQ-2019-08-05-96**
Customer: **SO-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
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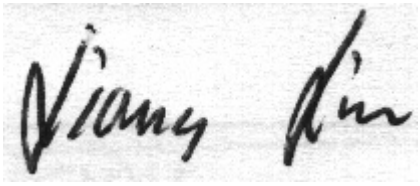
Date Certified: 23-AUG-2019 15:28



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 group are included in this report: Nutrients.

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: Cypress Creek @NRiverRd **Collection Date/Time: 08/08/2019 10:05**

Field ID: G3SD0084 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2110412	EPA 180.1 Rev. 2.0	Turbidity	6.7		NTU	P368802	
	EPA 300.0 Rev. 2.1	Chloride	15		mg Cl/L	P369215	
		Sulfate	7.2		mg SO4/L	P369218	
	SM 2120 B	Color (true)	230		PCU	P368788	
	SM 2320 B-97	Total Alkalinity	71		mg CaCO3/L	P369171	
	SM 2540 C-97	TDS	160	A	mg/L	P369331	
	SM 2540 D-97	TSS	17	A	mg/L	P369351	
	SM 4500 F-C-97	Fluoride	0.057	I	mg F/L	P369174	
2110413	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P369246	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P369039	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.65		mg N/L	P369033	
	EPA 365.1 Rev. 2.0	Total-P	0.086		mg P/L	P368933	
	SM 5310 B-00	Organic Carbon	22		mg C/L	P368983	
2110414	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.027		mg P/L	P368792	

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368802

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369215

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369218

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369246

Component	Result	Code	Units
Ammonia-N	0.002	U	mg N/L

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369039

Component	Result	Code	Units
Kjeldahl Nitrogen	0.080	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369033

Component	Result	Code	Units
NO2NO3-N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368933

Component	Result	Code	Units
Total-P	0.002	U	mg P/L

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368792

Component	Result	Code	Units
O-Phosphate-P	0.004	U	mg P/L

Reference Method: SM 2120 B
Batch ID: P368788

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P369171

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 C-97
Batch ID: P369331

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P369351

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P369174

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P368983

Component	Result	Code	Units
Organic Carbon	0.50	U	mg C/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369215

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369218

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369246

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369039

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	103		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369033

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	100		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368933

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368792

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.5		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P368788

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P369171

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P369174

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P368983

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	99.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369215

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2109676	Chloride	97.4	97.6	P/P	90 - 110
2110277	Chloride	97.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369218

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2109676	Sulfate	101	102	P/P	90 - 110
2110277	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369246

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2110433	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369039

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2110301	Kjeldahl Nitrogen	108	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369033

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2110368	NO2NO3-N	96.8	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368933

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2110292	Total-P	102	98.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368792

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2110442	O-Phosphate-P	95.0	94.7	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P369174

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2110769	Fluoride	97.7	97.2	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P368983

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2110298	Organic Carbon	101	99.6	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P368802

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2110351	Turbidity	0.191	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369215

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2109676	Chloride	0.194	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P369218

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2109676	Sulfate	0.544	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P369246

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2110433	Ammonia-N	0.655	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P369039

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2110301	Kjeldahl Nitrogen	1.20	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369033

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2110368	NO2NO3-N	0.743	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P368933

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2110292	Total-P	3.77	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P368792

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2110442	O-Phosphate-P	0.316	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: SM 2120 B
Batch ID: P368788

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2110294	Color (true)	1.34	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P369171

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2110769	Total Alkalinity	0.765	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P369331

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2110412	TDS	3.12	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P369351

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2110412	TSS	4.76	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P369174

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2110769	Fluoride	0.484	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P368983

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2110298	Organic Carbon	0.662	Spike	P	0 - 20

* 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
Calibration Verification

Reference Method: SM 2120 B
Run ID: A93399
Included Lab Sample IDs: 2110412

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	103	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A93400
Included Lab Sample IDs: 2110414

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.6	98.0	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A93405
Included Lab Sample IDs: 2110412

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	102	P/P	95 - 105

Reference Method: SM 5310 B-00
Run ID: A93485
Included Lab Sample IDs: 2110413

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	101	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A93486
Included Lab Sample IDs: 2110412

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	97.4	97.7	P/P	90 - 110
Sulfate	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A93495
Included Lab Sample IDs: 2110413

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	102	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A93511
Included Lab Sample IDs: 2110413

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	100	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A93564
Included Lab Sample IDs: 2110412

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 4500 F-C-97
Run ID: A93564
Included Lab Sample IDs: 2110412

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	102	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A93572
Included Lab Sample IDs: 2110413

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	104	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A93593
Included Lab Sample IDs: 2110413

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	104	104	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
Where they are different, both control limits are provided.

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision		
						LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						0.191	
EPA 300.0 Rev. 2.1	Chloride	97.2	97.4	97.6	97.0			0.194
	Sulfate	102	101	102	101			0.544
EPA 350.1 Rev. 2.0	Ammonia-N	98.8	102	101				0.655
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103	108	106				1.20
EPA 353.2 Rev. 2.0	NO2NO3-N	100	96.8	97.8				0.743
EPA 365.1 Rev. 2.0	Total-P	97.6	102	98.3				3.77
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.5	95.0	94.7				0.316
SM 2120 B	Color (true)	102					1.34	
SM 2320 B-97	Total Alkalinity	104					0.765	
SM 2540 C-97	TDS						3.12	
SM 2540 D-97	TSS						4.76	
SM 4500 F-C-97	Fluoride	98.2	97.7	97.2				0.484
SM 5310 B-00	Organic Carbon	99.4	101	99.6				0.662

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2110412
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2110412
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2110412
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2110413
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2110413
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2110413
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2110413
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2110414
SM 2120 B / E31780	True Color measured at 450 nm	2110412
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2110412
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2110412
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2110412
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2110412
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2110413

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	08/09/2019			08/09/2019 17:04	Rosalyn Ballman	2110412
EPA 300.0 Rev. 2.1	08/09/2019			08/16/2019 05:17	Jhamieka S. Greenwood	2110412
EPA 350.1 Rev. 2.0	08/09/2019			08/16/2019 11:55	Ping Hua	2110413
EPA 351.2 Rev. 2.0	08/09/2019	08/14/2019 14:55	Sima Feizi	08/15/2019 17:38	Julia Storbeck	2110413
EPA 353.2 Rev. 2.0	08/09/2019			08/14/2019 12:40	Beverly Y. Sanders	2110413
EPA 365.1 Rev. 2.0	08/09/2019	08/13/2019 12:35	Vijayalakshmi Reddy	08/14/2019 10:43	Lipi Saha	2110413
EPA 365.1 Rev. 2.0 dissolved	08/09/2019			08/09/2019 15:19	Jhamieka S. Greenwood	2110414
SM 2120 B	08/09/2019			08/09/2019 15:23	Madeline Funaro	2110412
SM 2320 B-97	08/09/2019			08/15/2019 23:07	Dale L. Simmons	2110412
SM 2540 C-97	08/09/2019			08/14/2019 15:01	Yijie Li	2110412
SM 2540 D-97	08/09/2019			08/14/2019 15:01	Yijie Li	2110412
SM 4500 F-C-97	08/09/2019			08/15/2019 23:07	Dale L. Simmons	2110412
SM 5310 B-00	08/09/2019			08/13/2019 17:17	Madeline Funaro	2110413