

Chemical Analysis Report

NW-DIST-2016-04-13-01

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

Event Description: **WBID 135 36 7 118 71 111**

Request ID: **RQ-2016-03-21-31**

Customer: **NW-DIST**

Project ID: **SMP**

Send Reports to:
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160 W Government St
Suite 208A
Pensacola, FL 32502-5794
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 04-MAY-2016 15:51

A handwritten signature in black ink, appearing to read "Liang Lin", is written on a light-colored, textured background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Metals and Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited 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: YELLOW RIVER @ MILLIGAN/YELLOW RIVER PARK **Collection Date/Time: 04/12/2016 11:50**

Field ID: G4NW0260

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1788989	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P302178	
	EPA 300.0 Rev. 2.1	Chloride	3.2	A	mg Cl/L	P302546	
		Sulfate	1.1	A	mg SO4/L	P302549	
	SM 2120 B	Color (true)	66		PCU	P302147	
	SM 2320 B-97	Total Alkalinity	16		mg CaCO3/L	P302424	
	SM 2540 C-97	TDS	35		mg/L	P302841	
	SM 2540 D-97	TSS	9	I	mg/L	P302828	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P302427	
1788992	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P303033	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33		mg N/L	P303024	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.19		mg N/L	P302543	
	EPA 365.1 Rev. 2.0	Total-P	0.027		mg P/L	P302689	
	SM 5310 B-00	Organic Carbon	4.2		mg C/L	P302726	
1788995	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P302163	
1789014	EPA 200.7 Rev. 4.4	Calcium	6.14		mg/L	P302444	
		Iron	1.09E+03		ug/L	P302444	
		Magnesium	1.36		mg/L	P302444	
		Potassium	0.58	I	mg/L	P302444	
		Sodium	2.0	I	mg/L	P302444	
		Zinc	5.0	U	ug/L	P302444	
	EPA 200.8 Rev. 5.4	Arsenic	0.52		ug/L	P302444	
		Cadmium	0.020	U	ug/L	P302444	
		Chromium	0.52		ug/L	P302444	
		Copper	0.23	I	ug/L	P302444	
		Lead	0.38		ug/L	P302444	
		Nickel	0.36		ug/L	P302444	
		Silver	0.0050	U	ug/L	P302444	

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: YELLOW RIVER BELOW TRAMMEL CREEK **Collection Date/Time: 04/12/2016 12:10**

Field ID: G4NW0311

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1788990	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P302178	
	EPA 300.0 Rev. 2.1	Chloride	3.3		mg Cl/L	P302546	
		Sulfate	1.1		mg SO4/L	P302549	
	SM 2120 B	Color (true)	68		PCU	P302147	
	SM 2320 B-97	Total Alkalinity	16		mg CaCO3/L	P302633	
	SM 2540 C-97	TDS	40		mg/L	P302841	
	SM 2540 D-97	TSS	8	I	mg/L	P302828	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P302636	
1788993	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P303033	

Field ID: G4NW0311

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1788993	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33		mg N/L	P303024	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.20		mg N/L	P302704	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P302689	
	SM 5310 B-00	Organic Carbon	4.2		mg C/L	P302726	
1788996	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P302163	
1789015	EPA 200.7 Rev. 4.4	Calcium	6.32		mg/L	P302444	
		Iron	1.19E+03		ug/L	P302444	
		Magnesium	1.42		mg/L	P302444	
		Potassium	0.60	I	mg/L	P302444	
		Sodium	2.0		mg/L	P302444	
	EPA 200.8 Rev. 5.4	Zinc	5.0	U	ug/L	P302444	
		Arsenic	0.54		ug/L	P302444	
		Cadmium	0.020	U	ug/L	P302444	
		Chromium	0.62		ug/L	P302444	
		Copper	0.26	I	ug/L	P302444	
		Lead	0.35		ug/L	P302444	
		Nickel	0.38		ug/L	P302444	
		Silver	0.0050	U	ug/L	P302444	

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: YELLOW RIVER BELOW GULLY BRANCH
GRIFFITH FERRY**

Collection Date/Time: 04/12/2016 12:30

Field ID: G4NW0047

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1788991	EPA 180.1 Rev. 2.0	Turbidity	10		NTU	P302178	
	EPA 300.0 Rev. 2.1	Chloride	3.3		mg Cl/L	P302546	
		Sulfate	1.1		mg SO4/L	P302549	
		Color (true)	69		PCU	P302147	
	SM 2320 B-97	Total Alkalinity	16		mg CaCO3/L	P302633	
	SM 2540 C-97	TDS	37		mg/L	P302841	
	SM 2540 D-97	TSS	8	I	mg/L	P302828	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P302636	
1788994	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P303033	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30		mg N/L	P303025	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.19		mg N/L	P302704	
	EPA 365.1 Rev. 2.0	Total-P	0.030		mg P/L	P302689	
	SM 5310 B-00	Organic Carbon	4.3		mg C/L	P302727	
1788997	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P302163	
1789016	EPA 200.7 Rev. 4.4	Calcium	6.10		mg/L	P302444	
		Iron	1.20E+03		ug/L	P302444	
		Magnesium	1.40		mg/L	P302444	
		Potassium	0.58	I	mg/L	P302444	
		Sodium	2.0	I	mg/L	P302444	

Field ID: G4NW0047

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1789016	EPA 200.7 Rev. 4.4	Zinc	5.0	U	ug/L	P302444	
	EPA 200.8 Rev. 5.4	Arsenic	0.56		ug/L	P302444	
		Cadmium	0.020	U	ug/L	P302444	
		Chromium	0.64		ug/L	P302444	
		Copper	0.28	I	ug/L	P302444	
		Lead	0.37		ug/L	P302444	
		Nickel	0.39		ug/L	P302444	
		Silver	0.0050	U	ug/L	P302444	

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: SHOAL RIVER

Collection Date/Time: 04/12/2016 13:55

Field ID: G4NW0024

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1788998	EPA 180.1 Rev. 2.0	Turbidity	8.1		NTU	P302178	
	EPA 300.0 Rev. 2.1	Chloride	2.9		mg Cl/L	P302546	
		Sulfate	1.2		mg SO4/L	P302549	
	SM 2120 B	Color (true)	64		PCU	P302147	
	SM 2320 B-97	Total Alkalinity	2.8		mg CaCO3/L	P302633	
	SM 2540 C-97	TDS	29		mg/L	P302841	
	SM 2540 D-97	TSS	8	I	mg/L	P302828	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P302636	
1789000	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P303033	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28		mg N/L	P303025	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.23		mg N/L	P302704	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P302689	
	SM 5310 B-00	Organic Carbon	3.8		mg C/L	P302727	
1789002	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302163	

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: SHOAL RIVER @ BILL DUGGER PARK SR-85

Collection Date/Time: 04/12/2016 14:10

Field ID: G4NW0023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1788999	EPA 180.1 Rev. 2.0	Turbidity	7.4		NTU	P302178	
	EPA 300.0 Rev. 2.1	Chloride	2.9		mg Cl/L	P302546	
		Sulfate	1.2		mg SO4/L	P302549	
	SM 2120 B	Color (true)	62		PCU	P302147	
	SM 2320 B-97	Total Alkalinity	3.2		mg CaCO3/L	P302633	
	SM 2540 C-97	TDS	30		mg/L	P302841	
	SM 2540 D-97	TSS	8	I	mg/L	P302828	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P302636	
1789001	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P303033	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26		mg N/L	P303025	

Field ID: G4NW0023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1789001	EPA 353.2 Rev. 2.0	NO2NO3-N	0.24		mg N/L	P302704	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P302689	
	SM 5310 B-00	Organic Carbon	3.6		mg C/L	P302727	
1789003	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P302163	

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: P302178

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P302444

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: P302444

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: P302546

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P302549

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: P303033

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303024

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303025

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P302543

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P302704

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302689

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302163

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

Reference Method: SM 2120 B
Batch ID: P302147

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P302424

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P302633

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

Reference Method: SM 2540 C-97
Batch ID: P302841

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P302828

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P302427

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P302636

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P302726

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

Reference Method: SM 5310 B-00
Batch ID: P302727

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: P302444

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	103		P	85 - 115
Iron	108		P	85 - 115
Magnesium	103		P	85 - 115
Potassium	101		P	85 - 115
Sodium	101		P	85 - 115
Zinc	100		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P302444

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	94.9		P	85 - 115
Cadmium	93.4		P	85 - 115
Chromium	95.5		P	85 - 115
Copper	92.5		P	85 - 115
Lead	89.3		P	85 - 115
Nickel	95.3		P	85 - 115
Silver	92.5		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302546

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302549

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303033

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303024

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303025

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	94.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P302543

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	97.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P302704

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	100		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302689

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302163

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

Reference Method: SM 2320 B-97
Batch ID: P302424

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

Reference Method: SM 2320 B-97
Batch ID: P302633

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

Reference Method: SM 4500 F-C-97
Batch ID: P302427

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.6		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P302636

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P302726

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.5		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P302727

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	93.8		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P302444

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P302444

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788959	Calcium	102		P	80 - 120
1788959	Iron	105		P	80 - 120
1788959	Magnesium	103		P	80 - 120
1788959	Potassium	95.7		P	80 - 120
1788959	Sodium	101		P	80 - 120
1788959	Zinc	103		P	80 - 120
1789032	Calcium	105		P	80 - 120
1789032	Iron	106	107	P/P	80 - 120
1789032	Magnesium	104		P	80 - 120
1789032	Potassium	104		P	80 - 120
1789032	Sodium	103		P	80 - 120
1789032	Zinc	101	101	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P302444

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788959	Arsenic	97.8		P	80 - 120
1788959	Cadmium	95.6		P	80 - 120
1788959	Chromium	97.0		P	80 - 120
1788959	Copper	91.3		P	80 - 120
1788959	Lead	91.2		P	80 - 120
1788959	Nickel	93.8		P	80 - 120
1788959	Silver	91.9		P	80 - 120
1789032	Arsenic	96.9	97.3	P/P	80 - 120
1789032	Cadmium	95.1	97.6	P/P	80 - 120
1789032	Chromium	95.8	96.3	P/P	80 - 120
1789032	Copper	90.4	89.5	P/P	80 - 120
1789032	Lead	90.8	91.7	P/P	80 - 120
1789032	Nickel	92.4	93.6	P/P	80 - 120
1789032	Silver	92.6	92.3	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302546

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788900	Chloride	101		P	90 - 110
1788989	Chloride	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P302549

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788900	Sulfate	99.1		P	90 - 110
1788989	Sulfate	100		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303033

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788982	Ammonia-N	101	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303024

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788977	Kjeldahl Nitrogen	91.8	85.1	P/F	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303025

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1789000	Kjeldahl Nitrogen	96.7	93.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P302543

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788929	NO2NO3-N	95.2	95.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P302704

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788993	NO2NO3-N	100		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302689

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788981	Total-P	99.6	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302163

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1789002	O-Phosphate-P	102	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P302427

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788668	Fluoride	97.6	97.6	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P302636

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1789387	Fluoride	98.0	98.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P302726

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788847	Organic Carbon	98.1		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P302727

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1788994	Organic Carbon	97.3	94.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P302178

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788926	Turbidity	12.0	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P302444

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1789032	Calcium	2.14	Spike	P	0 - 20
1789032	Iron	1.18	Spike	P	0 - 20
1789032	Magnesium	1.21	Spike	P	0 - 20
1789032	Potassium	2.44	Spike	P	0 - 20
1789032	Sodium	2.02	Spike	P	0 - 20
1789032	Zinc	0.160	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P302444

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1789032	Arsenic	0.398	Spike	P	0 - 20
1789032	Cadmium	2.59	Spike	P	0 - 20
1789032	Chromium	0.473	Spike	P	0 - 20
1789032	Copper	0.994	Spike	P	0 - 20
1789032	Lead	0.928	Spike	P	0 - 20
1789032	Nickel	1.26	Spike	P	0 - 20
1789032	Silver	0.261	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P302546

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788989	Chloride	0.352	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P302549

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788989	Sulfate	0.692	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P303033

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788982	Ammonia-N	0.282	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303024

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788977	Kjeldahl Nitrogen	4.53	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P303025

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1789000	Kjeldahl Nitrogen	2.90	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P302543

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788929	NO2NO3-N	0.390	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P302704

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788993	NO2NO3-N	1.51	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P302689

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788981	Total-P	0.536	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P302163

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1789002	O-Phosphate-P	0.391	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P302147

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788856	Color (true)	1.77	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P302424

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788668	Total Alkalinity	0.0639	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P302633

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1789387	Total Alkalinity	0.190	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P302841

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788926	TDS	3.86	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P302427

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788668	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P302636

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1789387	Fluoride	0.539	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P302726

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788847	Organic Carbon	0.938	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P302727

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1788994	Organic Carbon	2.47	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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A68846

Included Lab Sample IDs: 1788989, 1788990, 1788991, 1788998, 1788999

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.9	100	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A68851

Included Lab Sample IDs: 1788995, 1788996, 1788997, 1789002, 1789003

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	99.6	101	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A68854

Included Lab Sample IDs: 1788989, 1788990, 1788991, 1788998, 1788999

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

Reference Method: SM 2320 B-97

Run ID: A68927

Included Lab Sample IDs: 1788989

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

Reference Method: SM 4500 F-C-97

Run ID: A68927

Included Lab Sample IDs: 1788989

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A68939

Included Lab Sample IDs: 1788989, 1788990, 1788991, 1788998, 1788999

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	100	100	P/P	90 - 110
Chloride	100	101	P/P	90 - 110
Sulfate	99.5	99.7	P/P	90 - 110
Sulfate	99.7	99.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A68976

Included Lab Sample IDs: 1788992

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	95.5	94.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A68993

Included Lab Sample IDs: 1788990, 1788991, 1788998, 1788999

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	99.0	P/P	90 - 110
Total Alkalinity	99.0	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A68993

Included Lab Sample IDs: 1788990, 1788991, 1788998, 1788999

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.5	99.1	P/P	90 - 110
Fluoride	99.1	99.5	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A69000

Included Lab Sample IDs: 1789014, 1789015, 1789016

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	101	P/P	90 - 110
Iron	102	102	P/P	90 - 110
Magnesium	102	103	P/P	90 - 110
Potassium	101	101	P/P	90 - 110
Sodium	100	100	P/P	90 - 110
Zinc	99.9	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69015

Included Lab Sample IDs: 1788993, 1788994, 1789000, 1789001

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

Reference Method: SM 5310 B-00

Run ID: A69024

Included Lab Sample IDs: 1788992, 1788993, 1788994, 1789000, 1789001

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.1	95.7	P/P	90 - 110
Organic Carbon	95.2	95.1	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A69037

Included Lab Sample IDs: 1789014, 1789015, 1789016

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	100	99.1	P/P	90 - 110
Arsenic	99.1	98.7	P/P	90 - 110
Cadmium	99.1	99.1	P/P	90 - 110
Cadmium	99.1	99.2	P/P	90 - 110
Chromium	101	99.9	P/P	90 - 110
Chromium	99.1	101	P/P	90 - 110
Copper	97.0	96.6	P/P	90 - 110
Copper	99.2	97.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A69037

Included Lab Sample IDs: 1789014, 1789015, 1789016

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Lead	95.2	94.6	P/P	90 - 110
Lead	95.7	95.2	P/P	90 - 110
Nickel	98.9	97.0	P/P	90 - 110
Nickel	99.3	98.9	P/P	90 - 110
Silver	95.0	94.3	P/P	90 - 110
Silver	95.2	95.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69073

Included Lab Sample IDs: 1788992, 1788993, 1788994, 1789000, 1789001

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.8	97.8	P/P	90 - 110
Total-P	97.8	98.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69122

Included Lab Sample IDs: 1788992, 1788993, 1788994, 1789000, 1789001

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69201

Included Lab Sample IDs: 1788992, 1788993, 1788994, 1789000, 1789001

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.3	100	P/P	90 - 110
Kjeldahl Nitrogen	97.9	98.8	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 SMP	MS
					LCS		
EPA 180.1 Rev. 2.0	Turbidity					12.0	
EPA 200.7 Rev. 4.4	Calcium	103	102	105			2.14
	Iron	108	105	106	107		1.18
	Magnesium	103	103	104			1.21
	Potassium	101	95.7	104			2.44
	Sodium	101	101	103			2.02
	Zinc	100	103	101	101		0.160
EPA 200.8 Rev. 5.4	Arsenic	94.9	97.8	96.9	97.3		0.398
	Cadmium	93.4	95.6	95.1	97.6		2.59
	Chromium	95.5	97.0	95.8	96.3		0.473
	Copper	92.5	91.3	90.4	89.5		0.994

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision	
			LCS	SMP	MS		
EPA 200.8 Rev. 5.4	Lead	89.3	91.2	90.8	91.7		0.928
	Nickel	95.3	93.8	92.4	93.6		1.26
	Silver	92.5	91.9	92.6	92.3		0.261
EPA 300.0 Rev. 2.1	Chloride	101	101	101		0.352	
	Sulfate	99.5	100	99.1		0.692	
EPA 350.1 Rev. 2.0	Ammonia-N	103	101	102			0.282
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	91.8	85.1			4.53
	Kjeldahl Nitrogen	94.0	96.7	93.2			2.90
EPA 353.2 Rev. 2.0	NO2NO3-N	97.0	95.2	95.8			0.390
	NO2NO3-N	100	100				1.51
EPA 365.1 Rev. 2.0	Total-P	99.2	99.6	100			0.536
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	102	102			0.391
SM 2120 B	Color (true)					1.77	
SM 2320 B-97	Total Alkalinity	103				0.0639	
	Total Alkalinity	102				0.190	
SM 2540 C-97	TDS					3.86	
SM 4500 F-C-97	Fluoride	97.6	97.6	97.6			0.0
	Fluoride	96.5	98.0	98.6			0.539
SM 5310 B-00	Organic Carbon	98.5	98.1				0.938
	Organic Carbon	93.8	97.3	94.4			2.47

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1788989, 1788990, 1788991, 1788998, 1788999
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1789014, 1789015, 1789016
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1789014, 1789015, 1789016
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1788989, 1788990, 1788991, 1788998, 1788999
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1788989, 1788990, 1788991, 1788998, 1788999
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1788992, 1788993, 1788994, 1789000, 1789001
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1788992, 1788993, 1788994, 1789000, 1789001
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1788992, 1788993, 1788994, 1789000, 1789001
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1788992, 1788993, 1788994, 1789000, 1789001
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1788995, 1788996, 1788997, 1789002, 1789003
SM 2120 B / E31780	True Color measured at 450 nm	1788989, 1788990, 1788991, 1788998, 1788999
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1788989, 1788990, 1788991, 1788998, 1788999
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1788989, 1788990, 1788991, 1788998, 1788999
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1788989, 1788990, 1788991, 1788998, 1788999
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1788989, 1788990, 1788991, 1788998, 1788999
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1788992, 1788993, 1788994, 1789000, 1789001

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	04/13/2016			04/13/2016 13:03	Sima Feizi	1788989, 1788990, 1788991, 1788998, 1788999
EPA 200.7 Rev. 4.4	04/13/2016	04/18/2016	Elliott D. Healy	04/20/2016	Joshua Ayres	1789014, 1789015, 1789016
EPA 200.8 Rev. 5.4	04/13/2016	04/18/2016	Elliott D. Healy	04/21/2016	Charles J. Peterson	1789014, 1789015, 1789016
EPA 300.0 Rev. 2.1	04/13/2016			04/19/2016	Julia Storbeck	1788989, 1788990, 1788991, 1788998, 1788999
EPA 350.1 Rev. 2.0	04/13/2016			04/26/2016	Diana M. Turner	1788992, 1788993, 1788994, 1789000, 1789001
EPA 351.2 Rev. 2.0	04/13/2016	04/27/2016	Sofia Elnemr	04/29/2016	Christopher Armour	1788992, 1788993, 1788994, 1789000, 1789001
EPA 353.2 Rev. 2.0	04/13/2016			04/19/2016	Virginia P. Brown	1788992
	04/13/2016			04/21/2016	Peter D. Kaus	1788993, 1788994, 1789000, 1789001
EPA 365.1 Rev. 2.0	04/13/2016	04/21/2016	Christopher Armour	04/22/2016	Lipi Saha	1788992, 1788993, 1788994, 1789000, 1789001
EPA 365.1 Rev. 2.0 dissolved	04/13/2016			04/13/2016 12:32	Julia Storbeck	1789002
	04/13/2016			04/13/2016 13:11	Julia Storbeck	1788995
	04/13/2016			04/13/2016 13:12	Julia Storbeck	1788996, 1788997
	04/13/2016			04/13/2016 13:13	Julia Storbeck	1789003
SM 2120 B	04/13/2016			04/13/2016 10:49	Rochelle Y Jackson	1788989
	04/13/2016			04/13/2016 10:50	Rochelle Y Jackson	1788990, 1788991
	04/13/2016			04/13/2016 10:51	Rochelle Y Jackson	1788999
	04/13/2016			04/13/2016 10:52	Rochelle Y Jackson	1788998
SM 2320 B-97	04/13/2016			04/16/2016	Dale L. Simmons	1788989
	04/13/2016			04/19/2016	Dale L. Simmons	1788990, 1788991, 1788998
	04/13/2016			04/20/2016	Dale L. Simmons	1788999
SM 2540 C-97	04/13/2016			04/15/2016	Yijie Li	1788989, 1788990, 1788991, 1788998, 1788999
SM 2540 D-97	04/13/2016			04/15/2016	Yijie Li	1788989, 1788990, 1788991, 1788998, 1788999
SM 4500 F-C-97	04/13/2016			04/16/2016	Dale L. Simmons	1788989
	04/13/2016			04/19/2016	Dale L. Simmons	1788990, 1788991, 1788998
	04/13/2016			04/20/2016	Dale L. Simmons	1788999
SM 5310 B-00	04/13/2016			04/21/2016	Sofia Elnemr	1788992, 1788993, 1788994, 1789000, 1789001