Chemical Analysis Report

SW-DIST-2022-09-27-03

Florida DEP Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
DOH Accreditation E31780

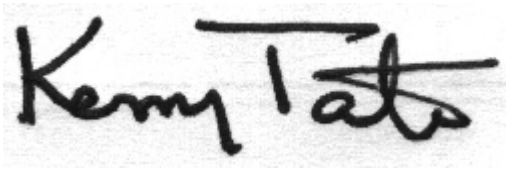
Event Description: **SMP:: Run 12**
Request ID: **RQ-2022-08-08-07**
Customer: **SW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, FL 33637-0926
Attn: Ben Paswater

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: 19-OCT-2022 10:31



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: Lake Jackson @ Center **Collection Date/Time: 09/26/2022 11:30**

Field ID: G1SW0124 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2359591	DEP SOP: NU-094-1	Color (true)	120		PCU	P420178	
	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P420183	
	EPA 300.0 Rev. 2.1	Chloride	31		mg Cl/L	P420332	
		Sulfate	3.2		mg SO4/L	P420335	
	SM 2320 B-2011	Total Alkalinity	13		mg CaCO3/L	P420554	
	SM 2540 C-2011	TDS	102		mg/L	P420665	
	SM 2540 D-2011	TSS	2	I	mg/L	P420670	
	SM 4500-F- C-2011	Fluoride	0.073	I	mg F/L	P420558	MS
2359592	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P420590	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.86		mg N/L	P420271	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P420498	
	EPA 365.1 Rev. 2.0	Total-P	0.039		mg P/L	P420286	
	SM 5310 B-2011	Organic Carbon	18		mg C/L	P420537	
2359593	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P420186	

Ref. Method and Comment:
SM 2320 B-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
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: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P420178

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P420183

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420332

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420335

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420590

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420271

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420498

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420286

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P420186

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

Quality Assurance Report
Method Blank Results

Reference Method: SM 2320 B-2011
Batch ID: P420554

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

Reference Method: SM 2540 C-2011
Batch ID: P420665

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P420670

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P420558

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P420537

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: DEP SOP: NU-094-1
Batch ID: P420178

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	102		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P420183

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420332

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420335

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420590

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420271

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420498

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	103		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420286

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	107		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P420186

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-2011
Batch ID: P420554

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	94 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P420558

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	101		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P420537

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.9		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420332

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359639	Chloride	99.3		P	90 - 110
2359640	Chloride	99.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420335

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359639	Sulfate	96.6		P	90 - 110
2359640	Sulfate	96.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420590

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359744	Ammonia-N	95.6	96.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420498

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359611	NO2NO3-N	99.5	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420286

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359592	Total-P	108	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P420186

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359756	O-Phosphate-P	97.1	100	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P420558

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359458	Fluoride	105	104	F/F	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P420537

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2359346	Organic Carbon	101		P	85 - 115

Quality Assurance Report
Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P420178

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359622	Color (true)	0.0348	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P420183

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359597	Turbidity	7.38	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420332

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359639	Chloride	0.329	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P420335

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359639	Sulfate	0.132	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P420590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359744	Ammonia-N	0.519	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P420271

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359612	Kjeldahl Nitrogen	4.46	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P420498

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359611	NO2NO3-N	1.99	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P420286

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359592	Total-P	2.19	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P420186

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359756	O-Phosphate-P	2.36	Spike	P	0 - 20

Reference Method: SM 2540 C-2011
Batch ID: P420665

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359347	TDS	4.23	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P420558

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359458	Fluoride	0.948	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P420537

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2359346	Organic Carbon	0.212	Spike	P	0 - 20

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

Quality Assurance Report
Calibration Verification

Reference Method: DEP SOP: NU-094-1
Run ID: A114965
Included Lab Sample IDs: 2359591

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A114966
Included Lab Sample IDs: 2359593

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	95.0	98.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A114967
Included Lab Sample IDs: 2359591

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A114999
Included Lab Sample IDs: 2359591

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

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A115084
Included Lab Sample IDs: 2359592

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

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A115124
Included Lab Sample IDs: 2359592

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	99.3	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A115137
Included Lab Sample IDs: 2359592

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	103	102	P/P	90 - 110

Reference Method: SM 5310 B-2011
Run ID: A115145
Included Lab Sample IDs: 2359592

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.1	97.8	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 2320 B-2011
Run ID: A115150
Included Lab Sample IDs: 2359591

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.7	102	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Run ID: A115150
Included Lab Sample IDs: 2359591

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

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A115158
Included Lab Sample IDs: 2359592

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	98.4	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
DEP SOP: NU-094-1	Color (true)	102				0.0348	
EPA 180.1 Rev. 2.0	Turbidity	101				7.38	
EPA 300.0 Rev. 2.1	Chloride	103	99.3	99.6		0.329	
	Sulfate	102	96.6	96.7		0.132	
EPA 350.1 Rev. 2.0	Ammonia-N	94.4	95.6	96.2			0.519
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104					4.46
EPA 353.2 Rev. 2.0	NO2NO3-N	103	99.5	102			1.99
EPA 365.1 Rev. 2.0	Total-P	107	108	105			2.19
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.9	97.1	100			2.36
SM 2320 B-2011	Total Alkalinity	100					
SM 2540 C-2011	TDS					4.23	
SM 4500-F- C-2011	Fluoride	101	105	104			0.948
SM 5310 B-2011	Organic Carbon	96.9	101				0.212

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2359591
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2359591
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2359591
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2359591
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2359592
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2359592
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2359592
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2359592
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2359593
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2359591
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2359591
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2359591
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2359591
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2359592

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
DEP SOP: NU-094-1	09/27/2022			09/27/2022 15:34	Anna M. Plaviak	2359591
EPA 180.1 Rev. 2.0	09/27/2022			09/27/2022 15:26	Chandler E Cox	2359591
EPA 300.0 Rev. 2.1	09/27/2022			09/30/2022 05:34	Anna M. Plaviak	2359591
EPA 350.1 Rev. 2.0	09/27/2022			10/06/2022 13:11	Ping Hua	2359592
EPA 351.2 Rev. 2.0	09/27/2022	09/29/2022 11:16	Simonne.V. Calhoun	10/04/2022 14:52	Samantha L Bates	2359592
EPA 353.2 Rev. 2.0	09/27/2022			10/05/2022 09:38	Beverly Y. Sanders	2359592
EPA 365.1 Rev. 2.0	09/27/2022	09/30/2022 12:23	Adam P Silver	10/03/2022 12:10	James L Waggerby	2359592
EPA 365.1 Rev. 2.0 dissolved	09/27/2022			09/27/2022 16:01	Elise M. Gillis	2359593
SM 2320 B-2011	09/27/2022			10/06/2022 03:55	Dale L. Simmons	2359591
SM 2540 C-2011	09/27/2022			09/30/2022 16:11	Yijie Li	2359591
SM 2540 D-2011	09/27/2022			09/30/2022 16:11	Yijie Li	2359591
SM 4500-F- C-2011	09/27/2022			10/06/2022 03:55	Dale L. Simmons	2359591
SM 5310 B-2011	09/27/2022			10/05/2022 03:25	Touraj Touran	2359592