

Chemical Analysis Report

SW-DIST-2018-11-16-02

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

Event Description: **Double and Woods**
Request ID: **RQ-2018-11-12-28**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
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13051 N. Telecom Parkway
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Date Certified: 04-DEC-2018 18:03



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 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: WOODS CREEK @ SLOW SPEED SIGN

Collection Date/Time: 11/15/2018 09:13

Field ID: G1SW0087

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2042281	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P354883	
	SM 2320 B-97	Total Alkalinity	116		mg CaCO3/L	P355203	
	SM 2540 D-97	TSS	7	I	mg/L	P354864	
	SM 4500 F-C-97	Fluoride	0.84		mg F/L	P355278	
2042283	EPA 350.1 Rev. 2.0	Ammonia-N	0.089		mg N/L	P355072	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.71		mg N/L	P354977	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.036		mg N/L	P355142	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P354974	
	SM 5310 B-00	Organic Carbon	6.3		mg C/L	P354967	
2042285	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.11		mg P/L	P354845	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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.

Sample Location: DOUBLE BRANCH @ STATE ST

Collection Date/Time: 11/15/2018 10:08

Field ID: G1SW0088

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2042282	EPA 180.1 Rev. 2.0	Turbidity	10	A	NTU	P354883	
	SM 2320 B-97	Total Alkalinity	119		mg CaCO3/L	P355203	
	SM 2540 D-97	TSS	16		mg/L	P354863	
	SM 4500 F-C-97	Fluoride	0.43		mg F/L	P355278	
2042284	EPA 350.1 Rev. 2.0	Ammonia-N	0.093		mg N/L	P355072	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P354977	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.095		mg N/L	P355142	
	EPA 365.1 Rev. 2.0	Total-P	0.16		mg P/L	P355022	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P354964	
2042286	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.084		mg P/L	P354845	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

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: P354883

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355072

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354977

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355142

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P354974

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355022

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P354845

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

Reference Method: SM 2320 B-97
Batch ID: P355203

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

Reference Method: SM 2540 D-97
Batch ID: P354863

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P354864

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P355278

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P354964

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

Reference Method: SM 5310 B-00
Batch ID: P354967

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355072

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.3		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354977

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.9		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355142

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	98.5		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P354974

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.3		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355022

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	97.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P354845

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.2		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P355203

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	99.7		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P355278

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.9		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P354964

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.2		P	85 - 115

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P354967

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355072

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041883	Ammonia-N	99.5	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354977

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041885	Kjeldahl Nitrogen	101	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355142

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041885	NO2NO3-N	99.0	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P354974

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041901	Total-P	102	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355022

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2042912	Total-P	94.2	94.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P355278

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041897	Fluoride	99.8	99.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P354964

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041793	Organic Carbon	97.0	92.2	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P354967

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2041879	Organic Carbon	93.5	92.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P354883

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2042282	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P355072

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2041883	Ammonia-N	1.92	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P354977

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2041885	Kjeldahl Nitrogen	1.94	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P355142

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2041885	NO2NO3-N	0.959	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P354974

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2041901	Total-P	1.33	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P355022

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2042912	Total-P	0.259	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P354845

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2042311	O-Phosphate-P	0.352	Spike	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P355203

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2041897	Total Alkalinity	0.439	Sample	P	0 - 1.6

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P355278

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2041897	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P354964

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2041793	Organic Carbon	2.82	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P354967

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2041879	Organic Carbon	0.770	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: EPA 365.1 Rev. 2.0 dissolved

Run ID: A87830

Included Lab Sample IDs: 2042285, 2042286

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.8	98.1	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A87844

Included Lab Sample IDs: 2042281, 2042282

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105

Reference Method: SM 5310 B-00

Run ID: A87888

Included Lab Sample IDs: 2042283, 2042284

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	93.4	96.4	P/P	90 - 110
Organic Carbon	94.0	94.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A87905

Included Lab Sample IDs: 2042283

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A87911

Included Lab Sample IDs: 2042283, 2042284

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	103	102	P/P	90 - 110
Kjeldahl Nitrogen	97.2	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A87946

Included Lab Sample IDs: 2042283, 2042284

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A87950

Included Lab Sample IDs: 2042284

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A87974

Included Lab Sample IDs: 2042283, 2042284

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A87974

Included Lab Sample IDs: 2042283, 2042284

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.0	98.5	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A87999

Included Lab Sample IDs: 2042281, 2042282

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.3	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A88028

Included Lab Sample IDs: 2042281, 2042282

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.5	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					0.0	
EPA 350.1 Rev. 2.0	Ammonia-N	97.3	99.5	103			1.92
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.9	101	103			1.94
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	98.5	99.0	100			0.959
EPA 365.1 Rev. 2.0	Total-P	99.3	102	101			1.33
	Total-P	97.0	94.2	94.4			0.259
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.2					0.352
SM 2320 B-97	Total Alkalinity	99.7				0.439	
SM 4500 F-C-97	Fluoride	98.9	99.8	99.8			0.0
SM 5310 B-00	Organic Carbon	93.2	97.0	92.2			2.82
	Organic Carbon	93.2	93.5	92.6			0.770

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2042281, 2042282
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2042283, 2042284
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2042283, 2042284
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2042283, 2042284
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2042283, 2042284
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2042285, 2042286
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2042281, 2042282
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2042281, 2042282
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2042281, 2042282
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2042283, 2042284

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	11/16/2018			11/16/2018 16:18	Megan Treadwell	2042281, 2042282
EPA 350.1 Rev. 2.0	11/16/2018			11/19/2018 14:46	Ping Hua	2042283
	11/16/2018			11/19/2018 14:48	Ping Hua	2042284
EPA 351.2 Rev. 2.0	11/16/2018	11/20/2018 10:20	Adrian Shelby	11/21/2018 10:14	Joseph Suarez	2042283
	11/16/2018	11/20/2018 10:20	Adrian Shelby	11/21/2018 10:18	Joseph Suarez	2042284
EPA 353.2 Rev. 2.0	11/16/2018			11/27/2018 12:03	Lauren Bottorf	2042283
	11/16/2018			11/27/2018 12:05	Lauren Bottorf	2042284
EPA 365.1 Rev. 2.0	11/16/2018	11/20/2018 12:35	Sima Feizi	11/21/2018 09:31	Beverly Y. Sanders	2042283
	11/16/2018	11/21/2018 13:00	Sima Feizi	11/26/2018 10:34	Beverly Y. Sanders	2042284
EPA 365.1 Rev. 2.0 dissolved	11/16/2018			11/16/2018 17:04	Jhamieka S. Greenwood	2042286
	11/16/2018			11/16/2018 17:05	Jhamieka S. Greenwood	2042285
SM 2320 B-97	11/16/2018			11/21/2018 17:25	Dale L. Simmons	2042282
	11/16/2018			11/21/2018 19:04	Dale L. Simmons	2042281
SM 2540 D-97	11/16/2018			11/16/2018 17:06	Yijie Li	2042281, 2042282
SM 4500 F-C-97	11/16/2018			11/29/2018 03:28	Dale L. Simmons	2042282
	11/16/2018			11/29/2018 03:57	Dale L. Simmons	2042281
SM 5310 B-00	11/16/2018			11/19/2018 17:57	Megan Treadwell	2042284
	11/16/2018			11/20/2018 08:08	Megan Treadwell	2042283