Chemical Analysis Report

SE-DIST-2016-03-15-01

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

Event Description: **SMP_2016_Bay_weekof3/14_1 blank**
Request ID: **RQ-2016-03-14-09**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Jordan Skaggs

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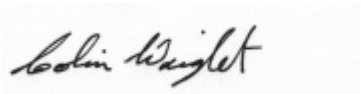
Certified by: Colin Wright, Environmental Administrator

Date Certified: 05-APR-2016 12:38



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 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: BISCAYNE BAY (BB-32 MIAMI-DADE) **Collection Date/Time: 03/14/2016 12:25**

Field ID: G4SEBB32-03142016 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1779770	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P300402	
	SM 2320 B-97	Total Alkalinity	137		mg CaCO3/L	P300588	
	SM 2540 D-97	TSS	3	U	mg/L	P300906	
	SM 4500 F-C-97	Fluoride	1.2		mg F/L	P300591	
1779772	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P300978	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32	I	mg N/L	P300741	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P300617	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P300771	
	SM 5310 B-00	Organic Carbon	2.6		mg C/L	P300788	
1779774	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P300370	

Ref. Method and Comment:
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: ENRG7-8090 **Collection Date/Time: 03/14/2016 13:00**

Field ID: G5SE0033-03142016 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1779771	EPA 180.1 Rev. 2.0	Turbidity	1.1		NTU	P300402	
	SM 2320 B-97	Total Alkalinity	127		mg CaCO3/L	P300588	
	SM 2540 D-97	TSS	3	U	mg/L	P300906	
	SM 4500 F-C-97	Fluoride	1.3		mg F/L	P300591	
1779773	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P300978	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	U	mg N/L	P300741	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P300617	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P300771	
	SM 5310 B-00	Organic Carbon	1.6	I	mg C/L	P300788	
1779775	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P300370	

Ref. Method and Comment:
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.

Sample Location: C-102 @ SW 248TH ST. **Collection Date/Time: 03/14/2016 16:15**

Field ID: G4SE0064-03142016 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1779767	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P300402	
	EPA 300.0 Rev. 2.1	Chloride	64		mg Cl/L	P300558	
		Sulfate	13		mg SO4/L	P300560	
	SM 2120 B	Color (true)	46	A	PCU	P300393	
	SM 2320 B-97	Total Alkalinity	191		mg CaCO3/L	P300686	
	SM 2540 C-97	TDS	359		mg/L	P301127	
	SM 2540 D-97	TSS	6	I	mg/L	P300902	
	SM 4500 F-C-97	Fluoride	0.24		mg F/L	P300689	
1779768	EPA 350.1 Rev. 2.0	Ammonia-N	0.13		mg N/L	P300970	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P300873	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.52		mg N/L	P300708	

Field ID: G4SE0064-03142016 Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1779768	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P300773	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P300786	
1779769	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P300392	
1779801	EPA 200.7 Rev. 4.4	Calcium	70.0		mg/L	P300795	
		Iron	190		ug/L	P300795	
		Magnesium	10.7		mg/L	P300795	
		Potassium	4.1		mg/L	P300795	
		Sodium	41.4		mg/L	P300795	
		Zinc	5.0	U	ug/L	P300795	
	EPA 200.8 Rev. 5.4	Arsenic	0.87		ug/L	P300795	
		Cadmium	0.020	U	ug/L	P300795	
		Chromium	0.11	I	ug/L	P300795	
		Copper	0.21	I	ug/L	P300795	
		Lead	0.12	I	ug/L	P300795	
		Nickel	0.19	I	ug/L	P300795	
		Silver	0.0050	U	ug/L	P300795	

Ref. Method and Comment:
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample.
EPA 353.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0: Total-P: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: BLANK @ G4SE0064 **Collection Date/Time: 03/14/2016 16:30**

Field ID: BLANK @ G4SE0064 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1779776	EPA 180.1 Rev. 2.0	Turbidity	0.15		NTU	P300402	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P300558	
		Sulfate	0.20	U	mg SO4/L	P300560	
	SM 2120 B	Color (true)	2.5	U	PCU	P300393	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P300686	
	SM 2540 C-97	TDS	15	U	mg/L	P301124	
	SM 2540 D-97	TSS	2	U	mg/L	P300899	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P300689	
1779777	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P300970	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P300873	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P300708	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P301177	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P300786	
1779778	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P300392	
1779802	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P300795	
		Iron	30	U	ug/L	P300795	
		Magnesium	0.040	U	mg/L	P300795	
		Potassium	0.30	U	mg/L	P300795	
		Sodium	0.50	U	mg/L	P300795	
		Zinc	5.0	U	ug/L	P300795	
	EPA 200.8 Rev. 5.4	Arsenic	0.050	U	ug/L	P300795	

Field ID: BLANK @ G4SE0064 Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1779802	EPA 200.8 Rev. 5.4	Cadmium	0.020	U	ug/L	P300795	
		Chromium	0.050	U	ug/L	P300795	
		Copper	0.10	U	ug/L	P300795	
		Lead	0.050	U	ug/L	P300795	
		Nickel	0.050	U	ug/L	P300795	
		Silver	0.0050	U	ug/L	P300795	

Ref. Method and Comment:
EPA 180.1 Rev. 2.0: The result was confirmed on 03/15/2016.
EPA 353.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.
EPA 365.1 Rev. 2.0: Total-P: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P300402

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P300795

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P300795

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.050	U	ug/L
Copper	0.10	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.050	U	ug/L
Silver	0.0050	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300558

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300560

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report
Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300970

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300978

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300741

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300873

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300617

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300708

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300771

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300773

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P301177

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300370

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300392

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

Reference Method: SM 2120 B
Batch ID: P300393

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P300588

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

Reference Method: SM 2320 B-97
Batch ID: P300686

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

Reference Method: SM 2540 C-97
Batch ID: P301124

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P301127

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P300899

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P300902

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report
Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P300906

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P300591

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P300689

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P300786

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

Reference Method: SM 5310 B-00
Batch ID: P300788

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

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P300795

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	105		P	85 - 115
Iron	106		P	85 - 115
Magnesium	106		P	85 - 115
Potassium	104		P	85 - 115
Sodium	104		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P300795

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	97.7		P	85 - 115
Cadmium	95.2		P	85 - 115
Chromium	95.3		P	85 - 115
Copper	92.5		P	85 - 115
Lead	92.8		P	85 - 115
Nickel	95.3		P	85 - 115
Silver	96.3		P	85 - 115

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300558

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300560

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300970

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300978

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300741

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	92.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300873

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	92.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300617

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300708

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300771

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	98.1		P	90 - 110

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300773

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P301177

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300370

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300392

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

Reference Method: SM 2320 B-97
Batch ID: P300588

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 105

Reference Method: SM 2320 B-97
Batch ID: P300686

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P300591

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	102		P	94 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P300689

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.3		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P300786

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.5		P	85 - 115

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P300788

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

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P300795

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779801	Calcium	102		P	70 - 130
1779801	Iron	106	106	P/P	70 - 130
1779801	Magnesium	106		P	70 - 130
1779801	Potassium	105		P	70 - 130
1779801	Sodium	105		P	70 - 130
1779801	Zinc	102	101	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P300795

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779801	Arsenic	101	99.8	P/P	70 - 130
1779801	Cadmium	99.3	97.6	P/P	70 - 130
1779801	Chromium	92.9	92.9	P/P	70 - 130
1779801	Copper	92.8	91.6	P/P	70 - 130
1779801	Lead	95.8	95.1	P/P	70 - 130
1779801	Nickel	93.7	93.8	P/P	70 - 130
1779801	Silver	96.3	94.8	P/P	70 - 130

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300558

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779587	Chloride	104		P	90 - 110
1779659	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300560

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779587	Sulfate	101		P	90 - 110
1779659	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300970

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779825	Ammonia-N	98.5	98.1	P/P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300978

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779773	Ammonia-N	107	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300741

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779174	Kjeldahl Nitrogen	104	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300873

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779826	Kjeldahl Nitrogen	88.3	83.9	F/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300617

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779772	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300771

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779772	Total-P	90.0	90.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300370

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779774	O-Phosphate-P	97.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300392

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779769	O-Phosphate-P	99.3	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P300591

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1778466	Fluoride	99.6	100	P/P	94 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P300689

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1780482	Fluoride	98.7	98.7	P/P	94 - 107

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P300786

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779756	Organic Carbon	99.8		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P300788

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1779772	Organic Carbon	92.7	95.1	P/P	85 - 115

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P300402

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779717	Turbidity	4.80	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P300795

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779801	Calcium	1.63	Spike	P	0 - 20
1779801	Iron	0.537	Spike	P	0 - 20
1779801	Magnesium	1.24	Spike	P	0 - 20
1779801	Potassium	0.107	Spike	P	0 - 20
1779801	Sodium	0.0265	Spike	P	0 - 20
1779801	Zinc	1.08	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P300795

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779801	Arsenic	0.889	Spike	P	0 - 20
1779801	Cadmium	1.65	Spike	P	0 - 20
1779801	Chromium	0.00281	Spike	P	0 - 20
1779801	Copper	1.21	Spike	P	0 - 20
1779801	Lead	0.677	Spike	P	0 - 20
1779801	Nickel	0.101	Spike	P	0 - 20
1779801	Silver	1.57	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300558

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779587	Chloride	0.0664	Sample	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300560

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779587	Sulfate	1.80	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300970

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779825	Ammonia-N	0.265	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300978

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779773	Ammonia-N	2.37	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300741

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779174	Kjeldahl Nitrogen	1.15	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300873

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779826	Kjeldahl Nitrogen	4.57	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300617

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779772	NO2NO3-N	1.43	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300708

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779768	NO2NO3-N	2.18	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300771

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779772	Total-P	0.0821	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300773

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779824	Total-P	1.62	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P301177

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1780822	Total-P	0.990	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300370

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779774	O-Phosphate-P	2.03	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P300392

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779769	O-Phosphate-P	1.90	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P300393

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779767	Color (true)	0.257	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P300588

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1778466	Total Alkalinity	0.134	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P300686

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1780482	Total Alkalinity	0.0473	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P301124

Replicated

Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779584	TDS	1.79	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 2540 C-97
Batch ID: P301127

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1780046	TDS	0.697	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P300899

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779584	TSS	7.14	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P300591

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1778466	Fluoride	0.470	Spike	P	0 - 3.7

Reference Method: SM 4500 F-C-97
Batch ID: P300689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1780482	Fluoride	0.0	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P300786

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779756	Organic Carbon	0.311	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P300788

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1779772	Organic Carbon	2.39	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A68227
Included Lab Sample IDs: 1779774, 1779775

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.0	98.3	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A68233
Included Lab Sample IDs: 1779769, 1779778

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.0	99.6	P/P	90 - 110
O-Phosphate-P	99.6	99.2	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A68234
Included Lab Sample IDs: 1779767, 1779776

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.1	98.2	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A68237
Included Lab Sample IDs: 1779767, 1779770, 1779771, 1779776

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A68261
Included Lab Sample IDs: 1779767, 1779776

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	101	P/P	90 - 110
Chloride	100	100	P/P	90 - 110
Sulfate	96.2	98.9	P/P	90 - 110
Sulfate	98.9	96.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A68281
Included Lab Sample IDs: 1779772, 1779773

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

Reference Method: SM 2320 B-97
Run ID: A68295
Included Lab Sample IDs: 1779770, 1779771

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

Reference Method: SM 4500 F-C-97
Run ID: A68295
Included Lab Sample IDs: 1779770, 1779771

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

Quality Assurance Report
Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A68331
Included Lab Sample IDs: 1779767, 1779776

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A68331
Included Lab Sample IDs: 1779767, 1779776

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A68335
Included Lab Sample IDs: 1779768, 1779777

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

Reference Method: SM 5310 B-00
Run ID: A68366
Included Lab Sample IDs: 1779768, 1779772, 1779773, 1779777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.3	99.0	P/P	90 - 110
Organic Carbon	98.6	93.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A68399
Included Lab Sample IDs: 1779772, 1779773

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	108	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A68408
Included Lab Sample IDs: 1779768, 1779772, 1779773, 1779777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	102	P/P	90 - 110
Ammonia-N	102	100	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A68436
Included Lab Sample IDs: 1779801, 1779802

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	102	P/P	90 - 110
Calcium	102	100	P/P	90 - 110
Iron	100	100	P/P	90 - 110
Iron	101	100	P/P	90 - 110
Magnesium	101	101	P/P	90 - 110
Magnesium	102	101	P/P	90 - 110
Potassium	101	102	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A68436
Included Lab Sample IDs: 1779801, 1779802

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Potassium	102	101	P/P	90 - 110
Sodium	102	102	P/P	90 - 110
Sodium	102	102	P/P	90 - 110
Zinc	101	99.0	P/P	90 - 110
Zinc	99.0	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A68437
Included Lab Sample IDs: 1779768, 1779777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.6	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A68486
Included Lab Sample IDs: 1779768, 1779772, 1779773

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	99.5	P/P	90 - 110
Total-P	99.0	100	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A68512
Included Lab Sample IDs: 1779801, 1779802

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	101	99.6	P/P	90 - 110
Arsenic	99.6	98.8	P/P	90 - 110
Cadmium	98.0	98.2	P/P	90 - 110
Cadmium	98.1	98.0	P/P	90 - 110
Chromium	97.1	93.2	P/P	90 - 110
Chromium	97.2	97.1	P/P	90 - 110
Copper	96.2	96.0	P/P	90 - 110
Copper	97.3	96.2	P/P	90 - 110
Lead	96.2	96.7	P/P	90 - 110
Lead	96.7	95.0	P/P	90 - 110
Nickel	96.1	96.6	P/P	90 - 110
Nickel	97.5	96.1	P/P	90 - 110
Silver	95.4	95.9	P/P	90 - 110
Silver	95.9	96.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A68542
Included Lab Sample IDs: 1779777

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	99.0	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
EPA 180.1 Rev. 2.0	Turbidity					4.80	
EPA 200.7 Rev. 4.4	Calcium	105	102				1.63
	Iron	106	106	106			0.537
	Magnesium	106	106				1.24
	Potassium	104	105				0.107
	Sodium	104	105				0.0265
	Zinc	101	102	101			1.08
EPA 200.8 Rev. 5.4	Arsenic	97.7	101	99.8			0.889
	Cadmium	95.2	99.3	97.6			1.65
	Chromium	95.3	92.9	92.9			0.0028
	Copper	92.5	92.8	91.6			1.21
	Lead	92.8	95.8	95.1			0.677
	Nickel	95.3	93.7	93.8			0.101
	Silver	96.3	96.3	94.8			1.57
EPA 300.0 Rev. 2.1	Chloride	104	104	103		0.0664	
	Sulfate	100	101	101		1.80	
EPA 350.1 Rev. 2.0	Ammonia-N	100	98.5	98.1			0.265
	Ammonia-N	102	107	105			2.37
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	92.6	104	103			1.15
	Kjeldahl Nitrogen	92.5	88.3	83.9			4.57
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	102	103			1.43
	NO2NO3-N	106					2.18
EPA 365.1 Rev. 2.0	Total-P	98.1	90.0	90.1			0.0821
	Total-P	98.4					1.62
	Total-P	101					0.990
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.7	97.5	99.5			2.03
	O-Phosphate-P	104	99.3	101			1.90
SM 2120 B	Color (true)					0.257	
SM 2320 B-97	Total Alkalinity	103				0.134	
	Total Alkalinity	102				0.0473	
SM 2540 C-97	TDS					1.79	
	TDS					0.697	
SM 2540 D-97	TSS					7.14	
SM 4500 F-C-97	Fluoride	102	99.6	100			0.470
	Fluoride	98.3	98.7	98.7			0.0
SM 5310 B-00	Organic Carbon	96.5	99.8				0.311
	Organic Carbon	103	92.7	95.1			2.39

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1779767, 1779770, 1779771, 1779776
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1779801, 1779802
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1779801, 1779802
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1779767, 1779776
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1779767, 1779776
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1779768, 1779772, 1779773, 1779777

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1779768, 1779772, 1779773, 1779777
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1779768, 1779772, 1779773, 1779777
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1779768, 1779772, 1779773, 1779777
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1779769, 1779774, 1779775, 1779778
SM 2120 B / E31780	True Color measured at 450 nm	1779767, 1779776
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1779767, 1779770, 1779771, 1779776
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1779767, 1779776
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1779767, 1779770, 1779771, 1779776
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1779767, 1779770, 1779771, 1779776
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1779768, 1779772, 1779773, 1779777

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	03/15/2016			03/15/2016 17:40	Ping Hua	1779767, 1779770, 1779771, 1779776
EPA 200.7 Rev. 4.4	03/15/2016	03/22/2016	Elliott D. Healy	03/24/2016	Joshua Ayres	1779801, 1779802
EPA 200.8 Rev. 5.4	03/15/2016	03/22/2016	Elliott D. Healy	03/29/2016	Charles J. Peterson	1779801, 1779802
EPA 300.0 Rev. 2.1	03/15/2016			03/16/2016	Ping Hua	1779767, 1779776
EPA 350.1 Rev. 2.0	03/15/2016			03/23/2016	Diana M. Turner	1779768, 1779772, 1779773, 1779777
EPA 351.2 Rev. 2.0	03/15/2016	03/22/2016	Sofia Elnemr	03/23/2016	Rochelle Y Jackson	1779772, 1779773
	03/15/2016	03/23/2016	Sofia Elnemr	03/25/2016	Rochelle Y Jackson	1779768, 1779777
EPA 353.2 Rev. 2.0	03/15/2016			03/17/2016	Peter D. Kaus	1779772, 1779773
	03/15/2016			03/18/2016	Diana M. Turner	1779768, 1779777
EPA 365.1 Rev. 2.0	03/15/2016	03/22/2016	Christopher Armour	03/24/2016	Lipi Saha	1779768, 1779772, 1779773
	03/15/2016	03/29/2016	Christopher Armour	03/30/2016	Lipi Saha	1779777
EPA 365.1 Rev. 2.0 dissolved	03/15/2016			03/15/2016 13:21	Julia Storbeck	1779774
	03/15/2016			03/15/2016 13:23	Julia Storbeck	1779775
	03/15/2016			03/15/2016 14:58	Julia Storbeck	1779769
	03/15/2016			03/15/2016 15:07	Julia Storbeck	1779778
SM 2120 B	03/15/2016			03/15/2016 15:44	Rochelle Y Jackson	1779767
	03/15/2016			03/15/2016 15:45	Rochelle Y Jackson	1779776
SM 2320 B-97	03/15/2016			03/17/2016	Dale L. Simmons	1779767, 1779770, 1779771, 1779776
SM 2540 C-97	03/15/2016			03/18/2016	Yijie Li	1779767, 1779776
SM 2540 D-97	03/15/2016			03/18/2016	Yijie Li	1779767, 1779770, 1779771, 1779776
SM 4500 F-C-97	03/15/2016			03/17/2016	Dale L. Simmons	1779767, 1779770, 1779771, 1779776
SM 5310 B-00	03/15/2016			03/18/2016	Sofia Elnemr	1779768, 1779777
	03/15/2016			03/19/2016	Sofia Elnemr	1779772, 1779773