

Chemical Analysis Report

NE-DIST-2017-10-27-01

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

Event Description: **Rhuda/Rocky/Fivemile**

Request ID: **RQ-2017-10-16-50**

Customer: **NE-DIST**

Project ID: **SMP**

Send Reports to:
NE ROC
8800 Baymeadows Way W
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Date Certified: 16-NOV-2017 15:54



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: McCoys Creek @ Leland St.

Collection Date/Time: 10/26/2017 10:05

Field ID: G2NE0733 10262017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1940758	EPA 180.1 Rev. 2.0	Turbidity	5.0		NTU	P334218	
	EPA 300.0 Rev. 2.1	Chloride	21		mg Cl/L	P334680	
		Sulfate	41		mg SO4/L	P334683	
	SM 2120 B	Color (true)	25	A	PCU	P334223	
	SM 2320 B-97	Total Alkalinity	183		mg CaCO3/L	P334547	
	SM 2540 C-97	TDS	296	A	mg/L	P334825	
	SM 2540 D-97	TSS	3	IA	mg/L	P334835	
	SM 4500 F-C-97	Fluoride	0.20		mg F/L	P334550	
1940759	EPA 350.1 Rev. 2.0	Ammonia-N	0.091		mg N/L	P334713	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58	J	mg N/L	P334722	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.22		mg N/L	P334638	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P334391	
	SM 5310 B-00	Organic Carbon	7.3		mg C/L	P334774	
1940760	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.041		mg P/L	P334212	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample.

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

EPA 351.2 Rev. 2.0: Refer to the narrative for an explanation of QC Codes.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P334218

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P334680

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P334683

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P334713

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P334722

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P334722

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P334638

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: P334391

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334212

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

Reference Method: SM 2120 B
Batch ID: P334223

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P334547

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

Reference Method: SM 2540 C-97
Batch ID: P334825

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P334835

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P334550

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P334774

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: P334680

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P334683

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	99.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P334713

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	95.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P334722

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P334638

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	108		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334391

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334212

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	96.8		P	90 - 110

Reference Method: SM 2320 B-97
Batch ID: P334547

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P334547

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P334550

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P334774

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.3		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P334680

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1940637	Chloride	97.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P334683

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1940637	Sulfate	99.2		P	90 - 110
1940691	Sulfate	97.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P334713

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1940679	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P334722

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1940759	Kjeldahl Nitrogen	86.4	96.4	F/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P334638

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1940692	NO2NO3-N	110	109	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334391

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1940759	Total-P	98.0	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334212

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1940760	O-Phosphate-P	94.3	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P334550

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1941294	Fluoride	96.3	98.1	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P334774

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1940459	Organic Carbon	99.4	98.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P334218

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1940654	Turbidity	4.08	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P334680

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1940637	Chloride	0.461	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P334683

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1940637	Sulfate	0.428	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P334713

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1940679	Ammonia-N	0.428	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P334722

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1940759	Kjeldahl Nitrogen	7.16	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P334638

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1940692	NO2NO3-N	0.458	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P334391

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1940759	Total-P	1.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P334212

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1940760	O-Phosphate-P	4.12	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P334223

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1940758	Color (true)	4.76	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P334547

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1941294	Total Alkalinity	0.107	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P334825

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1940758	TDS	4.40	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P334550

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1941294	Fluoride	1.48	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P334774

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1940459	Organic Carbon	0.724	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: A79865
Included Lab Sample IDs: 1940760

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.0	98.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A79866
Included Lab Sample IDs: 1940758

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	100	P/P	95 - 105

Reference Method: SM 2120 B
Run ID: A79867
Included Lab Sample IDs: 1940758

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.9	101	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A79947
Included Lab Sample IDs: 1940759

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

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A79984
Included Lab Sample IDs: 1940759

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	105	106	P/P	90 - 110

Reference Method: SM 2320 B-97
Run ID: A79986
Included Lab Sample IDs: 1940758

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97
 Run ID: A79986
 Included Lab Sample IDs: 1940758

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	98.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
 Run ID: A80039
 Included Lab Sample IDs: 1940758

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	100	P/P	90 - 110
Sulfate	101	99.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Run ID: A80055
 Included Lab Sample IDs: 1940759

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.6	99.6	P/P	90 - 110

Reference Method: SM 5310 B-00
 Run ID: A80078
 Included Lab Sample IDs: 1940759

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.8	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Run ID: A80169
 Included Lab Sample IDs: 1940759

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.8	97.1	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 SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				4.08	
EPA 300.0 Rev. 2.1	Chloride	97.7	97.9		0.461	
	Sulfate	99.9	99.2	97.7	0.428	
EPA 350.1 Rev. 2.0	Ammonia-N	95.0	101	102		0.428
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	86.4	96.4		7.16
EPA 353.2 Rev. 2.0	NO2NO3-N	108	110	109		0.458
EPA 365.1 Rev. 2.0	Total-P	101	98.0	99.3		1.01
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	96.8	94.3	100		4.12
SM 2120 B	Color (true)				4.76	
SM 2320 B-97	Total Alkalinity	103			0.107	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision SMP	MS
					LCS	
SM 2540 C-97	TDS				4.40	
SM 4500 F-C-97	Fluoride	97.5	96.3	98.1		1.48
SM 5310 B-00	Organic Carbon	98.3	99.4	98.6		0.724

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1940758
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1940758
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1940758
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1940759
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1940759
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1940759
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1940759
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1940760
SM 2120 B / E31780	True Color measured at 450 nm	1940758
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1940758
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1940758
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1940758
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1940758
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1940759

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	10/27/2017			10/27/2017 17:19	Tanya Welborn	1940758
EPA 300.0 Rev. 2.1	10/27/2017			11/02/2017	Julia Storbeck	1940758
EPA 350.1 Rev. 2.0	10/27/2017			11/03/2017	Sofia Elnemr	1940759
EPA 351.2 Rev. 2.0	10/27/2017	11/06/2017	Adrian Shelby	11/08/2017	Joseph Suarez	1940759
EPA 353.2 Rev. 2.0	10/27/2017			11/02/2017	Beverly Y. Sanders	1940759
EPA 365.1 Rev. 2.0	10/27/2017	10/31/2017	Sima Feizi	11/01/2017	Lipi Saha	1940759
EPA 365.1 Rev. 2.0 dissolved	10/27/2017			10/27/2017 14:44	Megan Treadwell	1940760
SM 2120 B	10/27/2017			10/27/2017 16:12	Tanya Welborn	1940758
SM 2320 B-97	10/27/2017			11/01/2017	Dale L. Simmons	1940758
SM 2540 C-97	10/27/2017			11/01/2017	Yijie Li	1940758
SM 2540 D-97	10/27/2017			11/01/2017	Yijie Li	1940758
SM 4500 F-C-97	10/27/2017			11/01/2017	Dale L. Simmons	1940758
SM 5310 B-00	10/27/2017			11/06/2017	Ping Hua	1940759