

Chemical Analysis Report

NW-DIST-2019-05-16-01

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

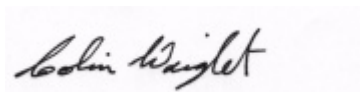
Event Description: **Crestview/ Laurel Hill**
Request ID: **RQ-2019-05-13-27**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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160 Government Center
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Pensacola, FL 32502-5794
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Certified by: Colin Wright, Program Administrator

Date Certified: 04-JUN-2019 15:24

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 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: POVERTY CREEK UPSTREAM OF POVERTY CREEK RD

Collection Date/Time: 05/15/2019 09:35

Field ID: G4NW0427

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2086737	EPA 180.1 Rev. 2.0	Turbidity	3.5		NTU	P364092	
	EPA 300.0 Rev. 2.1	Chloride	2.7		mg Cl/L	P364201	
		Sulfate	1.9		mg SO4/L	P364203	
	SM 2120 B	Color (true)	31		PCU	P364097	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P364310	
	SM 2540 C-97	TDS	15	I	mg/L	P364440	
	SM 2540 D-97	TSS	6	I	mg/L	P364346	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P364314	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P364325	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.13	I	mg N/L	P364561	
2086742	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P364301	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P364473	
	SM 5310 B-00	Organic Carbon	2.9		mg C/L	P364198	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P364085	
	dissolved						

Ref. Method and Comment:

EPA 351.2 Rev. 2.0: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: HORSEHEAD CREEK UPSTREAM OF STEELE MILL CREEK RD **Collection Date/Time: 05/15/2019 10:30**

Field ID: G4NW0428

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2086752	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P364092	
	EPA 300.0 Rev. 2.1	Chloride	4.1		mg Cl/L	P364201	
		Sulfate	0.64		mg SO4/L	P364203	
	SM 2120 B	Color (true)	88		PCU	P364098	
	SM 2320 B-97	Total Alkalinity	7.5		mg CaCO3/L	P364424	
	SM 2540 C-97	TDS	35		mg/L	P364441	
	SM 2540 D-97	TSS	5	I	mg/L	P364347	
	SM 4500 F-C-97	Fluoride	0.037	I	mg F/L	P364427	
2086754	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P364327	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.38		mg N/L	P364561	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P364302	
	EPA 365.1 Rev. 2.0	Total-P	0.051		mg P/L	P364474	
	SM 5310 B-00	Organic Carbon	6.4		mg C/L	P364198	
2086756	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.021		mg P/L	P364087	

Ref. Method and Comment:

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: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: HURRICANE CREEK BELOW HURRICANE LAKE ROAD

Collection Date/Time: 05/15/2019 13:20

Field ID: G4NW0160

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2086738	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P364092	
	EPA 300.0 Rev. 2.1	Chloride	2.6		mg Cl/L	P364201	
		Sulfate	0.56	I	mg SO4/L	P364203	
	SM 2120 B	Color (true)	26		PCU	P364097	
	SM 2320 B-97	Total Alkalinity	5.4		mg CaCO3/L	P364310	
	SM 2540 C-97	TDS	20	I	mg/L	P364441	
	SM 2540 D-97	TSS	3	I	mg/L	P364347	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P364314	
2086743	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P364325	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40		mg N/L	P364561	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	I	mg N/L	P364301	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P364473	
	SM 5310 B-00	Organic Carbon	4.0		mg C/L	P364198	
2086748	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364085	

Ref. Method and Comment:

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: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: GREEN BRANCH UPSTREAM OF BUCK TYNER RD. **Collection Date/Time: 05/15/2019 10:45**

Field ID: G4NW0207

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2086739	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P364092	
	EPA 300.0 Rev. 2.1	Chloride	4.6		mg Cl/L	P364201	
		Sulfate	0.57	I	mg SO4/L	P364203	
	SM 2120 B	Color (true)	93		PCU	P364097	
	SM 2320 B-97	Total Alkalinity	6.3		mg CaCO3/L	P364310	
	SM 2540 C-97	TDS	36		mg/L	P364441	
	SM 2540 D-97	TSS	4	I	mg/L	P364347	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P364314	
2086744	EPA 350.1 Rev. 2.0	Ammonia-N	0.023		mg N/L	P364325	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P364561	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P364301	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P364473	
	SM 5310 B-00	Organic Carbon	5.2		mg C/L	P364198	
2086749	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P364085	

Ref. Method and Comment:

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: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: DEADFALL CREEK UPSTREAM OF SHOCKLEY SPRINGS RD **Collection Date/Time: 05/15/2019 12:00**

Field ID: G4NW0490

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2086740	EPA 180.1 Rev. 2.0	Turbidity	4.7		NTU	P364092	
	EPA 300.0 Rev. 2.1	Chloride	2.8		mg Cl/L	P364201	
		Sulfate	1.2		mg SO4/L	P364203	
	SM 2120 B	Color (true)	57	A	PCU	P364098	
	SM 2320 B-97	Total Alkalinity	1.3	I	mg CaCO3/L	P364424	
	SM 2540 C-97	TDS	28		mg/L	P364441	
	SM 2540 D-97	TSS	2	I	mg/L	P364347	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P364427	
2086745	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P364327	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.22		mg N/L	P364561	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.061		mg N/L	P364301	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P364473	
	SM 5310 B-00	Organic Carbon	4.2		mg C/L	P364198	
2086750	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364087	

Ref. Method and Comment:

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: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: DEADFALL CREEK UPSTREAM OF OLD RIVER RD **Collection Date/Time: 05/15/2019 12:20**

Field ID: G4NW0491

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2086741	EPA 180.1 Rev. 2.0	Turbidity	4.0		NTU	P364092	
	EPA 300.0 Rev. 2.1	Chloride	2.9		mg Cl/L	P364201	
		Sulfate	1.0		mg SO4/L	P364203	
	SM 2120 B	Color (true)	54		PCU	P364098	
	SM 2320 B-97	Total Alkalinity	1.8	I	mg CaCO3/L	P364424	
	SM 2540 C-97	TDS	29		mg/L	P364441	
	SM 2540 D-97	TSS	2	I	mg/L	P364347	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P364427	
2086746	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P364327	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P364561	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P364302	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P364473	
	SM 5310 B-00	Organic Carbon	4.1		mg C/L	P364198	
2086751	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364087	

Ref. Method and Comment:

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: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: OAK CREEK BELOW TOMMY STEELE ROAD Collection Date/Time: 05/15/2019 12:55

Field ID: G4NW0395

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2086753	EPA 180.1 Rev. 2.0	Turbidity	7.9		NTU	P364092	
	EPA 300.0 Rev. 2.1	Chloride	3.3		mg Cl/L	P364201	
		Sulfate	1.5		mg SO4/L	P364203	
	SM 2120 B	Color (true)	100		PCU	P364098	
	SM 2320 B-97	Total Alkalinity	3.3		mg CaCO3/L	P364424	
	SM 2540 C-97	TDS	31		mg/L	P364441	
	SM 2540 D-97	TSS	6	I	mg/L	P364347	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P364427	
2086755	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P364327	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.35		mg N/L	P364562	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.017		mg N/L	P364302	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P364474	
	SM 5310 B-00	Organic Carbon	5.0		mg C/L	P364198	
2086757	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P364087	

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: P364092

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364201

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364203

Component	Result	Code	Units
Sulfate	0.20	U	mg SO ₄ /L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364325

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364327

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364561

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364562

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364301

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364302

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364473

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364474

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364085

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364087

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

Reference Method: SM 2120 B
Batch ID: P364097

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P364098

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P364310

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

Reference Method: SM 2320 B-97
Batch ID: P364424

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

Reference Method: SM 2540 C-97
Batch ID: P364440

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P364441

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P364346

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P364347

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P364314

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P364427

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P364198

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: P364201

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364203

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: P364325

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364327

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364561

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	100		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364562

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364301

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364302

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	97.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364473

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364474

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: P364085

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	95.7		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364087

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

Reference Method: SM 2120 B
Batch ID: P364097

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.1		P	85 - 115

Reference Method: SM 2120 B
Batch ID: P364098

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

Reference Method: SM 2320 B-97
Batch ID: P364310

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 106

Reference Method: SM 2320 B-97
Batch ID: P364424

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P364314

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.2		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P364427

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.4		P	92 - 103

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P364198

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364201

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086669	Chloride	98.6		P	90 - 110
2086741	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364203

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086669	Sulfate	99.5		P	90 - 110
2086741	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364325

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086742	Ammonia-N	104	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364327

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086745	Ammonia-N	104	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364562

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086832	Kjeldahl Nitrogen	109	106	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364301

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086670	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364302

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086746	NO2NO3-N	98.0	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364473

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086745	Total-P	97.7	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364474

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086833	Total-P	97.0	98.8	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364085

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086747	O-Phosphate-P	95.4	96.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364087

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086750	O-Phosphate-P	97.1	98.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P364314

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086656	Fluoride	98.4	98.4	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P364427

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2087142	Fluoride	98.9	102	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P364198

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2086670	Organic Carbon	94.6	94.7	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P364092

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086690	Turbidity	2.07	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364201

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086669	Chloride	0.454	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364203

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086669	Sulfate	0.156	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086742	Ammonia-N	1.08	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P364327

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086745	Ammonia-N	0.946	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364561

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086693	Kjeldahl Nitrogen	1.39	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364562

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086832	Kjeldahl Nitrogen	3.25	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364301

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086670	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364302

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086746	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364473

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086745	Total-P	2.57	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364474

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086833	Total-P	1.68	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364085

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086747	O-Phosphate-P	1.46	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364087

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086750	O-Phosphate-P	1.74	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P364097

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086691	Color (true)	4.92	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P364098

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086740	Color (true)	0.288	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P364310

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086656	Total Alkalinity	0.578	Sample	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
 Batch ID: P364424

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087142	Total Alkalinity	0.627	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
 Batch ID: P364440

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086669	TDS	3.90	Sample	P	0 - 10

Reference Method: SM 2540 C-97
 Batch ID: P364441

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086690	TDS	1.88	Sample	P	0 - 10

Reference Method: SM 2540 D-97
 Batch ID: P364346

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086669	TSS	0.0	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P364314

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086656	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
 Batch ID: P364427

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2087142	Fluoride	1.90	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
 Batch ID: P364198

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2086670	Organic Carbon	0.0771	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 300.0 Rev. 2.1

Run ID: A91404

Included Lab Sample IDs: 2086737, 2086738, 2086739, 2086740, 2086741, 2086752, 2086753

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A91479

Included Lab Sample IDs: 2086747, 2086748, 2086749, 2086750, 2086751, 2086756, 2086757

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.9	98.6	P/P	90 - 110
O-Phosphate-P	98.6	96.6	P/P	90 - 110
O-Phosphate-P	98.8	99.3	P/P	90 - 110
O-Phosphate-P	99.3	97.9	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A91482

Included Lab Sample IDs: 2086737, 2086738, 2086739, 2086740, 2086741, 2086752, 2086753

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105

Reference Method: SM 2120 B

Run ID: A91486

Included Lab Sample IDs: 2086737, 2086738, 2086739, 2086740, 2086741, 2086752, 2086753

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	102	P/P	90 - 115
Color (true)	101	100	P/P	90 - 115

Reference Method: SM 5310 B-00

Run ID: A91525

Included Lab Sample IDs: 2086742, 2086743, 2086744, 2086745, 2086746, 2086754, 2086755

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.8	95.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91563

Included Lab Sample IDs: 2086742, 2086743, 2086744, 2086745, 2086746, 2086754, 2086755

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

Reference Method: SM 2320 B-97

Run ID: A91564

Included Lab Sample IDs: 2086737, 2086738, 2086739

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	105	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A91564

Included Lab Sample IDs: 2086737, 2086738, 2086739

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91568

Included Lab Sample IDs: 2086742, 2086743, 2086744, 2086745, 2086746, 2086754, 2086755

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	105	P/P	90 - 110
Ammonia-N	105	106	P/P	90 - 110
Ammonia-N	106	105	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A91614

Included Lab Sample IDs: 2086740, 2086741, 2086752, 2086753

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	100	P/P	90 - 110
Total Alkalinity	99.5	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A91614

Included Lab Sample IDs: 2086740, 2086741, 2086752, 2086753

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A91666

Included Lab Sample IDs: 2086742, 2086743, 2086744, 2086745, 2086746, 2086754, 2086755

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: A91729

Included Lab Sample IDs: 2086742, 2086743, 2086744, 2086745, 2086746, 2086754, 2086755

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.1	101	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	MS
EPA 180.1 Rev. 2.0	Turbidity				2.07	
EPA 300.0 Rev. 2.1	Chloride	99.7	98.6	101	0.454	
	Sulfate	98.9	99.5	100	0.156	
EPA 350.1 Rev. 2.0	Ammonia-N	102	104	103		1.08
	Ammonia-N	103	104	105		0.946
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	100				1.39
	Kjeldahl Nitrogen	103	109	106		3.25
EPA 353.2 Rev. 2.0	NO2NO3-N	97.0	100	100		0.0
	NO2NO3-N	97.0	98.0	98.0		0.0
EPA 365.1 Rev. 2.0	Total-P	99.0	97.7	100		2.57
	Total-P	102	97.0	98.8		1.68
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	95.7	95.4	96.8		1.46
	O-Phosphate-P	98.2	97.1	98.8		1.74
SM 2120 B	Color (true)	98.1			4.92	
	Color (true)	101			0.288	
SM 2320 B-97	Total Alkalinity	102			0.578	
	Total Alkalinity	101			0.627	
SM 2540 C-97	TDS				3.90	
	TDS				1.88	
SM 2540 D-97	TSS				0.0	
SM 4500 F-C-97	Fluoride	97.2	98.4	98.4		0.0
	Fluoride	99.4	98.9	102		1.90
SM 5310 B-00	Organic Carbon	95.2	94.6	94.7		0.0771

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2086737, 2086738, 2086739, 2086740, 2086741, 2086752, 2086753
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2086737, 2086738, 2086739, 2086740, 2086741, 2086752, 2086753
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2086737, 2086738, 2086739, 2086740, 2086741, 2086752, 2086753
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2086742, 2086743, 2086744, 2086745, 2086746, 2086754, 2086755
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2086742, 2086743, 2086744, 2086745, 2086746, 2086754, 2086755
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2086742, 2086743, 2086744, 2086745, 2086746, 2086754, 2086755
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2086742, 2086743, 2086744, 2086745, 2086746, 2086754, 2086755
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2086747, 2086748, 2086749, 2086750, 2086751, 2086756, 2086757
SM 2120 B / E31780	True Color measured at 450 nm	2086737, 2086738, 2086739, 2086740, 2086741, 2086752, 2086753
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	2086737, 2086738, 2086739, 2086740, 2086741, 2086752, 2086753
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2086737, 2086738, 2086739, 2086740, 2086741, 2086752, 2086753
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2086737, 2086738, 2086739, 2086740, 2086741, 2086752, 2086753
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2086737, 2086738, 2086739, 2086740, 2086741, 2086752, 2086753
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2086742, 2086743, 2086744, 2086745, 2086746, 2086754, 2086755

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	05/16/2019			05/16/2019 16:15	Sima Feizi	2086737, 2086738, 2086739, 2086740, 2086741, 2086752, 2086753
EPA 300.0 Rev. 2.1	05/16/2019			05/17/2019 22:29	Lipi Saha	2086741
	05/16/2019			05/18/2019 00:18	Lipi Saha	2086737
	05/16/2019			05/18/2019 00:30	Lipi Saha	2086738
	05/16/2019			05/18/2019 00:42	Lipi Saha	2086739
	05/16/2019			05/18/2019 00:54	Lipi Saha	2086740
	05/16/2019			05/18/2019 01:06	Lipi Saha	2086752
	05/16/2019			05/18/2019 01:18	Lipi Saha	2086753
EPA 350.1 Rev. 2.0	05/16/2019			05/20/2019 11:34	Ping Hua	2086742
	05/16/2019			05/20/2019 11:55	Ping Hua	2086743
	05/16/2019			05/20/2019 11:57	Ping Hua	2086744
	05/16/2019			05/20/2019 12:07	Ping Hua	2086745
	05/16/2019			05/20/2019 12:12	Ping Hua	2086746
	05/16/2019			05/20/2019 12:13	Ping Hua	2086754
	05/16/2019			05/20/2019 12:15	Ping Hua	2086755
EPA 351.2 Rev. 2.0	05/16/2019	05/24/2019 12:30	Adrian Shelby	05/29/2019 13:34	Joseph Suarez	2086742
	05/16/2019	05/24/2019 12:30	Adrian Shelby	05/29/2019 13:36	Joseph Suarez	2086743
	05/16/2019	05/24/2019 12:30	Adrian Shelby	05/29/2019 13:37	Joseph Suarez	2086744
	05/16/2019	05/24/2019 12:30	Adrian Shelby	05/29/2019 13:39	Joseph Suarez	2086745
	05/16/2019	05/24/2019 12:30	Adrian Shelby	05/29/2019 13:40	Joseph Suarez	2086746
	05/16/2019	05/24/2019 12:30	Adrian Shelby	05/29/2019 13:42	Joseph Suarez	2086754
	05/16/2019	05/24/2019 12:30	Adrian Shelby	05/29/2019 13:46	Joseph Suarez	2086755
EPA 353.2 Rev. 2.0	05/16/2019			05/21/2019 10:39	Beverly Y. Sanders	2086742
	05/16/2019			05/21/2019 10:40	Beverly Y. Sanders	2086743
	05/16/2019			05/21/2019 10:42	Beverly Y. Sanders	2086744
	05/16/2019			05/21/2019 10:43	Beverly Y. Sanders	2086745
	05/16/2019			05/21/2019 10:50	Beverly Y. Sanders	2086746
	05/16/2019			05/21/2019 10:56	Beverly Y. Sanders	2086754
	05/16/2019			05/21/2019 10:57	Beverly Y. Sanders	2086755
EPA 365.1 Rev. 2.0	05/16/2019	05/23/2019 15:15	Adrian Shelby	05/24/2019 15:02	Rosalyn Ballman	2086742
	05/16/2019	05/23/2019 15:15	Adrian Shelby	05/24/2019 15:03	Rosalyn Ballman	2086743
	05/16/2019	05/23/2019 15:15	Adrian Shelby	05/24/2019 15:04	Rosalyn Ballman	2086744
	05/16/2019	05/23/2019 15:15	Adrian Shelby	05/24/2019 15:05	Rosalyn Ballman	2086745
	05/16/2019	05/23/2019 15:15	Adrian Shelby	05/24/2019 15:06	Rosalyn Ballman	2086746
	05/16/2019	05/23/2019 15:15	Adrian Shelby	05/24/2019 15:15	Rosalyn Ballman	2086754
	05/16/2019	05/23/2019 15:15	Adrian Shelby	05/24/2019 15:16	Rosalyn Ballman	2086755
EPA 365.1 Rev. 2.0 dissolved	05/16/2019			05/16/2019 14:39	Jhamieka S. Greenwood	2086747
	05/16/2019			05/16/2019 14:51	Jhamieka S. Greenwood	2086750
	05/16/2019			05/16/2019 15:08	Jhamieka S. Greenwood	2086748

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	05/16/2019			05/16/2019 15:09	Jhamieka S. Greenwood	2086749
	05/16/2019			05/16/2019 15:20	Jhamieka S. Greenwood	2086751
	05/16/2019			05/16/2019 15:21	Jhamieka S. Greenwood	2086756
	05/16/2019			05/16/2019 15:22	Jhamieka S. Greenwood	2086757
SM 2120 B	05/16/2019			05/16/2019 16:01	Madeline Funaro	2086737
	05/16/2019			05/16/2019 16:02	Madeline Funaro	2086738
	05/16/2019			05/16/2019 16:03	Madeline Funaro	2086739
	05/16/2019			05/16/2019 16:07	Madeline Funaro	2086740
SM 2320 B-97	05/16/2019			05/16/2019 16:08	Madeline Funaro	2086741
	05/16/2019			05/16/2019 16:09	Madeline Funaro	2086752
	05/16/2019			05/16/2019 16:10	Madeline Funaro	2086753
	05/16/2019			05/21/2019 10:20	Dale L. Simmons	2086737
	05/16/2019			05/21/2019 10:35	Dale L. Simmons	2086738
	05/16/2019			05/21/2019 10:46	Dale L. Simmons	2086739
	05/16/2019			05/22/2019 22:26	Dale L. Simmons	2086740
	05/16/2019			05/22/2019 22:40	Dale L. Simmons	2086741
	05/16/2019			05/22/2019 22:51	Dale L. Simmons	2086752
	05/16/2019			05/22/2019 23:36	Dale L. Simmons	2086753
SM 2540 C-97	05/16/2019			05/17/2019 16:30	Sima Feizi	2086737, 2086738, 2086739, 2086740, 2086741, 2086752, 2086753
SM 2540 D-97	05/16/2019			05/17/2019 16:30	Sima Feizi	2086737, 2086738, 2086739, 2086740, 2086741, 2086752, 2086753
SM 4500 F-C-97	05/16/2019			05/21/2019 10:20	Dale L. Simmons	2086737
	05/16/2019			05/21/2019 10:35	Dale L. Simmons	2086738
	05/16/2019			05/21/2019 10:46	Dale L. Simmons	2086739
	05/16/2019			05/22/2019 22:26	Dale L. Simmons	2086740
	05/16/2019			05/22/2019 22:40	Dale L. Simmons	2086741
	05/16/2019			05/22/2019 22:51	Dale L. Simmons	2086752
SM 5310 B-00	05/16/2019			05/22/2019 23:36	Dale L. Simmons	2086753
	05/16/2019			05/18/2019 02:54	Julia Storbeck	2086742
	05/16/2019			05/18/2019 03:07	Julia Storbeck	2086743
	05/16/2019			05/18/2019 03:20	Julia Storbeck	2086744
	05/16/2019			05/18/2019 03:35	Julia Storbeck	2086745
	05/16/2019			05/18/2019 03:48	Julia Storbeck	2086746
	05/16/2019			05/18/2019 04:02	Julia Storbeck	2086754
	05/16/2019			05/18/2019 04:15	Julia Storbeck	2086755