

Chemical Analysis Report

SW-DIST-2016-06-15-01

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

Event Description: **1329G, 1758F**
Request ID: **RQ-2016-06-13-27**
Customer: **SW-DIST**
Project ID: **SMP**

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

For additional information please contact
Timothy W. Fitzpatrick
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Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 08-JUL-2016 15:03



NON-CONFORMANCE REPORT INCLUDED

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 or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: Lake Isabelle SW

Collection Date/Time: 06/13/2016 10:30

Field ID: G4SW0097

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1808103	EPA 180.1 Rev. 2.0	Turbidity	1.9	YQ	NTU	P306326	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P306618	
		Sulfate	19	Y	mg SO4/L	P306621	
	SM 2120 B	Color (true)	110	AYQ	PCU	P306242	
	SM 2320 B-97	Total Alkalinity	12	Y	mg CaCO3/L	P306670	
	SM 2540 C-97	TDS	100	Y	mg/L	P306886	
	SM 2540 D-97	TSS	4	IY	mg/L	P306864	
	SM 4500 F-C-97	Fluoride	0.086	I	mg F/L	P306378	
1808108	EPA 350.1 Rev. 2.0	Ammonia-N	0.051	Y	mg N/L	P306430	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.99	Y	mg N/L	P306290	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.033	Y	mg N/L	P306829	
	EPA 365.1 Rev. 2.0	Total-P	0.051	Y	mg P/L	P306385	
	SM 5310 B-00	Organic Carbon	14	Y	mg C/L	P306615	
1808113	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	IYQ	mg P/L	P306248	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt. Sample temperature was outside the acceptable range when received at the laboratory.

EPA 300.0 Rev. 2.1: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2120 B: The sample expired upon receipt. Sample temperature was outside the acceptable range when received at the laboratory.

SM 2320 B-97: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2540 C-97: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample. Sample temperature was outside the acceptable range when received at the laboratory.

EPA 350.1 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 351.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 353.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 365.1 Rev. 2.0: Total-P: Sample temperature was outside the acceptable range when received at the laboratory.

SM 5310 B-00: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt. Sample temperature was outside the acceptable range when received at the laboratory.

Sample Location: Lake Isabelle C

Collection Date/Time: 06/13/2016 10:45

Field ID: G4SW0095

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1808104	EPA 180.1 Rev. 2.0	Turbidity	2.4	YQ	NTU	P306326	
	EPA 300.0 Rev. 2.1	Chloride	17	A	mg Cl/L	P306618	
		Sulfate	20	AY	mg SO4/L	P306621	
	SM 2120 B	Color (true)	120	YQ	PCU	P306243	
	SM 2320 B-97	Total Alkalinity	8.1	Y	mg CaCO3/L	P306670	
	SM 2540 C-97	TDS	103	Y	mg/L	P306886	
	SM 2540 D-97	TSS	4	IY	mg/L	P306864	
	SM 4500 F-C-97	Fluoride	0.091	I	mg F/L	P306378	
1808109	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	IY	mg N/L	P306431	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.97	Y	mg N/L	P306290	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.007	IY	mg N/L	P306830	
	EPA 365.1 Rev. 2.0	Total-P	0.050	Y	mg P/L	P306385	
	SM 5310 B-00	Organic Carbon	14	Y	mg C/L	P306615	
1808114	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	IYQ	mg P/L	P306248	

Field ID: G4SW0095

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt. Sample temperature was outside the acceptable range when received at the laboratory.
EPA 300.0 Rev. 2.1: Sample temperature was outside the acceptable range when received at the laboratory.
SM 2120 B: The sample expired upon receipt. Sample temperature was outside the acceptable range when received at the laboratory.
SM 2320 B-97: Sample temperature was outside the acceptable range when received at the laboratory.
SM 2540 C-97: Sample temperature was outside the acceptable range when received at the laboratory.
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample. Sample temperature was outside the acceptable range when received at the laboratory.
EPA 350.1 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.
EPA 351.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.
EPA 353.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.
EPA 365.1 Rev. 2.0: Total-P: Sample temperature was outside the acceptable range when received at the laboratory.
SM 5310 B-00: Sample temperature was outside the acceptable range when received at the laboratory.
EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt. Sample temperature was outside the acceptable range when received at the laboratory.

Sample Location: Lake Isabelle N

Collection Date/Time: 06/13/2016 10:55

Field ID: G4SW0096

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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1808105	EPA 180.1 Rev. 2.0	Turbidity	2.0	YQ	NTU	P306327	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P306618	
		Sulfate	19	Y	mg SO4/L	P306621	
	SM 2120 B	Color (true)	85	YQ	PCU	P306243	
	SM 2320 B-97	Total Alkalinity	11	Y	mg CaCO3/L	P306670	
	SM 2540 C-97	TDS	99	Y	mg/L	P306886	
	SM 2540 D-97	TSS	2	IY	mg/L	P306864	
	SM 4500 F-C-97	Fluoride	0.091	I	mg F/L	P306378	
1808110	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	IY	mg N/L	P306431	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.82	Y	mg N/L	P306290	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	UY	mg N/L	P306830	
	EPA 365.1 Rev. 2.0	Total-P	0.041	Y	mg P/L	P306385	
	SM 5310 B-00	Organic Carbon	12	Y	mg C/L	P306615	
1808115	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UYQ	mg P/L	P306248	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt. Sample temperature was outside the acceptable range when received at the laboratory.
EPA 300.0 Rev. 2.1: Sample temperature was outside the acceptable range when received at the laboratory.
SM 2120 B: The sample expired upon receipt. Sample temperature was outside the acceptable range when received at the laboratory.
SM 2320 B-97: Sample temperature was outside the acceptable range when received at the laboratory.
SM 2540 C-97: Sample temperature was outside the acceptable range when received at the laboratory.
SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample. Sample temperature was outside the acceptable range when received at the laboratory.
EPA 350.1 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.
EPA 351.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.
EPA 353.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.
EPA 365.1 Rev. 2.0: Total-P: Sample temperature was outside the acceptable range when received at the laboratory.
SM 5310 B-00: Sample temperature was outside the acceptable range when received at the laboratory.
EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt. Sample temperature was outside the acceptable range when received at the laboratory.

Sample Location: Lake Isabelle SE

Collection Date/Time: 06/13/2016 11:05

Field ID: G4SW0098

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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1808106	EPA 180.1 Rev. 2.0	Turbidity	2.6	YQ	NTU	P306327	
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Field ID: G4SW0098

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1808106	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P306618	
		Sulfate	20	Y	mg SO4/L	P306621	
	SM 2120 B	Color (true)	96	YQ	PCU	P306243	
	SM 2320 B-97	Total Alkalinity	9.8	Y	mg CaCO3/L	P306670	
	SM 2540 C-97	TDS	94	Y	mg/L	P306886	
	SM 2540 D-97	TSS	2	IY	mg/L	P306864	
	SM 4500 F-C-97	Fluoride	0.091	I	mg F/L	P306378	
1808111	EPA 350.1 Rev. 2.0	Ammonia-N	0.013	Y	mg N/L	P306634	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.92	Y	mg N/L	P306290	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.018	Y	mg N/L	P306830	
	EPA 365.1 Rev. 2.0	Total-P	0.047	Y	mg P/L	P306385	
	SM 5310 B-00	Organic Carbon	13	Y	mg C/L	P306615	
1808116	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UYQ	mg P/L	P306249	

Ref. Method and Comment:

EPA 180.1 Rev. 2.0: The sample expired upon receipt. Sample temperature was outside the acceptable range when received at the laboratory.

EPA 300.0 Rev. 2.1: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2120 B: The sample expired upon receipt. Sample temperature was outside the acceptable range when received at the laboratory.

SM 2320 B-97: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2540 C-97: Sample temperature was outside the acceptable range when received at the laboratory.

SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample. Sample temperature was outside the acceptable range when received at the laboratory.

EPA 350.1 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 351.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 353.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 365.1 Rev. 2.0: Total-P: Sample temperature was outside the acceptable range when received at the laboratory.

SM 5310 B-00: Sample temperature was outside the acceptable range when received at the laboratory.

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt. Sample temperature was outside the acceptable range when received at the laboratory.

Sample Location: Withlacoochee River

Collection Date/Time: 06/13/2016 12:50

Field ID: G4SW0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1808107	EPA 180.1 Rev. 2.0	Turbidity	0.80	Y	NTU	P306326	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P306618	
		Sulfate	0.20	UY	mg SO4/L	P306621	
	SM 2120 B	Color (true)	610	Y	PCU	P306242	
	SM 2320 B-97	Total Alkalinity	0.65	UY	mg CaCO3/L	P306670	
	SM 2540 C-97	TDS	102	Y	mg/L	P306886	
	SM 2540 D-97	TSS	2	IY	mg/L	P306864	
1808112	SM 4500 F-C-97	Fluoride	0.079	I	mg F/L	P306378	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.011	Y	mg N/L	P306687	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4	Y	mg N/L	P306290	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	UY	mg N/L	P306830	
	EPA 365.1 Rev. 2.0	Total-P	0.072	Y	mg P/L	P306385	
1808117	SM 5310 B-00	Organic Carbon	55	Y	mg C/L	P306615	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.050	YQ	mg P/L	P306249	

Field ID: G4SW0099

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Ref. Method and Comment:

EPA 180.1 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.
 EPA 300.0 Rev. 2.1: Sample temperature was outside the acceptable range when received at the laboratory.
 SM 2120 B: Sample temperature was outside the acceptable range when received at the laboratory.
 SM 2320 B-97: Sample temperature was outside the acceptable range when received at the laboratory.
 SM 2540 C-97: Sample temperature was outside the acceptable range when received at the laboratory.
 SM 2540 D-97: The precision data is unavailable due to the low analyte concentration in the QC sample. Sample temperature was outside the acceptable range when received at the laboratory.
 EPA 350.1 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.
 EPA 351.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.
 EPA 353.2 Rev. 2.0: Sample temperature was outside the acceptable range when received at the laboratory.
 EPA 365.1 Rev. 2.0: Total-P: Sample temperature was outside the acceptable range when received at the laboratory.
 SM 5310 B-00: Sample temperature was outside the acceptable range when received at the laboratory.
 EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt. Sample temperature was outside the acceptable range when received at the laboratory.

Non-Conformance Report

NCR ID: 5907

Event(s)

Job(s)

Sample(s)

Test(s)

SW-DIST-2016-06-15-01

NCR Type: SHIPPING/RECEIVING

NCR Category: Samples arrived late

Observation: Samples arrived late via FedEx. Tracking code 8100 1917 8733.
 The following samples were received out of acceptable temperature range (9 degrees C):
 G4SW0097
 G4SW0095
 G4SW0096
 G4SW0098
 G4SW0099

Resolution: Customer, S. Clingerman, was emailed on 6/15/2016 but had not replied as of 6/16/2016.
 Samples were logged in and processed.

Authorised by/Date: Kathryn Holland 6/21/2016

The Non-Conformance Report details exceptions or problems encountered with the events/jobs/samples/test.
 Please address questions to:

Chemistry	Tim Fitzpatrick	(850) 245-8085
Biology	Cheryl Swanson	(850) 245-8177

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P306326

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P306327

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P306618

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P306621

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306430

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306431

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306634

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306687

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306290

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306829

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306830

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306385

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306248

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306249

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

Reference Method: SM 2120 B
Batch ID: P306242

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P306243

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P306670

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

Reference Method: SM 2540 C-97
Batch ID: P306886

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P306864

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P306378

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P306615

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: P306618

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P306621

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306430

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306431

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306634

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306687

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	93.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306290

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306829

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306829

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	99.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306830

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306385

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306248

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306249

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

Reference Method: SM 2320 B-97
Batch ID: P306670

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	106		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P306378

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.0		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P306615

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P306618

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P306618

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808070	Chloride	99.0		P	90 - 110
1808104	Chloride	97.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P306621

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808070	Sulfate	96.7		P	90 - 110
1808104	Sulfate	95.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306430

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808031	Ammonia-N	101	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306431

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808109	Ammonia-N	99.3	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306634

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1807799	Ammonia-N	98.9	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306687

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808580	Ammonia-N	94.3	92.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306290

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808081	Kjeldahl Nitrogen	102	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306829

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808031	NO2NO3-N	95.0	98.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306830

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808109	NO2NO3-N	95.9	97.9	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306385

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808111	Total-P	96.6	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306248

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808114	O-Phosphate-P	100	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306249

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808190	O-Phosphate-P	102	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P306378

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808183	Fluoride	99.4	99.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P306615

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1808108	Organic Carbon	95.4	92.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P306326

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808070	Turbidity	8.31	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P306327

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808029	Turbidity	1.58	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P306618

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808104	Chloride	0.0249	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P306621

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808104	Sulfate	0.0838	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306430

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808031	Ammonia-N	0.0167	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306431

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808109	Ammonia-N	0.229	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306634

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1807799	Ammonia-N	1.45	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P306687

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808580	Ammonia-N	1.82	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P306290

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808081	Kjeldahl Nitrogen	0.869	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306829

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808031	NO2NO3-N	2.67	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P306830

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808109	NO2NO3-N	1.99	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P306385

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808111	Total-P	2.44	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306248

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808114	O-Phosphate-P	0.568	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P306249

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808190	O-Phosphate-P	0.0981	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P306242

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808103	Color (true)	1.51	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P306243

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808184	Color (true)	3.96	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P306670

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808975	Total Alkalinity	0.0789	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P306886

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808182	TDS	5.18	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P306378

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808183	Fluoride	0.0	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P306615

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1808108	Organic Carbon	2.14	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: A70045
Included Lab Sample IDs: 1808103, 1808104, 1808105, 1808106, 1808107

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.9	P/P	90 - 110
Chloride	100	99.8	P/P	90 - 110
Chloride	99.9	100	P/P	90 - 110
Sulfate	94.3	97.7	P/P	90 - 110
Sulfate	96.7	98.0	P/P	90 - 110
Sulfate	98.0	94.3	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A70057
Included Lab Sample IDs: 1808103, 1808104, 1808105, 1808106, 1808107

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	99.9	P/P	90 - 115
Color (true)	99.4	99.4	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A70064
Included Lab Sample IDs: 1808113, 1808114, 1808115, 1808116, 1808117

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

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A70080
Included Lab Sample IDs: 1808103, 1808104, 1808105, 1808106, 1808107

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105
Turbidity	99.5	100	P/P	95 - 105

Reference Method: SM 4500 F-C-97
Run ID: A70097
Included Lab Sample IDs: 1808103, 1808104, 1808105, 1808106, 1808107

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

Reference Method: SM 4500 F-C-97

Run ID: A70097

Included Lab Sample IDs: 1808103, 1808104, 1808105, 1808106, 1808107

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 350.1 Rev. 2.0

Run ID: A70105

Included Lab Sample IDs: 1808108, 1808109, 1808110

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A70112

Included Lab Sample IDs: 1808108, 1808109, 1808110, 1808111, 1808112

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.6	105	P/P	90 - 110
Kjeldahl Nitrogen	99.5	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70119

Included Lab Sample IDs: 1808108, 1808112

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.9	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A70127

Included Lab Sample IDs: 1808109, 1808110, 1808111

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

Reference Method: SM 5310 B-00

Run ID: A70160

Included Lab Sample IDs: 1808108, 1808109, 1808110, 1808111, 1808112

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.7	95.4	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A70162

Included Lab Sample IDs: 1808111

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A70169

Included Lab Sample IDs: 1808103, 1808104, 1808105, 1808106, 1808107

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	108	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A70173

Included Lab Sample IDs: 1808112

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.6	96.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A70218

Included Lab Sample IDs: 1808108, 1808109, 1808110, 1808111, 1808112

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

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				8.31	
	Turbidity				1.58	
EPA 300.0 Rev. 2.1	Chloride	98.3	97.2 99.0		0.0249	
	Sulfate	96.6	95.8 96.7		0.0838	
EPA 350.1 Rev. 2.0	Ammonia-N	101	101 101			0.0167
	Ammonia-N	98.9	99.3 99.5			0.229
	Ammonia-N	96.7	98.9 100			1.45
	Ammonia-N	93.4	94.3 92.5			1.82
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.5	102 101			0.869
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	95.0 98.4			2.67
	NO2NO3-N	99.5	95.9 97.9			1.99
EPA 365.1 Rev. 2.0	Total-P	98.2	96.6 99.2			2.44
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	100 101			0.568
	O-Phosphate-P	106	102 102			0.0981
SM 2120 B	Color (true)				1.51	
	Color (true)				3.96	
SM 2320 B-97	Total Alkalinity	106			0.0789	
SM 2540 C-97	TDS				5.18	
SM 4500 F-C-97	Fluoride	99.0	99.4 99.4			0.0
SM 5310 B-00	Organic Carbon	96.8	95.4 92.0			2.14

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
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Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1808103, 1808104, 1808105, 1808106, 1808107
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1808103, 1808104, 1808105, 1808106, 1808107
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1808103, 1808104, 1808105, 1808106, 1808107
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1808108, 1808109, 1808110, 1808111, 1808112
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1808108, 1808109, 1808110, 1808111, 1808112
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1808108, 1808109, 1808110, 1808111, 1808112
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1808108, 1808109, 1808110, 1808111, 1808112
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1808113, 1808114, 1808115, 1808116, 1808117
SM 2120 B / E31780	True Color measured at 450 nm	1808103, 1808104, 1808105, 1808106, 1808107
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1808103, 1808104, 1808105, 1808106, 1808107
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1808103, 1808104, 1808105, 1808106, 1808107
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1808103, 1808104, 1808105, 1808106, 1808107
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1808103, 1808104, 1808105, 1808106, 1808107
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1808108, 1808109, 1808110, 1808111, 1808112

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	06/15/2016			06/15/2016 12:35	Rochelle Y Jackson	1808107
	06/15/2016			06/15/2016 13:39	Rochelle Y Jackson	1808103
	06/15/2016			06/15/2016 13:51	Rochelle Y Jackson	1808104
	06/15/2016			06/15/2016 14:00	Rochelle Y Jackson	1808105
	06/15/2016			06/15/2016 14:02	Rochelle Y Jackson	1808106
EPA 300.0 Rev. 2.1	06/15/2016			06/17/2016	Elisa J Lutz	1808103, 1808104, 1808105, 1808106, 1808107
EPA 350.1 Rev. 2.0	06/15/2016			06/17/2016	Diana M. Turner	1808108, 1808109, 1808110
	06/15/2016			06/21/2016	Diana M. Turner	1808111
	06/15/2016			06/22/2016	Diana M. Turner	1808112
EPA 351.2 Rev. 2.0	06/15/2016	06/16/2016	Sofia Elnemr	06/17/2016	Christopher Armour	1808108, 1808109, 1808110, 1808111, 1808112
EPA 353.2 Rev. 2.0	06/15/2016			06/24/2016	Beverly Y. Sanders	1808108, 1808109, 1808110, 1808111, 1808112
EPA 365.1 Rev. 2.0	06/15/2016	06/17/2016	Vijayalakshmi Reddy	06/20/2016	Lipi Saha	1808108, 1808109, 1808110, 1808111, 1808112
EPA 365.1 Rev. 2.0 dissolved	06/15/2016			06/15/2016 13:27	Julia Storbeck	1808114
	06/15/2016			06/15/2016 13:57	Julia Storbeck	1808113
	06/15/2016			06/15/2016 13:58	Julia Storbeck	1808115
	06/15/2016			06/15/2016 14:03	Julia Storbeck	1808116
	06/15/2016			06/15/2016 14:04	Julia Storbeck	1808117
SM 2120 B	06/15/2016			06/15/2016 12:42	Rochelle Y Jackson	1808107
	06/15/2016			06/15/2016 12:50	Rochelle Y Jackson	1808103
	06/15/2016			06/15/2016 13:00	Rochelle Y Jackson	1808104
	06/15/2016			06/15/2016 13:01	Rochelle Y Jackson	1808105, 1808106
SM 2320 B-97	06/15/2016			06/22/2016	Rochelle Y Jackson	1808103, 1808104, 1808105, 1808106, 1808107
SM 2540 C-97	06/15/2016			06/17/2016	Yijie Li	1808103, 1808104, 1808105, 1808106, 1808107
SM 2540 D-97	06/15/2016			06/17/2016	Yijie Li	1808103, 1808104, 1808105, 1808106, 1808107
SM 4500 F-C-97	06/15/2016			06/16/2016	Dale L. Simmons	1808103, 1808104, 1808105, 1808106, 1808107
SM 5310 B-00	06/15/2016			06/21/2016	Diana M. Turner	1808108, 1808109, 1808110, 1808111, 1808112