

Chemical Analysis Report

SO-DIST-2023-03-10-01

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

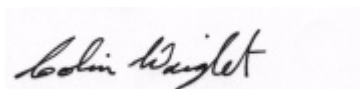
Event Description: **Caloosa Creeks**
Request ID: **RQ-2023-03-06-13**
Customer: **SO-DIST**
Project ID: **BMAP**

Send Reports to:
FL Dept. of Environmental Protection
FLDEP South District Office
2295 Victoria Ave. Suite 364
Fort Myers, FL 33901-3381
Attn: Thomas Baker

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

Certified by: Colin Wright, Program Administrator

Date Certified: 29-MAR-2023 08:55

A handwritten signature in black ink, reading "Colin Wright", is displayed on a light blue rectangular background.

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 groups are included in this report: Metals and 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: Orange River at Boat Ramp

Collection Date/Time: 03/09/2023 08:00

Field ID: G3SD0128

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2393411	DEP SOP: NU-094-1	Color (true)	64		PCU	P427016	
	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P427024	
	EPA 300.0 Rev. 2.1	Chloride	65		mg Cl/L	P427540	
	SM 2320 B-2011	Total Alkalinity	133		mg CaCO3/L	P427114	
	SM 2540 C-2015	TDS	293		mg/L	P427512	
	SM 2540 D-2015	TSS	5	I	mg/L	P427358	
	SM 4500-F- C-2011	Fluoride	0.17		mg F/L	P427295	
2393416	SM 5310 B-2011 dissolved	Organic Carbon	14		mg C/L	P427458	
2393421	EPA 350.1 Rev. 2.0	Ammonia-N	0.021		mg N/L	P427196	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P427251	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.062		mg N/L	P427287	
	EPA 365.1 Rev. 2.0	Total-P	0.071		mg P/L	P427225	
	SM 5310 B-2011	Organic Carbon	14		mg C/L	P427458	
2393426	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.030		mg P/L	P427022	
2393436	EPA 200.7 Rev. 4.4 dissolved	Silica	8.23		mg/L	P427653	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Roberts Canal @ SR 80

Collection Date/Time: 03/09/2023 08:40

Field ID: G3SD0146

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2393412	DEP SOP: NU-094-1	Color (true)	60		PCU	P427016	
	EPA 180.1 Rev. 2.0	Turbidity	7.8		NTU	P427024	
	EPA 300.0 Rev. 2.1	Chloride	26		mg Cl/L	P427540	
	SM 2320 B-2011	Total Alkalinity	218		mg CaCO3/L	P427115	
	SM 2540 C-2015	TDS	314		mg/L	P427512	
	SM 2540 D-2015	TSS	8	I	mg/L	P427358	
	SM 4500-F- C-2011	Fluoride	0.28		mg F/L	P427295	
2393417	SM 5310 B-2011 dissolved	Organic Carbon	14		mg C/L	P427458	
2393422	EPA 350.1 Rev. 2.0	Ammonia-N	0.042		mg N/L	P427197	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.99		mg N/L	P427251	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.031		mg N/L	P427287	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P427225	
	SM 5310 B-2011	Organic Carbon	14		mg C/L	P427458	
2393427	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.017		mg P/L	P427023	
2393437	EPA 200.7 Rev. 4.4 dissolved	Silica	10.1		mg/L	P427653	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Nine Mile Canal @ SR 80

Collection Date/Time: 03/09/2023 09:25

Field ID: G3SD0088

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2393413	DEP SOP: NU-094-1	Color (true)	90	A	PCU	P427017	
	EPA 180.1 Rev. 2.0	Turbidity	9.7		NTU	P427024	
	EPA 300.0 Rev. 2.1	Chloride	49		mg Cl/L	P427540	
	SM 2320 B-2011	Total Alkalinity	103	A	mg CaCO3/L	P427115	
	SM 2540 C-2015	TDS	240		mg/L	P427512	
	SM 2540 D-2015	TSS	9	I	mg/L	P427358	
	SM 4500-F- C-2011	Fluoride	0.16		mg F/L	P427295	
2393418	SM 5310 B-2011 dissolved	Organic Carbon	18		mg C/L	P427458	
2393423	EPA 350.1 Rev. 2.0	Ammonia-N	0.043		mg N/L	P427197	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.3		mg N/L	P427251	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P427288	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P427299	
	SM 5310 B-2011	Organic Carbon	18		mg C/L	P427458	
2393428	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.049		mg P/L	P427023	
2393438	EPA 200.7 Rev. 4.4 dissolved	Silica	9.33		mg/L	P427653	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Bee Branch @ Loblolly Bay Rd.

Collection Date/Time: 03/09/2023 10:15

Field ID: G3SD0085

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2393414	DEP SOP: NU-094-1	Color (true)	120		PCU	P427017	
	EPA 180.1 Rev. 2.0	Turbidity	2.7		NTU	P427024	
	EPA 300.0 Rev. 2.1	Chloride	52		mg Cl/L	P427540	
	SM 2320 B-2011	Total Alkalinity	42		mg CaCO3/L	P427115	
	SM 2540 C-2015	TDS	186		mg/L	P427512	
	SM 2540 D-2015	TSS	5	I	mg/L	P427358	
	SM 4500-F- C-2011	Fluoride	0.11		mg F/L	P427295	
2393419	SM 5310 B-2011 dissolved	Organic Carbon	18		mg C/L	P427458	
2393424	EPA 350.1 Rev. 2.0	Ammonia-N	0.099		mg N/L	P427197	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.94	J	mg N/L	P427251	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.036		mg N/L	P427288	
	EPA 365.1 Rev. 2.0	Total-P	0.15		mg P/L	P427169	
	SM 5310 B-2011	Organic Carbon	19		mg C/L	P427458	
2393429	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.096		mg P/L	P427023	
2393439	EPA 200.7 Rev. 4.4 dissolved	Silica	5.23		mg/L	P427653	

Ref. Method and Comment:

SM 2540 D-2015: 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.

Sample Location: Telegraph Creek Sonde @ USGS Sonde Station Collection Date/Time: 03/09/2023 11:05

Field ID: G3SD0129

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2393415	DEP SOP: NU-094-1	Color (true)	67		PCU	P427017	
	EPA 180.1 Rev. 2.0	Turbidity	3.7		NTU	P427024	
	EPA 300.0 Rev. 2.1	Chloride	44		mg Cl/L	P427540	
	SM 2320 B-2011	Total Alkalinity	240		mg CaCO3/L	P427115	
	SM 2540 C-2015	TDS	362		mg/L	P427512	
	SM 2540 D-2015	TSS	4	I	mg/L	P427358	
	SM 4500-F- C-2011	Fluoride	0.15		mg F/L	P427296	
2393420	SM 5310 B-2011 dissolved	Organic Carbon	17		mg C/L	P427458	
2393425	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P427197	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.90		mg N/L	P427251	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P427288	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P427169	
	SM 5310 B-2011	Organic Carbon	17		mg C/L	P427458	
2393430	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.012		mg P/L	P427023	
2393440	EPA 200.7 Rev. 4.4 dissolved	Silica	10.4		mg/L	P427653	

Ref. Method and Comment:

SM 2540 D-2015: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: DEP SOP: NU-094-1
Batch ID: P427016

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: DEP SOP: NU-094-1
Batch ID: P427017

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P427024

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4 dissolved
Batch ID: P427653

Component	Result	Code	Units
Silica	0.10	U	mg/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427540

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P427196

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P427197

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P427251

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427287

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427288

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427169

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427225

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427299

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P427022

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P427023

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

Reference Method: SM 2320 B-2011
Batch ID: P427114

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

Reference Method: SM 2320 B-2011
Batch ID: P427115

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

Reference Method: SM 2540 C-2015
Batch ID: P427512

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 D-2015
Batch ID: P427358

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500-F- C-2011
Batch ID: P427295

Component	Result	Code	Units
Fluoride	0.025	U	mg F/L

Reference Method: SM 4500-F- C-2011
Batch ID: P427296

Component	Result	Code	Units
Fluoride	0.025	U	mg C/L

Reference Method: SM 5310 B-2011
Batch ID: P427458

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

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P427458

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: P427016

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.7		P	90 - 110

Reference Method: DEP SOP: NU-094-1
Batch ID: P427017

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.1		P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P427024

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

Reference Method: EPA 200.7 Rev. 4.4 dissolved
Batch ID: P427653

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Silica	103		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427540

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P427196

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P427197

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P427251

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427287

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427288

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: P427169

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	99.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427225

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427299

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P427022

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P427023

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

Reference Method: SM 2320 B-2011
Batch ID: P427114

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.4		P	94 - 106

Reference Method: SM 2320 B-2011
Batch ID: P427115

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	96.9		P	94 - 106

Reference Method: SM 2540 C-2015
Batch ID: P427512

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 2540 D-2015
Batch ID: P427358

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
TSS	91.7		P	85 - 106

Reference Method: SM 4500-F- C-2011
Batch ID: P427295

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.7		P	96 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P427296

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.2		P	96 - 104

Reference Method: SM 5310 B-2011
Batch ID: P427458

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.4		P	85 - 115

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P427458

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	94.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4 dissolved
Batch ID: P427653

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2393436	Silica	100	103	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427540

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2393309	Chloride	96.5		P	90 - 110
2393339	Chloride	98.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P427196

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2393310	Ammonia-N	99.4	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P427197

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2393422	Ammonia-N	99.2	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P427251

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2393424	Kjeldahl Nitrogen	118	110	F/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427287

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2393374	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427288

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2393425	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427169

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2393454	Total-P	102	96.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427225

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2393375	Total-P	102	100	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427299

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2393269	Total-P	98.8	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P427022

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2393377	O-Phosphate-P	95.1	95.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P427023

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2393450	O-Phosphate-P	95.0	95.8	P/P	90 - 110

Reference Method: SM 4500-F- C-2011
Batch ID: P427295

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2393233	Fluoride	99.1	99.1	P/P	94 - 104

Reference Method: SM 4500-F- C-2011
Batch ID: P427296

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2393562	Fluoride	98.6	99.2	P/P	94 - 104

Reference Method: SM 5310 B-2011
Batch ID: P427458

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2393603	Organic Carbon	93.4	94.3	P/P	85 - 115

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P427458

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2393603	Organic Carbon	93.4	94.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: DEP SOP: NU-094-1
Batch ID: P427016

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393308	Color (true)	1.42	Sample	P	0 - 20

Reference Method: DEP SOP: NU-094-1
Batch ID: P427017

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393413	Color (true)	3.48	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P427024

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393309	Turbidity	2.58	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4 dissolved
Batch ID: P427653

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393436	Silica	1.90	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P427540

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393309	Chloride	0.848	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P427196

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393310	Ammonia-N	1.06	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P427197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393422	Ammonia-N	0.546	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P427251

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393424	Kjeldahl Nitrogen	4.72	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427287

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393374	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P427288

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393425	NO2NO3-N	0.487	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427169

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393454	Total-P	4.55	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427225

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393375	Total-P	1.45	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P427299

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393269	Total-P	1.87	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P427022

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393377	O-Phosphate-P	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P427023

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393450	O-Phosphate-P	0.839	Spike	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P427114

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393556	Total Alkalinity	0.490	Sample	P	0 - 3.8

Quality Assurance Report Precision

Reference Method: SM 2320 B-2011
Batch ID: P427115

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393413	Total Alkalinity	1.92	Sample	P	0 - 3.8

Reference Method: SM 2540 C-2015
Batch ID: P427512

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393123	TDS	3.13	Sample	P	0 - 10

Reference Method: SM 4500-F- C-2011
Batch ID: P427295

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393233	Fluoride	0.0	Spike	P	0 - 1.6

Reference Method: SM 4500-F- C-2011
Batch ID: P427296

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393562	Fluoride	0.483	Spike	P	0 - 1.6

Reference Method: SM 5310 B-2011
Batch ID: P427458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393603	Organic Carbon	0.576	Spike	P	0 - 20

Reference Method: SM 5310 B-2011 dissolved
Batch ID: P427458

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2393603	Organic Carbon	0.576	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: A117935

Included Lab Sample IDs: 2393411, 2393412, 2393413, 2393414, 2393415

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.7	98.5	P/P	90 - 110
Color (true)	99.2	98.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A117937

Included Lab Sample IDs: 2393426, 2393427, 2393428, 2393429, 2393430

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.9	99.3	P/P	90 - 110
O-Phosphate-P	99.3	99.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A117938

Included Lab Sample IDs: 2393411, 2393412, 2393413, 2393414, 2393415

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	101	P/P	95 - 105

Reference Method: SM 2320 B-2011

Run ID: A117971

Included Lab Sample IDs: 2393411, 2393412, 2393413, 2393414, 2393415

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	95.3	96.1	P/P	90 - 110
Total Alkalinity	95.9	95.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A118015

Included Lab Sample IDs: 2393421, 2393422, 2393423, 2393424, 2393425

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.8	98.3	P/P	90 - 110
Ammonia-N	98.3	96.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A118020

Included Lab Sample IDs: 2393424

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	98.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A118051

Included Lab Sample IDs: 2393421, 2393422, 2393423, 2393424, 2393425

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500-F- C-2011

Run ID: A118053

Included Lab Sample IDs: 2393411, 2393412, 2393413, 2393414, 2393415

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.0	98.5	P/P	90 - 110
Fluoride	98.5	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A118054

Included Lab Sample IDs: 2393421

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.4	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A118060

Included Lab Sample IDs: 2393425

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A118063

Included Lab Sample IDs: 2393421, 2393422, 2393423, 2393424, 2393425

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	98.1	P/P	90 - 110
Kjeldahl Nitrogen	98.1	105	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A118064

Included Lab Sample IDs: 2393422

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A118068

Included Lab Sample IDs: 2393423

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A118124

Included Lab Sample IDs: 2393411, 2393412, 2393413, 2393414, 2393415

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	96.6	97.3	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A118128

Included Lab Sample IDs: 2393421, 2393422, 2393423, 2393424, 2393425

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

Reference Method: SM 5310 B-2011

Run ID: A118128

Included Lab Sample IDs: 2393421, 2393422, 2393423, 2393424, 2393425

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.0	97.0	P/P	90 - 110
Organic Carbon	97.3	97.0	P/P	90 - 110

Reference Method: SM 5310 B-2011 dissolved

Run ID: A118128

Included Lab Sample IDs: 2393416, 2393417, 2393418, 2393419, 2393420

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.0	97.0	P/P	90 - 110
Organic Carbon	97.3	97.0	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4 dissolved

Run ID: A118192

Included Lab Sample IDs: 2393436, 2393437, 2393438, 2393439, 2393440

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silica	103	105	P/P	95 - 105
Silica	105	106	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)	98.7				1.42	
	Color (true)	98.1				3.48	
EPA 180.1 Rev. 2.0	Turbidity	101				2.58	
EPA 200.7 Rev. 4.4 dissolved	Silica	103	100	103			1.90
EPA 300.0 Rev. 2.1	Chloride	99.7	96.5	98.8		0.848	
EPA 350.1 Rev. 2.0	Ammonia-N	95.6	99.4	101			1.06
	Ammonia-N	98.4	99.2	100			0.546
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	118	110			4.72
EPA 353.2 Rev. 2.0	NO2NO3-N	102	102	102			0.0
	NO2NO3-N	100	103	102			0.487
EPA 365.1 Rev. 2.0	Total-P	99.6	102	96.8			4.55
	Total-P	99.8	102	100			1.45
	Total-P	102	98.8	101			1.87
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.5	95.1	95.1			0.0
	O-Phosphate-P	98.0	95.0	95.8			0.839
SM 2320 B-2011	Total Alkalinity	96.4				0.490	
	Total Alkalinity	96.9				1.92	
SM 2540 C-2015	TDS	107				3.13	
SM 2540 D-2015	TSS	91.7					
SM 4500-F- C-2011	Fluoride	95.7	99.1	99.1			0.0
	Fluoride	96.2	98.6	99.2			0.483
SM 5310 B-2011	Organic Carbon	94.4	93.4	94.3			0.576
SM 5310 B-2011 dissolved	Organic Carbon	94.4	93.4	94.3			0.576

Reference Method Descriptions

Method	Description	Associated Samples
DEP SOP: NU-094-1	True Color measured at 450 nm (not valid for NPDES monitoring)	2393411, 2393412, 2393413, 2393414, 2393415
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2393411, 2393412, 2393413, 2393414, 2393415
EPA 200.7 Rev. 4.4 dissolved	Silica, dissolved, lab filtered, aqueous matrices as mg SiO2/L.	2393436, 2393437, 2393438, 2393439, 2393440
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2393411, 2393412, 2393413, 2393414, 2393415
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2393421, 2393422, 2393423, 2393424, 2393425
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2393421, 2393422, 2393423, 2393424, 2393425
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2393421, 2393422, 2393423, 2393424, 2393425
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2393421, 2393422, 2393423, 2393424, 2393425
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2393426, 2393427, 2393428, 2393429, 2393430
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO3/L	2393411, 2393412, 2393413, 2393414, 2393415
SM 2540 C-2015	Total Dissolved Solids in aqueous matrices	2393411, 2393412, 2393413, 2393414, 2393415
SM 2540 D-2015	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2393411, 2393412, 2393413, 2393414, 2393415
SM 4500-F- C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2393411, 2393412, 2393413, 2393414, 2393415
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2393421, 2393422, 2393423, 2393424, 2393425

Reference Method Descriptions

Method	Description	<u>Associated Samples</u>
SM 5310 B-2011 dissolved	Dissolved Nonpurgeable Organic Carbon in filtered, aqueous matrices	2393416, 2393417, 2393418, 2393419, 2393420

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	03/10/2023			03/10/2023 14:07	Alexis Price	2393411, 2393412
	03/10/2023			03/10/2023 14:10	Alexis Price	2393413
	03/10/2023			03/10/2023 14:11	Alexis Price	2393414, 2393415
EPA 180.1 Rev. 2.0	03/10/2023			03/10/2023 10:47	Anna M. Plaviak	2393411
	03/10/2023			03/10/2023 10:48	Anna M. Plaviak	2393412
	03/10/2023			03/10/2023 10:49	Anna M. Plaviak	2393413
	03/10/2023			03/10/2023 10:50	Anna M. Plaviak	2393414
	03/10/2023			03/10/2023 10:52	Anna M. Plaviak	2393415
EPA 200.7 Rev. 4.4 dissolved	03/10/2023			03/24/2023 13:58	McKinley C Carter	2393436
	03/10/2023			03/24/2023 14:20	McKinley C Carter	2393437
	03/10/2023			03/24/2023 14:28	McKinley C Carter	2393438
	03/10/2023			03/24/2023 14:36	McKinley C Carter	2393439
EPA 300.0 Rev. 2.1	03/10/2023			03/24/2023 15:18	McKinley C Carter	2393440
	03/10/2023			03/22/2023 17:23	Judith K. Clark	2393411
	03/10/2023			03/22/2023 17:38	Judith K. Clark	2393412
	03/10/2023			03/22/2023 17:53	Judith K. Clark	2393413
	03/10/2023			03/22/2023 18:08	Judith K. Clark	2393414
EPA 350.1 Rev. 2.0	03/10/2023			03/22/2023 18:23	Judith K. Clark	2393415
	03/10/2023			03/15/2023 14:16	Khloe J Berg	2393421
	03/10/2023			03/15/2023 14:30	Khloe J Berg	2393424
	03/10/2023			03/15/2023 14:34	Khloe J Berg	2393422
	03/10/2023			03/15/2023 14:36	Khloe J Berg	2393423
EPA 351.2 Rev. 2.0	03/10/2023			03/15/2023 14:37	Khloe J Berg	2393425
	03/10/2023	03/16/2023 15:00	Simonne.V. Calhoun	03/17/2023 12:47	Judith K. Clark	2393421
	03/10/2023	03/16/2023 15:00	Simonne.V. Calhoun	03/17/2023 12:52	Judith K. Clark	2393422
	03/10/2023	03/16/2023 15:00	Simonne.V. Calhoun	03/17/2023 12:53	Judith K. Clark	2393423
	03/10/2023	03/16/2023 15:00	Simonne.V. Calhoun	03/17/2023 12:55	Judith K. Clark	2393424
EPA 353.2 Rev. 2.0	03/10/2023	03/16/2023 15:00	Simonne.V. Calhoun	03/17/2023 13:00	Judith K. Clark	2393425
	03/10/2023			03/17/2023 09:34	Beverly Y. Sanders	2393421
	03/10/2023			03/17/2023 09:35	Beverly Y. Sanders	2393422
	03/10/2023			03/17/2023 09:42	Beverly Y. Sanders	2393425
	03/10/2023			03/17/2023 09:48	Beverly Y. Sanders	2393423
EPA 365.1 Rev. 2.0	03/10/2023			03/17/2023 09:49	Beverly Y. Sanders	2393424
	03/10/2023	03/15/2023 13:09	Adam P Silver	03/15/2023 17:20	James L Waggeberby	2393424
	03/10/2023	03/15/2023 13:09	Adam P Silver	03/17/2023 14:32	James L Waggeberby	2393425
	03/10/2023	03/16/2023 16:36	Adam P Silver	03/17/2023 12:26	Simonne.V. Calhoun	2393421
	03/10/2023	03/16/2023 16:36	Adam P Silver	03/17/2023 16:56	James L Waggeberby	2393422
EPA 365.1 Rev. 2.0 dissolved	03/10/2023	03/17/2023 15:18	Adam P Silver	03/17/2023 17:51	James L Waggeberby	2393423
	03/10/2023			03/10/2023 15:27	Elise M. Gillis	2393426
	03/10/2023			03/10/2023 15:36	Elise M. Gillis	2393427

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0 dissolved	03/10/2023			03/10/2023 15:37	Elise M. Gillis	2393428
	03/10/2023			03/10/2023 15:38	Elise M. Gillis	2393429
	03/10/2023			03/10/2023 15:39	Elise M. Gillis	2393430
SM 2320 B-2011	03/10/2023			03/14/2023 05:05	Chandler E Cox	2393411
	03/10/2023			03/14/2023 06:46	Chandler E Cox	2393413
	03/10/2023			03/14/2023 07:10	Chandler E Cox	2393412
	03/10/2023			03/14/2023 07:24	Chandler E Cox	2393414
	03/10/2023			03/14/2023 07:39	Chandler E Cox	2393415
SM 2540 C-2015	03/10/2023			03/14/2023 16:02	Yijie Li	2393411, 2393412, 2393413, 2393414, 2393415
SM 2540 D-2015	03/10/2023			03/14/2023 16:02	Yijie Li	2393411, 2393412, 2393413, 2393414, 2393415
SM 4500-F- C-2011	03/10/2023			03/17/2023 01:43	Dale L. Simmons	2393411
	03/10/2023			03/17/2023 01:48	Dale L. Simmons	2393412
	03/10/2023			03/17/2023 02:09	Dale L. Simmons	2393413
	03/10/2023			03/17/2023 02:14	Dale L. Simmons	2393414
	03/10/2023			03/17/2023 02:54	Dale L. Simmons	2393415
SM 5310 B-2011	03/10/2023			03/21/2023 20:23	Elise M. Gillis	2393421
	03/10/2023			03/21/2023 20:54	Elise M. Gillis	2393422
	03/10/2023			03/21/2023 21:25	Elise M. Gillis	2393423
	03/10/2023			03/21/2023 21:59	Elise M. Gillis	2393424
	03/10/2023			03/21/2023 23:03	Elise M. Gillis	2393425
SM 5310 B-2011 dissolved	03/10/2023			03/21/2023 20:38	Elise M. Gillis	2393416
	03/10/2023			03/21/2023 21:09	Elise M. Gillis	2393417
	03/10/2023			03/21/2023 21:43	Elise M. Gillis	2393418
	03/10/2023			03/21/2023 22:14	Elise M. Gillis	2393419
	03/10/2023			03/21/2023 23:18	Elise M. Gillis	2393420