

Chemical Analysis Report

CEN-DIST-2019-02-01-01

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

Event Description: **Toho Drain / Runnymede**
Request ID: **RQ-2019-02-11-41**
Customer: **CEN-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
3319 Maguire Blvd., Suite 232
Orlando, FL 32803-3767
Attn: Mike Linger

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: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 15-FEB-2019 11:46



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: $1.3\text{E}+03$, 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: Boggy Creek @ 1100m South of Boggy Creek Rd **Collection Date/Time: 01/31/2019 12:32**

Field ID: G4CE0127

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2058928	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P358222	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P358734	
		Sulfate	8.0		mg SO4/L	P358736	
	SM 2120 B	Color (true)	85		PCU	P358211	
	SM 2320 B-97	Total Alkalinity	35		mg CaCO3/L	P358652	
	SM 2540 C-97	TDS	89		mg/L	P358784	
	SM 2540 D-97	TSS	3	I	mg/L	P358777	
	SM 4500 F-C-97	Fluoride	0.067	I	mg F/L	P358656	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P358567	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.58		mg N/L	P358281	
2058929	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P358418	
	EPA 365.1 Rev. 2.0	Total-P	0.026		mg P/L	P358296	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P358330	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.006	I	mg P/L	P358231	
	dissolved						

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P358222

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358734

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358736

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358567

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358281

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358418

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358296

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358231

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

Reference Method: SM 2120 B
Batch ID: P358211

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P358652

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

Reference Method: SM 2540 C-97
Batch ID: P358784

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P358777

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P358656

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P358330

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: P358734

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358736

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358567

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.5		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358281

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358418

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: P358296

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358231

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.8		P	90 - 110

Reference Method: SM 2120 B
Batch ID: P358211

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

Reference Method: SM 2320 B-97
Batch ID: P358652

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 107

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P358656

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.8		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P358330

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358734

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058908	Chloride	95.6		P	90 - 110
2058999	Chloride	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P358736

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058908	Sulfate	97.8		P	90 - 110
2058999	Sulfate	99.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P358567

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058929	Ammonia-N	102	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P358281

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058976	Kjeldahl Nitrogen	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P358418

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058909	NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P358296

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058961	Total-P	97.3	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P358231

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058963	O-Phosphate-P	94.4	96.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P358656

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058695	Fluoride	99.0	98.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P358330

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2058905	Organic Carbon	93.4	93.2	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P358222

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058908	Turbidity	0.444	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P358734

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058908	Chloride	0.202	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P358736

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058908	Sulfate	0.0840	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P358567

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058929	Ammonia-N	2.30	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P358281

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058976	Kjeldahl Nitrogen	0.0378	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P358418

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058909	NO2NO3-N	0.320	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P358296

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058961	Total-P	5.69	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P358231

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058963	O-Phosphate-P	1.78	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P358211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058960	Color (true)	1.27	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P358652

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058695	Total Alkalinity	0.0584	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P358784

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058908	TDS	6.16	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P358656

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058695	Fluoride	0.480	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P358330

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2058905	Organic Carbon	0.0644	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: A89147
Included Lab Sample IDs: 2058928

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A89150
Included Lab Sample IDs: 2058928

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A89152
Included Lab Sample IDs: 2058930

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	99.0	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A89193
Included Lab Sample IDs: 2058929

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.8	95.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A89203
Included Lab Sample IDs: 2058929

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A89209
Included Lab Sample IDs: 2058929

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	99.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A89215
Included Lab Sample IDs: 2058929

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A89276
Included Lab Sample IDs: 2058929

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	104	98.7	P/P	90 - 110

Quality Assurance Report

Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A89314
Included Lab Sample IDs: 2058928

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A89314
Included Lab Sample IDs: 2058928

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	100	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A89353
Included Lab Sample IDs: 2058928

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Sulfate	100	100	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					0.444	
EPA 300.0 Rev. 2.1	Chloride	99.3	95.6	98.8		0.202	
	Sulfate	98.9	97.8	99.2		0.0840	
EPA 350.1 Rev. 2.0	Ammonia-N	97.5	102	99.6			2.30
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	109	102	102			0.0378
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	100	101	102			0.320
EPA 365.1 Rev. 2.0	Total-P	106	97.3	103			5.69
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.8	94.4	96.1			1.78
SM 2120 B	Color (true)	101				1.27	
SM 2320 B-97	Total Alkalinity	103				0.0584	
SM 2540 C-97	TDS					6.16	
SM 4500 F-C-97	Fluoride	96.8	99.0	98.2			0.480
SM 5310 B-00	Organic Carbon	96.8	93.4	93.2			0.0644

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2058928
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2058928
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2058928
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2058929
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2058929
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2058929
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2058929
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2058930
SM 2120 B / E31780	True Color measured at 450 nm	2058928
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2058928
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2058928
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2058928
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2058928
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2058929

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	02/01/2019			02/01/2019 15:49	Julia Storbeck	2058928
EPA 300.0 Rev. 2.1	02/01/2019			02/11/2019 22:42	Lipi Saha	2058928
EPA 350.1 Rev. 2.0	02/01/2019			02/07/2019 12:50	Ping Hua	2058929
EPA 351.2 Rev. 2.0	02/01/2019	02/04/2019 12:25	Adrian Shelby	02/05/2019 15:21	Joseph Suarez	2058929
EPA 353.2 Rev. 2.0	02/01/2019			02/06/2019 09:19	Beverly Y. Sanders	2058929
EPA 365.1 Rev. 2.0	02/01/2019	02/04/2019 13:15	Sima Feizi	02/05/2019 17:10	Rosalyn Ballman	2058929
EPA 365.1 Rev. 2.0 dissolved	02/01/2019			02/01/2019 16:30	Jhamieka S. Greenwood	2058930
SM 2120 B	02/01/2019			02/01/2019 14:58	Julia Storbeck	2058928
SM 2320 B-97	02/01/2019			02/09/2019 15:01	Dale L. Simmons	2058928
SM 2540 C-97	02/01/2019			02/06/2019 15:36	Yijie Li	2058928
SM 2540 D-97	02/01/2019			02/06/2019 15:36	Yijie Li	2058928
SM 4500 F-C-97	02/01/2019			02/09/2019 15:01	Dale L. Simmons	2058928
SM 5310 B-00	02/01/2019			02/05/2019 11:33	Julia Storbeck	2058929