

Chemical Analysis Report

TLH-ROC-2020-10-22-01

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

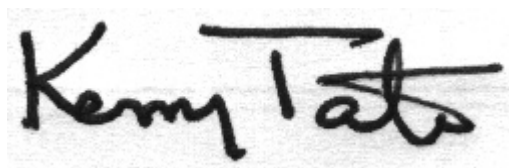
Event Description: **Run 6**
Request ID: **RQ-2020-08-10-39**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
Attn: Michael Eckles

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Kerry Tate, Ph.D.
Dr. rer. nat. Bettina Steinbock
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 13-NOV-2020 15:44

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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: Gap Lake Middle

Collection Date/Time: 10/22/2020 11:45

Field ID: G3TLHR0020

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2204421	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P389193	
	EPA 300.0 Rev. 2.1	Chloride	2.2		mg Cl/L	P389474	
		Sulfate	0.91		mg SO4/L	P389477	
	SM 2120 B-2011	Color (true)	13		PCU	P389182	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P389451	
	SM 2540 C-2011	TDS	15	U	mg/L	P389605	
	SM 2540 D-2011	TSS	2	U	mg/L	P389602	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P389455	
2204422	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P389213	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27	J	mg N/L	P389327	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P389304	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P389675	
	SM 5310 B-2011	Organic Carbon	3.7		mg C/L	P389296	
2204423	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P389122	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

EPA 351.2 Rev. 2.0: Refer to the Lab Analysis Report for an explanation of QC Codes.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P389193

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389474

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389477

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389213

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389327

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389304

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389675

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389122

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

Reference Method: SM 2120 B-2011
Batch ID: P389182

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P389451

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO ₃ /L

Reference Method: SM 2540 C-2011
Batch ID: P389605

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P389602

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P389455

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P389296

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: P389474

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389477

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389213

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389327

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389304

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: P389675

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	109		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389122

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

Reference Method: SM 2120 B-2011
Batch ID: P389182

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.0		P	85 - 115

Reference Method: SM 2320 B-2011
Batch ID: P389451

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.3		P	93 - 104

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P389455

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P389296

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	100		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389474

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204421	Chloride	102		P	90 - 110
2204498	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389477

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204421	Sulfate	103		P	90 - 110
2204498	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389213

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204422	Ammonia-N	98.1	98.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389327

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204422	Kjeldahl Nitrogen	113	99.5	F/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389304

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2203947	NO2NO3-N	98.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389675

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204422	Total-P	109	110	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P389455

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204444	Fluoride	105	105	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P389296

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2204495	Organic Carbon	106		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P389193

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204426	Turbidity	2.62	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389474

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204498	Chloride	0.530	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P389477

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204498	Sulfate	0.369	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P389213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204422	Ammonia-N	0.275	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P389327

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204422	Kjeldahl Nitrogen	10.8	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P389304

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2203947	NO2NO3-N	0.180	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P389675

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204422	Total-P	0.320	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P389122

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204251	O-Phosphate-P	0.339	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P389182

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204439	Color (true)	6.43	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P389451

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204444	Total Alkalinity	1.90	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P389605

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204242	TDS	1.04	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P389455

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204444	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P389296

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2204495	Organic Carbon	1.42	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A101695

Included Lab Sample IDs: 2204423

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	100	P/P	90 - 110

Reference Method: SM 2120 B-2011

Run ID: A101730

Included Lab Sample IDs: 2204421

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	101	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A101733

Included Lab Sample IDs: 2204421

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.5	P/P	95 - 105

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A101740

Included Lab Sample IDs: 2204422

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.2	98.2	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A101781

Included Lab Sample IDs: 2204422

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A101784

Included Lab Sample IDs: 2204422

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	100	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A101798

Included Lab Sample IDs: 2204421

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	100	P/P	90 - 110
Sulfate	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A101820

Included Lab Sample IDs: 2204422

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	104	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-2011

Run ID: A101852

Included Lab Sample IDs: 2204421

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.6	101	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A101852

Included Lab Sample IDs: 2204421

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A101996

Included Lab Sample IDs: 2204422

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	98.5	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		LCS	Precision	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					2.62	
EPA 300.0 Rev. 2.1	Chloride	102	103	102		0.530	
	Sulfate	101	102	103		0.369	
EPA 350.1 Rev. 2.0	Ammonia-N	97.7	98.1	98.4			0.275
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	108	113	99.5			10.8
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	98.0				0.180
EPA 365.1 Rev. 2.0	Total-P	109	109	110			0.320
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.0					0.339
SM 2120 B-2011	Color (true)	99.0				6.43	
SM 2320 B-2011	Total Alkalinity	99.3				1.90	
SM 2540 C-2011	TDS					1.04	
SM 4500 F-C-2011	Fluoride	102	105	105			0.0
SM 5310 B-2011	Organic Carbon	100	106				1.42

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2204421
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2204421
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2204421
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2204422
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2204422
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2204422
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2204422
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2204423
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2204421
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2204421
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2204421
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2204421
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2204421
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2204422

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	10/22/2020			10/23/2020 18:02	Samantha Davila	2204421
EPA 300.0 Rev. 2.1	10/22/2020			10/28/2020 22:01	Lipi Saha	2204421
EPA 350.1 Rev. 2.0	10/22/2020			10/25/2020 12:58	Ping Hua	2204422
EPA 351.2 Rev. 2.0	10/22/2020	10/27/2020 13:07	David Boose	10/28/2020 11:23	Elliott Rodriguez	2204422
EPA 353.2 Rev. 2.0	10/22/2020			10/27/2020 08:50	Beverly Y. Sanders	2204422
EPA 365.1 Rev. 2.0	10/22/2020	11/03/2020 12:37	Yen Ta	11/05/2020 15:04	Shengyu Wang	2204422
EPA 365.1 Rev. 2.0 dissolved	10/22/2020			10/22/2020 16:30	Virginia P. Brown	2204423
SM 2120 B-2011	10/22/2020			10/23/2020 16:09	Benjamin T. Nordmann	2204421
SM 2320 B-2011	10/22/2020			10/29/2020 00:50	Samantha Davila	2204421
SM 2540 C-2011	10/22/2020			10/23/2020 17:40	Madeline Gruver	2204421
SM 2540 D-2011	10/22/2020			10/27/2020 19:45	Madeline Gruver	2204421
SM 4500 F-C-2011	10/22/2020			10/29/2020 00:50	Samantha Davila	2204421
SM 5310 B-2011	10/22/2020			10/26/2020 18:42	Lauren Lees	2204422