

Chemical Analysis Report

NW-DIST-2016-03-08-01

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

Event Description: **WBID 351 432 476 45 361 321**

Request ID: **RQ-2016-03-07-71**

Customer: **NW-DIST**

Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 W Government st
Suite 208A
Pensacola, FL 32502-5794
Attn: Michael King

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 28-MAR-2016 17:00

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored 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 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: LITTLE ALAQUA EGLIN RD. 208 ABV. BRIDGE **Collection Date/Time: 03/07/2016 14:40**

Field ID: G3NW0064

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1777721	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P299952	
	EPA 300.0 Rev. 2.1	Chloride	1.8		mg Cl/L	P300101	
		Sulfate	0.68		mg SO4/L	P300104	
	SM 2120 B	Color (true)	25		PCU	P299988	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P300452	
	SM 2540 C-97	TDS	15	U	mg/L	P300417	
	SM 2540 D-97	TSS	4	I	mg/L	P300128	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P300456	
1777729	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P300472	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	I	mg N/L	P300720	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.031		mg N/L	P300302	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P300444	
	SM 5310 B-00	Organic Carbon	1.9		mg C/L	P300325	
1777737	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299956	

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: LITTLE ALAQUA RD. 200-201 ABV. BRIDGE **Collection Date/Time: 03/07/2016 15:10**

Field ID: G3NW0063

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1777722	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P299952	
	EPA 300.0 Rev. 2.1	Chloride	1.8		mg Cl/L	P300101	
		Sulfate	0.63		mg SO4/L	P300104	
	SM 2120 B	Color (true)	23		PCU	P299988	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P300452	
	SM 2540 C-97	TDS	15	U	mg/L	P300417	
	SM 2540 D-97	TSS	2	I	mg/L	P300128	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P300456	
1777730	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P300472	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P300720	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.036		mg N/L	P300302	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P300444	
	SM 5310 B-00	Organic Carbon	1.7		mg C/L	P300325	
1777738	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299956	

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: TITI CREEK ABV HWY 285 **Collection Date/Time: 03/07/2016 16:25**

Field ID: G4NW0365

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1777723	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P299952	
	EPA 300.0 Rev. 2.1	Chloride	2.0		mg Cl/L	P300213	
		Sulfate	1.0		mg SO4/L	P300216	

Field ID: G4NW0365

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1777723	SM 2120 B	Color (true)	51	A	PCU	P299988	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P300452	
	SM 2540 C-97	TDS	18	I	mg/L	P300417	
	SM 2540 D-97	TSS	3	I	mg/L	P300128	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P300456	
1777731	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P300473	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20	I	mg N/L	P300720	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.060		mg N/L	P300303	
	EPA 365.1 Rev. 2.0	Total-P	0.005	I	mg P/L	P300444	
	SM 5310 B-00	Organic Carbon	2.8		mg C/L	P300325	
1777739	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299957	

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: TITI CREEK ABV EGLIN RD 208

Collection Date/Time: 03/07/2016 17:40

Field ID: G4NW0364

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1777724	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P299952	
	EPA 300.0 Rev. 2.1	Chloride	2.1		mg Cl/L	P300213	
		Sulfate	0.91		mg SO4/L	P300216	
	SM 2120 B	Color (true)	52		PCU	P299988	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P300452	
	SM 2540 C-97	TDS	15	U	mg/L	P300417	
	SM 2540 D-97	TSS	3	I	mg/L	P300128	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P300456	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P300473	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	I	mg N/L	P300720	
1777732	EPA 353.2 Rev. 2.0	NO2NO3-N	0.23		mg N/L	P300303	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P300444	
	SM 5310 B-00	Organic Carbon	2.7		mg C/L	P300325	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299957	

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: ALAQUA CREEK BOB SIKES RD.

Collection Date/Time: 03/07/2016 11:50

Field ID: G3NW0108

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1777725	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P299952	
	EPA 300.0 Rev. 2.1	Chloride	2.0		mg Cl/L	P300213	
		Sulfate	1.1		mg SO4/L	P300216	
	SM 2120 B	Color (true)	22		PCU	P299988	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P300452	
	SM 2540 C-97	TDS	15	U	mg/L	P300417	
	SM 2540 D-97	TSS	2	I	mg/L	P300128	

Field ID: G3NW0108

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1777725	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P300456	
1777733	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P300473	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.11	I	mg N/L	P300720	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.078		mg N/L	P300303	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P300444	
	SM 5310 B-00	Organic Carbon	1.6		mg C/L	P300325	
1777741	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299957	

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: ALAQUA CREEK NELSON RD.

Collection Date/Time: 03/07/2016 12:30

Field ID: G3NW0106

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1777726	EPA 180.1 Rev. 2.0	Turbidity	3.4		NTU	P299952	
	EPA 300.0 Rev. 2.1	Chloride	2.2		mg Cl/L	P300213	
		Sulfate	1.2		mg SO4/L	P300216	
	SM 2120 B	Color (true)	29		PCU	P299988	
	SM 2320 B-97	Total Alkalinity	1.6	I	mg CaCO3/L	P300452	
	SM 2540 C-97	TDS	15	U	mg/L	P300417	
	SM 2540 D-97	TSS	4	I	mg/L	P300128	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P300456	
1777734	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P300473	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P300720	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.063		mg N/L	P300303	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P300444	
	SM 5310 B-00	Organic Carbon	2.0		mg C/L	P300325	
1777742	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299957	

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: ALAQUA CREEK @ EGLIN 205 AKA JAXGRD #1103S003

Collection Date/Time: 03/07/2016 13:20

Field ID: G3NW0111

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1777727	EPA 180.1 Rev. 2.0	Turbidity	4.4		NTU	P299952	
	EPA 300.0 Rev. 2.1	Chloride	2.4		mg Cl/L	P300213	
		Sulfate	1.3		mg SO4/L	P300216	
	SM 2120 B	Color (true)	33		PCU	P299988	
	SM 2320 B-97	Total Alkalinity	2.5		mg CaCO3/L	P300452	
	SM 2540 C-97	TDS	17	I	mg/L	P300417	
	SM 2540 D-97	TSS	4	I	mg/L	P300128	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P300456	
1777735	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P300473	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.17	I	mg N/L	P300720	

Field ID: G3NW0111

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1777735	EPA 353.2 Rev. 2.0	NO2NO3-N	0.051		mg N/L	P300303	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P300446	
	SM 5310 B-00	Organic Carbon	2.5		mg C/L	P300325	
1777743	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299957	

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: LITTLE ALAQUA EGLIN RD. 205 BELOW BRIDGE

Collection Date/Time: 03/07/2016 13:50

Field ID: G3NW0065

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1777728	EPA 180.1 Rev. 2.0	Turbidity	1.2	A	NTU	P299953	
	EPA 300.0 Rev. 2.1	Chloride	2.0		mg Cl/L	P300213	
		Sulfate	0.76		mg SO4/L	P300216	
	SM 2120 B	Color (true)	28		PCU	P299988	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P300452	
	SM 2540 C-97	TDS	16	I	mg/L	P300418	
	SM 2540 D-97	TSS	2	U	mg/L	P300129	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P300456	
1777736	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P300473	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.090	I	mg N/L	P300414	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022		mg N/L	P300303	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P300446	
	SM 5310 B-00	Organic Carbon	2.0		mg C/L	P300325	
1777744	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P299957	

Ref. Method and Comment:

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P299952

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P299953

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P300101

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300104

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300213

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300216

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300472

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300473

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300414

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300720

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300302

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300303

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: P300444

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300446

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299956

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299957

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

Reference Method: SM 2120 B
Batch ID: P299988

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P300452

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

Reference Method: SM 2540 C-97
Batch ID: P300417

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P300418

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P300128

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P300129

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P300456

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P300325

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: P300101

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300104

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300213

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300216

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300472

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300473

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300473

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300414

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.4		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300720

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300302

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300303

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300444

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	91.0		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300446

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	94.3		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299956

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299957

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P300452

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

Reference Method: SM 4500 F-C-97
Batch ID: P300456

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.6		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P300325

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	92.4		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300101

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777708	Chloride	103	104	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300104

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777708	Sulfate	99.7	100	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300213

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777859	Chloride	106		P	90 - 110
1777885	Chloride	106		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300216

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777859	Sulfate	102		P	90 - 110
1777885	Sulfate	103		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300472

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777709	Ammonia-N	99.5	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300473

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777735	Ammonia-N	98.6	99.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300414

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777736	Kjeldahl Nitrogen	99.9	96.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300720

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777694	Kjeldahl Nitrogen	98.8	95.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300302

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777554	NO2NO3-N	97.5	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300303

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777734	NO2NO3-N	96.4	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300444

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777694	Total-P	91.3	95.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300446

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777735	Total-P	93.3	93.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299956

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777555	O-Phosphate-P	93.1	92.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299957

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777739	O-Phosphate-P	98.1	98.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P300456

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777690	Fluoride	94.6	95.1	P/P	94 - 107

Reference Method: SM 5310 B-00
Batch ID: P300325

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1777554	Organic Carbon	93.2	92.0	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P299952

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777691	Turbidity	0.655	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P299953

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777728	Turbidity	11.5	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300101

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777708	Chloride	0.530	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300104

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777708	Sulfate	0.318	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777859	Chloride	0.0791	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300216

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P300216

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777859	Sulfate	1.51	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300472

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777709	Ammonia-N	1.32	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P300473

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777735	Ammonia-N	1.14	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300414

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777736	Kjeldahl Nitrogen	3.61	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P300720

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777694	Kjeldahl Nitrogen	1.89	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300302

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777554	NO2NO3-N	0.480	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P300303

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777734	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300444

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777694	Total-P	4.58	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P300446

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777735	Total-P	0.600	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299956

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777555	O-Phosphate-P	0.300	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P299957

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777739	O-Phosphate-P	0.407	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P299988

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777723	Color (true)	0.949	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P300452

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777690	Total Alkalinity	1.30	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P300417

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777708	TDS	6.76	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P300418

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777860	TDS	2.68	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P300456

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777690	Fluoride	0.487	Spike	P	0 - 3.7

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P300325

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1777554	Organic Carbon	0.626	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 180.1 Rev. 2.0
Run ID: A68081
Included Lab Sample IDs: 1777721, 1777722, 1777723, 1777724, 1777725, 1777726, 1777727, 1777728

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A68082
Included Lab Sample IDs: 1777737, 1777738, 1777739, 1777740, 1777741, 1777742, 1777743, 1777744

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	97.1	97.2	P/P	90 - 110
O-Phosphate-P	97.2	96.4	P/P	90 - 110
O-Phosphate-P	97.6	98.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A68089
Included Lab Sample IDs: 1777721, 1777722, 1777723, 1777724, 1777725, 1777726, 1777727, 1777728

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	99.3	P/P	90 - 110
Chloride	101	103	P/P	90 - 110
Chloride	103	102	P/P	90 - 110
Sulfate	102	102	P/P	90 - 110
Sulfate	102	103	P/P	90 - 110
Sulfate	99.1	98.8	P/P	90 - 110

Reference Method: SM 2120 B
Run ID: A68095
Included Lab Sample IDs: 1777721, 1777722, 1777723, 1777724, 1777725, 1777726, 1777727, 1777728

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	97.5	97.6	P/P	85 - 115

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A68199
Included Lab Sample IDs: 1777729, 1777730, 1777731, 1777732, 1777733, 1777734, 1777735, 1777736

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A68205

Included Lab Sample IDs: 1777729, 1777730, 1777731, 1777732, 1777733, 1777734, 1777735, 1777736

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.2	94.4	P/P	90 - 110
Organic Carbon	94.6	94.2	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A68254

Included Lab Sample IDs: 1777721, 1777722, 1777723, 1777724, 1777725, 1777726, 1777727, 1777728

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	103	P/P	90 - 110
Total Alkalinity	102	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A68254

Included Lab Sample IDs: 1777721, 1777722, 1777723, 1777724, 1777725, 1777726, 1777727, 1777728

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.0	P/P	90 - 110
Fluoride	98.5	100	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A68260

Included Lab Sample IDs: 1777729, 1777730, 1777731, 1777732, 1777733, 1777734, 1777735, 1777736

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A68308

Included Lab Sample IDs: 1777729, 1777730, 1777731, 1777732, 1777733, 1777734, 1777735, 1777736

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68325

Included Lab Sample IDs: 1777736

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.1	94.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A68380

Included Lab Sample IDs: 1777729, 1777730, 1777731, 1777732, 1777733, 1777734, 1777735

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.2	96.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

* 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					0.655	
	Turbidity					11.5	
EPA 300.0 Rev. 2.1	Chloride	104	103	104			0.530
	Chloride	107	106	106		0.0791	
	Sulfate	101	99.7	100			0.318
	Sulfate	104	102	103		1.51	
EPA 350.1 Rev. 2.0	Ammonia-N	99.5	99.5	101			1.32
	Ammonia-N	98.8	98.6	99.9			1.14
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.4	99.9	96.0			3.61
	Kjeldahl Nitrogen	100	98.8	95.5			1.89
EPA 353.2 Rev. 2.0	NO2NO3-N	98.0	97.5	98.0			0.480
	NO2NO3-N	98.0	96.4	96.4			0.0
EPA 365.1 Rev. 2.0	Total-P	91.0	91.3	95.8			4.58
	Total-P	94.3	93.3	93.8			0.600
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.9	93.1	92.8			0.300
	O-Phosphate-P	101	98.1	98.5			0.407
SM 2120 B	Color (true)					0.949	
SM 2320 B-97	Total Alkalinity	102				1.30	
SM 2540 C-97	TDS					6.76	
	TDS					2.68	
SM 4500 F-C-97	Fluoride	97.6	94.6	95.1			0.487
SM 5310 B-00	Organic Carbon	92.4	93.2	92.0			0.626

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1777721, 1777722, 1777723, 1777724, 1777725, 1777726, 1777727, 1777728
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1777721, 1777722, 1777723, 1777724, 1777725, 1777726, 1777727, 1777728
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1777721, 1777722, 1777723, 1777724, 1777725, 1777726, 1777727, 1777728
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1777729, 1777730, 1777731, 1777732, 1777733, 1777734, 1777735, 1777736
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1777729, 1777730, 1777731, 1777732, 1777733, 1777734, 1777735, 1777736
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1777729, 1777730, 1777731, 1777732, 1777733, 1777734, 1777735, 1777736
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1777729, 1777730, 1777731, 1777732, 1777733, 1777734, 1777735, 1777736
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1777737, 1777738, 1777739, 1777740, 1777741, 1777742, 1777743, 1777744
SM 2120 B / E31780	True Color measured at 450 nm	1777721, 1777722, 1777723, 1777724, 1777725, 1777726, 1777727, 1777728
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1777721, 1777722, 1777723, 1777724, 1777725, 1777726, 1777727, 1777728
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1777721, 1777722, 1777723, 1777724, 1777725, 1777726, 1777727, 1777728

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1777721, 1777722, 1777723, 1777724, 1777725, 1777726, 1777727, 1777728
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1777721, 1777722, 1777723, 1777724, 1777725, 1777726, 1777727, 1777728
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1777729, 1777730, 1777731, 1777732, 1777733, 1777734, 1777735, 1777736

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	03/08/2016			03/08/2016 15:41	Sima Feizi	1777721, 1777722, 1777723, 1777724, 1777725, 1777726, 1777727, 1777728
EPA 300.0 Rev. 2.1	03/08/2016			03/09/2016	Julia Storbeck	1777721, 1777722
	03/08/2016			03/10/2016	Julia Storbeck	1777723, 1777724, 1777725, 1777726, 1777727, 1777728
EPA 350.1 Rev. 2.0	03/08/2016			03/16/2016	Diana M. Turner	1777729, 1777730, 1777731, 1777732, 1777733, 1777734, 1777735, 1777736
EPA 351.2 Rev. 2.0	03/08/2016	03/16/2016	Sofia Elnemr	03/18/2016	Christopher Armour	1777736
	03/08/2016	03/21/2016	Sofia Elnemr	03/22/2016	Christopher Armour	1777729, 1777730, 1777731, 1777732, 1777733, 1777734, 1777735
EPA 353.2 Rev. 2.0	03/08/2016			03/11/2016	Diana M. Turner	1777729, 1777730, 1777731, 1777732, 1777733, 1777734, 1777735, 1777736
EPA 365.1 Rev. 2.0	03/08/2016	03/16/2016	Christopher Armour	03/18/2016	Lipi Saha	1777729, 1777730, 1777731, 1777732, 1777733, 1777734, 1777735, 1777736
EPA 365.1 Rev. 2.0 dissolved	03/08/2016			03/08/2016 15:21	Ping Hua	1777739
	03/08/2016			03/08/2016 15:47	Ping Hua	1777737
	03/08/2016			03/08/2016 15:48	Ping Hua	1777738
	03/08/2016			03/08/2016 15:49	Ping Hua	1777740
	03/08/2016			03/08/2016 15:54	Ping Hua	1777741
	03/08/2016			03/08/2016 15:55	Ping Hua	1777742, 1777743
	03/08/2016			03/08/2016 15:56	Ping Hua	1777744
SM 2120 B	03/08/2016			03/08/2016 16:08	Blanca Fach	1777723
	03/08/2016			03/08/2016 16:09	Blanca Fach	1777721
	03/08/2016			03/08/2016 16:10	Blanca Fach	1777722
	03/08/2016			03/08/2016 16:11	Blanca Fach	1777724, 1777725
	03/08/2016			03/08/2016 16:12	Blanca Fach	1777726
	03/08/2016			03/08/2016 16:13	Blanca Fach	1777727
	03/08/2016			03/08/2016 16:14	Blanca Fach	1777728
SM 2320 B-97	03/08/2016			03/15/2016	Dale L. Simmons	1777721, 1777722, 1777723, 1777724, 1777725, 1777726, 1777727, 1777728
SM 2540 C-97	03/08/2016			03/08/2016	Yijie Li	1777721, 1777722, 1777723, 1777724, 1777725, 1777726, 1777727, 1777728
SM 2540 D-97	03/08/2016			03/08/2016	Yijie Li	1777721, 1777722, 1777723, 1777724, 1777725, 1777726, 1777727, 1777728
SM 4500 F-C-97	03/08/2016			03/15/2016	Dale L. Simmons	1777721, 1777722, 1777723, 1777724, 1777725, 1777726, 1777727, 1777728
SM 5310 B-00	03/08/2016			03/11/2016	Sofia Elnemr	1777729, 1777730, 1777731, 1777732, 1777733, 1777734, 1777735, 1777736