

Chemical Analysis Report

NW-DIST-2016-05-06-02

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

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

Request ID: **RQ-2016-05-02-85**

Customer: **NW-DIST**

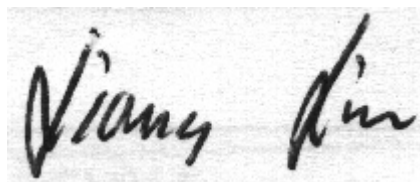
Project ID: **SMP**

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

For additional information please contact
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 01-JUN-2016 16:36

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 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: Mithcell Creek @ HWY 29

Collection Date/Time: 05/05/2016 10:45

Field ID: G4NW0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796577	EPA 180.1 Rev. 2.0	Turbidity	2.1		NTU	P303723	
	EPA 300.0 Rev. 2.1	Chloride	3.1		mg Cl/L	P304372	
		Sulfate	0.78		mg SO4/L	P304375	
	SM 2120 B	Color (true)	54		PCU	P303708	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P304481	
	SM 2540 C-97	TDS	31		mg/L	P304437	
	SM 2540 D-97	TSS	4	I	mg/L	P304393	
1796582	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304483	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P304222	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P304623	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P304269	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P304705	
1796587	SM 5310 B-00	Organic Carbon	4.0		mg C/L	P304875	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303718	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: Canoe Creek Above Hwy 29

Collection Date/Time: 05/05/2016 11:20

Field ID: G4NW0201

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796559	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P303723	
	EPA 300.0 Rev. 2.1	Chloride	4.5		mg Cl/L	P304372	
		Sulfate	0.75		mg SO4/L	P304375	
	SM 2120 B	Color (true)	45	A	PCU	P303708	
	SM 2320 B-97	Total Alkalinity	2.8		mg CaCO3/L	P304330	
	SM 2540 C-97	TDS	35		mg/L	P304437	
	SM 2540 D-97	TSS	6	I	mg/L	P304393	
1796565	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304334	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P304221	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21		mg N/L	P304623	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.77		mg N/L	P304268	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P304704	
1796571	SM 5310 B-00	Organic Carbon	2.8		mg C/L	P304874	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P303717	
1796609	EPA 200.7 Rev. 4.4	Calcium	1.46		mg/L	P303829	
		Iron	1.13E+03		ug/L	P303829	
		Magnesium	1.29		mg/L	P303829	
		Potassium	0.59	I	mg/L	P303829	
		Sodium	2.1		mg/L	P303829	
		Zinc	5.0	U	ug/L	P303829	
	EPA 200.8 Rev. 5.4	Arsenic	0.44		ug/L	P303829	
		Cadmium	0.020	U	ug/L	P303829	

Field ID: G4NW0201

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796609	EPA 200.8 Rev. 5.4	Chromium	0.39		ug/L	P303829	
		Copper	0.24	I	ug/L	P303829	
		Lead	0.23	I	ug/L	P303829	
		Nickel	0.48		ug/L	P303829	
		Silver	0.0050	U	ug/L	P303829	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

EPA 353.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: Canoe Creek Above Hwy 29 dup

Collection Date/Time: 05/05/2016 11:25

Field ID: G4NW0201DUPLICATE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796560	EPA 180.1 Rev. 2.0	Turbidity	4.4		NTU	P303723	
	EPA 300.0 Rev. 2.1	Chloride	4.5		mg Cl/L	P304372	
		Sulfate	0.75		mg SO4/L	P304375	
	SM 2120 B	Color (true)	45		PCU	P303708	
	SM 2320 B-97	Total Alkalinity	2.8		mg CaCO3/L	P304330	
	SM 2540 C-97	TDS	41		mg/L	P304437	
	SM 2540 D-97	TSS	5	I	mg/L	P304393	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304334	
1796566	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P304221	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P304814	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.77		mg N/L	P304268	
	EPA 365.1 Rev. 2.0	Total-P	0.016		mg P/L	P304704	
	SM 5310 B-00	Organic Carbon	2.9		mg C/L	P304874	
1796572	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303717	
1796610	EPA 200.7 Rev. 4.4	Calcium	1.46		mg/L	P303829	
		Iron	1.13E+03		ug/L	P303829	
		Magnesium	1.28		mg/L	P303829	
		Potassium	0.58	I	mg/L	P303829	
		Sodium	2.1		mg/L	P303829	
		Zinc	5.0	U	ug/L	P303829	
	EPA 200.8 Rev. 5.4	Arsenic	0.43		ug/L	P303829	
		Cadmium	0.020	U	ug/L	P303829	
		Chromium	0.43		ug/L	P303829	
		Copper	0.31	I	ug/L	P303829	
		Lead	0.24	I	ug/L	P303829	
		Nickel	0.49		ug/L	P303829	
		Silver	0.0050	U	ug/L	P303829	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

EPA 353.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: Canoe Creek CR-168

Collection Date/Time: 05/05/2016 12:10

Field ID: G4NW0282

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796561	EPA 180.1 Rev. 2.0	Turbidity	2.6		NTU	P303723	
	EPA 300.0 Rev. 2.1	Chloride	6.8		mg Cl/L	P304372	
		Sulfate	0.95		mg SO4/L	P304375	
	SM 2120 B	Color (true)	21		PCU	P303708	
	SM 2320 B-97	Total Alkalinity	4.6		mg CaCO3/L	P304481	
	SM 2540 C-97	TDS	45		mg/L	P304437	
	SM 2540 D-97	TSS	3	I	mg/L	P304393	
	SM 4500 F-C-97	Fluoride	0.038	I	mg F/L	P304483	
1796567	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P304221	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P304623	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.8		mg N/L	P304268	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P304704	
	SM 5310 B-00	Organic Carbon	1.5		mg C/L	P304875	
1796573	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P303717	
1796611	EPA 200.7 Rev. 4.4	Calcium	2.74		mg/L	P303829	
		Iron	640		ug/L	P303829	
		Magnesium	2.36		mg/L	P303829	
		Potassium	0.93	I	mg/L	P303829	
		Sodium	2.5		mg/L	P303829	
		Zinc	5.0	U	ug/L	P303829	
	EPA 200.8 Rev. 5.4	Arsenic	0.35		ug/L	P303829	
		Cadmium	0.020	U	ug/L	P303829	
		Chromium	0.15	I	ug/L	P303829	
		Copper	0.19	I	ug/L	P303829	
		Lead	0.20	U	ug/L	P303829	
		Nickel	0.51		ug/L	P303829	
		Silver	0.0050	U	ug/L	P303829	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

EPA 353.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: Canoe Creek CR-4

Collection Date/Time: 05/05/2016 12:30

Field ID: G4NW0280

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796562	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P303723	
	EPA 300.0 Rev. 2.1	Chloride	4.9		mg Cl/L	P304372	
		Sulfate	0.65		mg SO4/L	P304375	
	SM 2120 B	Color (true)	38		PCU	P303708	
	SM 2320 B-97	Total Alkalinity	3.2		mg CaCO3/L	P304481	
	SM 2540 C-97	TDS	28		mg/L	P304437	
	SM 2540 D-97	TSS	6	I	mg/L	P304393	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304483	
1796568	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P304221	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P304623	

Field ID: G4NW0280

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796568	EPA 353.2 Rev. 2.0	NO2NO3-N	0.92		mg N/L	P304269	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P304704	
	SM 5310 B-00	Organic Carbon	2.5		mg C/L	P304875	
1796574	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P303717	
1796612	EPA 200.7 Rev. 4.4	Calcium	1.72		mg/L	P303829	
		Iron	1.11E+03		ug/L	P303829	
		Magnesium	1.49		mg/L	P303829	
		Potassium	0.64	I	mg/L	P303829	
		Sodium	2.3		mg/L	P303829	
		Zinc	5.0	U	ug/L	P303829	
	EPA 200.8 Rev. 5.4	Arsenic	0.46		ug/L	P303829	
		Cadmium	0.020	U	ug/L	P303829	
		Chromium	0.30		ug/L	P303829	
		Copper	0.20	I	ug/L	P303829	
		Lead	0.22	I	ug/L	P303829	
		Nickel	0.53		ug/L	P303829	
		Silver	0.0050	U	ug/L	P303829	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: Canoe Creek Above Bratt Rd

Collection Date/Time: 05/05/2016 12:55

Field ID: G4NW0202

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796563	EPA 180.1 Rev. 2.0	Turbidity	3.6		NTU	P303723	
	EPA 300.0 Rev. 2.1	Chloride	4.6		mg Cl/L	P304372	
		Sulfate	0.70		mg SO4/L	P304375	
		SM 2120 B	Color (true)	42		PCU	P303708
	SM 2320 B-97	Total Alkalinity	3.2		mg CaCO3/L	P304481	
	SM 2540 C-97	TDS	27		mg/L	P304437	
	SM 2540 D-97	TSS	7	I	mg/L	P304393	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304483	
1796569	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P304221	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21		mg N/L	P304623	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.79		mg N/L	P304269	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P304704	
	SM 5310 B-00	Organic Carbon	2.7		mg C/L	P304875	
1796575	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P303718	
1796613	EPA 200.7 Rev. 4.4	Calcium	1.55		mg/L	P303829	
		Iron	1.24E+03		ug/L	P303829	
		Magnesium	1.34		mg/L	P303829	
		Potassium	0.58	I	mg/L	P303829	
		Sodium	2.2		mg/L	P303829	
		Zinc	5.0	U	ug/L	P303829	

Field ID: G4NW0202

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796613	EPA 200.8 Rev. 5.4	Arsenic	0.57		ug/L	P303829	
		Cadmium	0.020	U	ug/L	P303829	
		Chromium	0.36		ug/L	P303829	
		Copper	0.20	I	ug/L	P303829	
		Lead	0.24	I	ug/L	P303829	
		Nickel	0.51		ug/L	P303829	
		Silver	0.0050	U	ug/L	P303829	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: FIELDBLANK

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

Field ID: FIELDBLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796564	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P303723	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P304372	
		Sulfate	0.20	U	mg SO4/L	P304375	
	SM 2120 B	Color (true)	2.5	U	PCU	P303708	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P304481	
	SM 2540 C-97	TDS	15	U	mg/L	P304435	
	SM 2540 D-97	TSS	2	U	mg/L	P304391	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304483	
1796570	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P304221	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P304623	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P304269	
	EPA 365.1 Rev. 2.0	Total-P	0.002	I	mg P/L	P304705	
	SM 5310 B-00	Organic Carbon	3.9		mg C/L	P304875	
1796576	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303718	
1796614	EPA 200.7 Rev. 4.4	Calcium	0.075	U	mg/L	P303829	
		Iron	30	U	ug/L	P303829	
		Magnesium	0.040	U	mg/L	P303829	
		Potassium	0.30	U	mg/L	P303829	
		Sodium	0.50	U	mg/L	P303829	
		Zinc	5.0	U	ug/L	P303829	
	EPA 200.8 Rev. 5.4	Arsenic	0.050	U	ug/L	P303829	
		Cadmium	0.020	U	ug/L	P303829	
		Chromium	0.050	U	ug/L	P303829	
		Copper	0.10	U	ug/L	P303829	
		Lead	0.20	U	ug/L	P303829	
		Nickel	0.050	U	ug/L	P303829	
		Silver	0.0050	U	ug/L	P303829	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

EPA 365.1 Rev. 2.0: Total-P: The result was confirmed on 05/26/2016.

SM 5310 B-00: The result was confirmed on 05/25/2016.

Sample Location: Bray Mill Creek North of Oil Plant Road

Collection Date/Time: 05/05/2016 13:35

Field ID: G4NW0066

Matrix: WATER

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796578	EPA 180.1 Rev. 2.0	Turbidity	5.5		NTU	P303723	
	EPA 300.0 Rev. 2.1	Chloride	8.8		mg Cl/L	P304372	
		Sulfate	4.5		mg SO4/L	P304375	
	SM 2120 B	Color (true)	11		PCU	P303708	
	SM 2320 B-97	Total Alkalinity	2.6		mg CaCO3/L	P304481	
	SM 2540 C-97	TDS	60		mg/L	P304438	
	SM 2540 D-97	TSS	7	I	mg/L	P304394	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304483	
1796583	EPA 350.1 Rev. 2.0	Ammonia-N	0.12		mg N/L	P304222	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P304623	
	EPA 353.2 Rev. 2.0	NO2NO3-N	3.9		mg N/L	P304269	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P304705	
	SM 5310 B-00	Organic Carbon	0.97	I	mg C/L	P304875	
1796588	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P303718	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: McCostill Mill Creek Ebenezer Rd

Collection Date/Time: 05/05/2016 14:05

Field ID: G4NW0320

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796579	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P303723	
	EPA 300.0 Rev. 2.1	Chloride	5.6		mg Cl/L	P304372	
		Sulfate	0.79		mg SO4/L	P304375	
	SM 2120 B	Color (true)	17		PCU	P303708	
	SM 2320 B-97	Total Alkalinity	0.75	I	mg CaCO3/L	P304481	
	SM 2540 C-97	TDS	38		mg/L	P304438	
	SM 2540 D-97	TSS	4	I	mg/L	P304394	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304483	
1796584	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P304222	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.15	I	mg N/L	P304623	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.7		mg N/L	P304269	
	EPA 365.1 Rev. 2.0	Total-P	0.005		mg P/L	P304705	
	SM 5310 B-00	Organic Carbon	1.7		mg C/L	P304875	
1796589	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303718	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Matrix spike recovery data is unavailable due to high analyte concentration in the QC sample.

Sample Location: Moore Creek SR 197

Collection Date/Time: 05/05/2016 14:20

Field ID: G4NW0318

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796580	EPA 180.1 Rev. 2.0	Turbidity	1.8	A	NTU	P303724	

Field ID: G4NW0318

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796580	EPA 300.0 Rev. 2.1	Chloride	6.7		mg Cl/L	P304372	
		Sulfate	0.40	I	mg SO4/L	P304375	
	SM 2120 B	Color (true)	22		PCU	P303708	
	SM 2320 B-97	Total Alkalinity	6.1		mg CaCO3/L	P304481	
	SM 2540 C-97	TDS	29		mg/L	P304438	
	SM 2540 D-97	TSS	8	I	mg/L	P304394	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304483	
1796585	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P304222	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.20		mg N/L	P304683	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.2		mg N/L	P304269	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P304705	
	SM 5310 B-00	Organic Carbon	1.9		mg C/L	P304875	
1796590	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P303718	

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: Moore Creek above Mineral Springs Rd

Collection Date/Time: 05/05/2016 14:50

Field ID: G4NW0355

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1796581	EPA 180.1 Rev. 2.0	Turbidity	4.2		NTU	P303724	
	EPA 300.0 Rev. 2.1	Chloride	5.7		mg Cl/L	P304372	
		Sulfate	0.70		mg SO4/L	P304375	
	SM 2120 B	Color (true)	27		PCU	P303707	
	SM 2320 B-97	Total Alkalinity	3.0		mg CaCO3/L	P304481	
	SM 2540 C-97	TDS	41		mg/L	P304438	
	SM 2540 D-97	TSS	10		mg/L	P304394	
1796586	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P304483	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P304222	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.14	I	mg N/L	P304683	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.9		mg N/L	P304269	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P304705	
1796591	SM 5310 B-00	Organic Carbon	1.8		mg C/L	P304875	
		O-Phosphate-P	0.004	U	mg P/L	P303718	

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: P303723

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303724

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P303829

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: P303829

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	0.20	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: P304372

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304375

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304221

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304222

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304623

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304683

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304814

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304268

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304269

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304704

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304705

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303717

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303718

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2120 B
Batch ID: P303707

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P303708

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P304330

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

Reference Method: SM 2320 B-97
Batch ID: P304481

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

Reference Method: SM 2540 C-97
Batch ID: P304435

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P304437

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P304438

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P304391

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P304393

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
 Batch ID: P304394

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P304334

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
 Batch ID: P304483

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P304874

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

Reference Method: SM 5310 B-00
 Batch ID: P304875

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: P303829

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	108		P	85 - 115
Magnesium	105		P	85 - 115
Potassium	101		P	85 - 115
Sodium	101		P	85 - 115
Zinc	99.8		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P303829

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	95.1		P	85 - 115
Cadmium	98.1		P	85 - 115
Chromium	96.4		P	85 - 115
Copper	93.6		P	85 - 115
Lead	101		P	85 - 115
Nickel	96.1		P	85 - 115
Silver	93.2		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304372

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304375

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304221

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304222

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304623

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304683

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: P304814

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304268

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304269

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	104		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304704

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304705

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303717

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: P303718

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

Reference Method: SM 2320 B-97
Batch ID: P304330

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 105

Reference Method: SM 2320 B-97
Batch ID: P304481

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

Reference Method: SM 4500 F-C-97
Batch ID: P304334

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.7		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P304483

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P304874

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.9		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P304875

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.9		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P303829

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1794523	Calcium	102		P	80 - 120
1794523	Iron	107	109	P/P	80 - 120
1794523	Magnesium	105		P	80 - 120
1794523	Potassium	102	103	P/P	80 - 120
1794523	Sodium	103		P	80 - 120
1794523	Zinc	97.0	95.9	P/P	80 - 120
1796611	Calcium	106		P	80 - 120
1796611	Iron	107		P	80 - 120
1796611	Magnesium	109		P	80 - 120
1796611	Potassium	99.2		P	80 - 120
1796611	Sodium	101		P	80 - 120
1796611	Zinc	99.0		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P303829

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1794523	Arsenic	96.4	96.7	P/P	80 - 120
1794523	Cadmium	98.2	98.6	P/P	80 - 120
1794523	Chromium	96.2	94.2	P/P	80 - 120
1794523	Copper	91.2	91.9	P/P	80 - 120
1794523	Lead	101	102	P/P	80 - 120
1794523	Nickel	91.6	93.2	P/P	80 - 120
1794523	Silver	93.5	92.9	P/P	80 - 120
1796611	Arsenic	94.6		P	80 - 120
1796611	Cadmium	97.3		P	80 - 120
1796611	Chromium	96.2		P	80 - 120
1796611	Copper	93.1		P	80 - 120
1796611	Lead	101		P	80 - 120
1796611	Nickel	94.8		P	80 - 120
1796611	Silver	91.7		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304372

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796490	Chloride	95.1		P	90 - 110
1796789	Chloride	97.3		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304375

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796490	Sulfate	94.1		P	90 - 110
1796789	Sulfate	96.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304221

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796491	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304222

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796582	Ammonia-N	101	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304683

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796585	Kjeldahl Nitrogen	98.3	91.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304269

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796582	NO2NO3-N	102	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304704

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796460	Total-P	101	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304705

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796582	Total-P	107	108	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303717

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796573	O-Phosphate-P	98.0	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303718

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796591	O-Phosphate-P	101	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P304334

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796490	Fluoride	98.5	98.5	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P304483

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1797005	Fluoride	96.4	96.4	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P304874

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796442	Organic Carbon	93.9	95.1	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P304875

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1796584	Organic Carbon	94.5	95.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303723

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796490	Turbidity	1.29	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P303724

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796580	Turbidity	0.563	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P303829

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794523	Calcium	2.23	Spike	P	0 - 20
1794523	Iron	1.80	Spike	P	0 - 20
1794523	Magnesium	2.52	Spike	P	0 - 20
1794523	Potassium	0.837	Spike	P	0 - 20
1794523	Sodium	1.73	Spike	P	0 - 20
1794523	Zinc	1.12	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P303829

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1794523	Arsenic	0.253	Spike	P	0 - 20
1794523	Cadmium	0.397	Spike	P	0 - 20
1794523	Chromium	2.06	Spike	P	0 - 20
1794523	Copper	0.821	Spike	P	0 - 20
1794523	Lead	1.41	Spike	P	0 - 20
1794523	Nickel	1.69	Spike	P	0 - 20
1794523	Silver	0.656	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304372

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796490	Chloride	0.310	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P304375

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796490	Sulfate	0.984	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304221

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796491	Ammonia-N	1.28	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P304222

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796582	Ammonia-N	1.72	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304623

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796494	Kjeldahl Nitrogen	19.4	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304683

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796585	Kjeldahl Nitrogen	6.11	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P304814

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796939	Kjeldahl Nitrogen	0.150	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304268

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796448	NO2NO3-N	0.634	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P304269

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796582	NO2NO3-N	0.613	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304704

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796460	Total-P	4.45	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P304705

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796582	Total-P	1.26	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303717

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796573	O-Phosphate-P	0.849	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P303718

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796591	O-Phosphate-P	1.28	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P303707

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796421	Color (true)	5.69	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P303708

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796559	Color (true)	1.05	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P304330

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796490	Total Alkalinity	0.279	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P304481

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797005	Total Alkalinity	0.293	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P304435

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796390	TDS	3.42	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P304437

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796490	TDS	3.58	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P304438

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796744	TDS	1.73	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P304334

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796490	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P304483

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1797005	Fluoride	0.0	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P304874

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796442	Organic Carbon	1.07	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P304875

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1796584	Organic Carbon	0.820	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: SM 2120 B
Run ID: A69317

Included Lab Sample IDs: 1796559, 1796560, 1796561, 1796562, 1796563, 1796564, 1796577, 1796578, 1796579, 1796580, 1796581

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	99.5	P/P	90 - 115
Color (true)	102	101	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A69320

Included Lab Sample IDs: 1796571, 1796572, 1796573, 1796574, 1796575, 1796576, 1796587, 1796588, 1796589, 1796590, 1796591

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.2	P/P	90 - 110
O-Phosphate-P	100	99.8	P/P	90 - 110
O-Phosphate-P	101	100	P/P	90 - 110
O-Phosphate-P	99.2	99.5	P/P	90 - 110
O-Phosphate-P	99.8	101	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A69321

Included Lab Sample IDs: 1796559, 1796560, 1796561, 1796562, 1796563, 1796564, 1796577, 1796578, 1796579, 1796580, 1796581

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	99.5	P/P	95 - 105
Turbidity	99.5	99.0	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A69423

Included Lab Sample IDs: 1796559, 1796560, 1796561, 1796562, 1796563, 1796564, 1796577, 1796578, 1796579, 1796580, 1796581

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.7	99.8	P/P	90 - 110
Chloride	99.8	99.4	P/P	90 - 110
Sulfate	97.4	98.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A69423

Included Lab Sample IDs: 1796559, 1796560, 1796561, 1796562, 1796563, 1796564, 1796577, 1796578, 1796579, 1796580, 1796581

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sulfate	98.7	97.4	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A69435

Included Lab Sample IDs: 1796609, 1796610, 1796611, 1796612, 1796613, 1796614

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	98.3	101	P/P	90 - 110
Calcium	98.8	99.6	P/P	90 - 110
Calcium	99.6	98.3	P/P	90 - 110
Iron	101	101	P/P	90 - 110
Iron	101	102	P/P	90 - 110
Iron	101	101	P/P	90 - 110
Magnesium	101	102	P/P	90 - 110
Magnesium	101	102	P/P	90 - 110
Magnesium	102	101	P/P	90 - 110
Potassium	97.8	100	P/P	90 - 110
Potassium	97.8	98.8	P/P	90 - 110
Potassium	98.8	97.8	P/P	90 - 110
Sodium	98.7	99.8	P/P	90 - 110
Sodium	99.0	102	P/P	90 - 110
Sodium	99.8	99.0	P/P	90 - 110
Zinc	96.8	99.9	P/P	90 - 110
Zinc	97.6	97.7	P/P	90 - 110
Zinc	99.9	97.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A69447

Included Lab Sample IDs: 1796565, 1796566, 1796567, 1796568, 1796569, 1796570, 1796582, 1796583, 1796584, 1796585, 1796586

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A69460

Included Lab Sample IDs: 1796609, 1796610, 1796611, 1796612, 1796613, 1796614

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	95.9	96.5	P/P	90 - 110
Arsenic	96.1	97.7	P/P	90 - 110
Cadmium	96.4	97.3	P/P	90 - 110
Cadmium	97.9	97.5	P/P	90 - 110
Chromium	96.3	95.8	P/P	90 - 110
Chromium	97.2	97.3	P/P	90 - 110
Copper	95.6	97.3	P/P	90 - 110
Copper	96.3	95.7	P/P	90 - 110
Nickel	96.0	98.5	P/P	90 - 110
Nickel	97.1	95.0	P/P	90 - 110
Silver	93.2	93.9	P/P	90 - 110
Silver	95.1	95.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A69466

Included Lab Sample IDs: 1796565, 1796566, 1796567, 1796568, 1796569, 1796570, 1796582, 1796583, 1796584, 1796585, 1796586

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	104	104	P/P	90 - 110
NO2NO3-N	104	104	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A69481

Included Lab Sample IDs: 1796559, 1796560

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	99.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A69481

Included Lab Sample IDs: 1796559, 1796560

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	98.6	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A69500

Included Lab Sample IDs: 1796609, 1796610, 1796611, 1796612, 1796613, 1796614

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

Reference Method: SM 2320 B-97

Run ID: A69535

Included Lab Sample IDs: 1796561, 1796562, 1796563, 1796564, 1796577, 1796578, 1796579, 1796580, 1796581

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

Reference Method: SM 4500 F-C-97

Run ID: A69535

Included Lab Sample IDs: 1796561, 1796562, 1796563, 1796564, 1796577, 1796578, 1796579, 1796580, 1796581

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.1	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69607

Included Lab Sample IDs: 1796565, 1796567, 1796568, 1796569, 1796570, 1796582, 1796583, 1796584

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.6	96.4	P/P	90 - 110
Kjeldahl Nitrogen	98.4	93.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69611

Included Lab Sample IDs: 1796585, 1796586

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.3	96.6	P/P	90 - 110
Kjeldahl Nitrogen	96.6	91.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A69630

Included Lab Sample IDs: 1796565, 1796566, 1796567, 1796568, 1796569, 1796570, 1796582, 1796583, 1796584, 1796585, 1796586

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	99.5	P/P	90 - 110
Total-P	99.5	99.2	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A69651

Included Lab Sample IDs: 1796565, 1796566, 1796567, 1796568, 1796569, 1796570, 1796582, 1796583, 1796584, 1796585, 1796586

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.2	97.3	P/P	90 - 110
Organic Carbon	97.3	97.2	P/P	90 - 110
Organic Carbon	97.8	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A69702

Included Lab Sample IDs: 1796566

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.6	94.6	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						1.29	
	Turbidity						0.563	
EPA 200.7 Rev. 4.4	Calcium	104		102	106			2.23
	Iron	108		107	109	107		1.80
	Magnesium	105		105	109			2.52
	Potassium	101		102	103	99.2		0.837
	Sodium	101		103	101			1.73
	Zinc	99.8		97.0	95.9	99.0		1.12
EPA 200.8 Rev. 5.4	Arsenic	95.1		96.4	96.7	94.6		0.253
	Cadmium	98.1		98.2	98.6	97.3		0.397
	Chromium	96.4		96.2	94.2	96.2		2.06
	Copper	93.6		91.2	91.9	93.1		0.821
	Lead	101		101	102	101		1.41
	Nickel	96.1		91.6	93.2	94.8		1.69

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision	
			LCS	SMP	MS	SMP	MS
EPA 200.8 Rev. 5.4	Silver	93.2	93.5	92.9	91.7		0.656
EPA 300.0 Rev. 2.1	Chloride	97.6	95.1	97.3		0.310	
	Sulfate	96.3	94.1	96.3		0.984	
EPA 350.1 Rev. 2.0	Ammonia-N	100	101	103			1.28
	Ammonia-N	99.6	101	102			1.72
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	103					19.4
	Kjeldahl Nitrogen	102	98.3	91.4			6.11
	Kjeldahl Nitrogen	98.8					0.150
EPA 353.2 Rev. 2.0	NO2NO3-N	104					0.634
	NO2NO3-N	104	102	103			0.613
EPA 365.1 Rev. 2.0	Total-P	98.4	101	106			4.45
	Total-P	107	107	108			1.26
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	98.0	98.9			0.849
	O-Phosphate-P	100	101	102			1.28
SM 2120 B	Color (true)					5.69	
	Color (true)					1.05	
SM 2320 B-97	Total Alkalinity	101				0.279	
	Total Alkalinity	102				0.293	
SM 2540 C-97	TDS					3.42	
	TDS					3.58	
	TDS					1.73	
SM 4500 F-C-97	Fluoride	98.7	98.5	98.5			0.0
	Fluoride	97.3	96.4	96.4			0.0
SM 5310 B-00	Organic Carbon	96.9	93.9	95.1			1.07
	Organic Carbon	96.9	94.5	95.4			0.820

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1796559, 1796560, 1796561, 1796562, 1796563, 1796564, 1796577, 1796578, 1796579, 1796580, 1796581
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1796609, 1796610, 1796611, 1796612, 1796613, 1796614
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1796609, 1796610, 1796611, 1796612, 1796613, 1796614
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1796559, 1796560, 1796561, 1796562, 1796563, 1796564, 1796577, 1796578, 1796579, 1796580, 1796581
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1796559, 1796560, 1796561, 1796562, 1796563, 1796564, 1796577, 1796578, 1796579, 1796580, 1796581
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1796565, 1796566, 1796567, 1796568, 1796569, 1796570, 1796582, 1796583, 1796584, 1796585, 1796586
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1796565, 1796566, 1796567, 1796568, 1796569, 1796570, 1796582, 1796583, 1796584, 1796585, 1796586
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1796565, 1796566, 1796567, 1796568, 1796569, 1796570, 1796582, 1796583, 1796584, 1796585, 1796586
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1796565, 1796566, 1796567, 1796568, 1796569, 1796570, 1796582, 1796583, 1796584, 1796585, 1796586

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1796571, 1796572, 1796573, 1796574, 1796575, 1796576, 1796587, 1796588, 1796589, 1796590, 1796591
SM 2120 B / E31780	True Color measured at 450 nm	1796559, 1796560, 1796561, 1796562, 1796563, 1796564, 1796577, 1796578, 1796579, 1796580, 1796581
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1796559, 1796560, 1796561, 1796562, 1796563, 1796564, 1796577, 1796578, 1796579, 1796580, 1796581
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1796559, 1796560, 1796561, 1796562, 1796563, 1796564, 1796577, 1796578, 1796579, 1796580, 1796581
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1796559, 1796560, 1796561, 1796562, 1796563, 1796564, 1796577, 1796578, 1796579, 1796580, 1796581
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1796559, 1796560, 1796561, 1796562, 1796563, 1796564, 1796577, 1796578, 1796579, 1796580, 1796581
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1796565, 1796566, 1796567, 1796568, 1796569, 1796570, 1796582, 1796583, 1796584, 1796585, 1796586

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	05/06/2016			05/06/2016 13:16	Sima Feizi	1796559, 1796560, 1796561, 1796562, 1796563, 1796564, 1796577, 1796578, 1796579, 1796580, 1796581
EPA 200.7 Rev. 4.4	05/06/2016	05/09/2016	Elliott D. Healy	05/11/2016	Joshua Ayres	1796609, 1796610, 1796611, 1796612, 1796613, 1796614
EPA 200.8 Rev. 5.4	05/06/2016	05/09/2016	Elliott D. Healy	05/12/2016	Charles J. Peterson	1796609, 1796610, 1796611, 1796614
	05/06/2016	05/09/2016	Elliott D. Healy	05/13/2016	Charles J. Peterson	1796612, 1796613
	05/06/2016	05/09/2016	Elliott D. Healy	05/16/2016	Robert K Palmer	1796609, 1796610, 1796611, 1796612, 1796613, 1796614
EPA 300.0 Rev. 2.1	05/06/2016			05/14/2016	Elisa J Lutz	1796559, 1796560, 1796561, 1796562, 1796563, 1796564, 1796577, 1796578, 1796579, 1796580, 1796581
EPA 350.1 Rev. 2.0	05/06/2016			05/12/2016	Diana M. Turner	1796565, 1796566, 1796567, 1796568, 1796569, 1796570, 1796582, 1796583, 1796584, 1796585, 1796586
EPA 351.2 Rev. 2.0	05/06/2016	05/19/2016	Sofia Elnemr	05/20/2016	Christopher Armour	1796565, 1796567, 1796568, 1796569, 1796570, 1796582, 1796583, 1796584, 1796585, 1796586
EPA 353.2 Rev. 2.0	05/06/2016	05/23/2016	Sofia Elnemr	05/25/2016	Christopher Armour	1796566
	05/06/2016			05/13/2016	Peter D. Kaus	1796565, 1796566, 1796567, 1796568, 1796569, 1796570, 1796582, 1796583, 1796584, 1796585, 1796586
EPA 365.1 Rev. 2.0	05/06/2016	05/20/2016	Lipi Saha	05/23/2016	Lipi Saha	1796565, 1796566, 1796567, 1796568, 1796569, 1796570, 1796582, 1796583, 1796584, 1796585, 1796586
EPA 365.1 Rev. 2.0 dissolved	05/06/2016			05/06/2016 13:26	Julia Storbeck	1796573
	05/06/2016			05/06/2016 13:35	Julia Storbeck	1796591
	05/06/2016			05/06/2016 13:46	Julia Storbeck	1796576
	05/06/2016			05/06/2016 14:04	Julia Storbeck	1796571
	05/06/2016			05/06/2016 14:05	Julia Storbeck	1796572
	05/06/2016			05/06/2016 14:06	Julia Storbeck	1796574, 1796575
	05/06/2016			05/06/2016 14:11	Julia Storbeck	1796587
	05/06/2016			05/06/2016 14:12	Julia Storbeck	1796588
	05/06/2016			05/06/2016 14:13	Julia Storbeck	1796589
	05/06/2016			05/06/2016 14:14	Julia Storbeck	1796590
	05/06/2016			05/06/2016 12:30	Rochelle Y Jackson	1796559
	05/06/2016			05/06/2016 12:31	Rochelle Y Jackson	1796560, 1796561
SM 2120 B	05/06/2016			05/06/2016 12:32	Rochelle Y Jackson	1796562
	05/06/2016			05/06/2016 12:33	Rochelle Y Jackson	1796563
	05/06/2016			05/06/2016 12:34	Rochelle Y Jackson	1796564, 1796577
	05/06/2016			05/06/2016 12:35	Rochelle Y Jackson	1796578
	05/06/2016			05/06/2016 12:36	Rochelle Y Jackson	1796579
	05/06/2016			05/06/2016 12:37	Rochelle Y Jackson	1796580

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B	05/06/2016			05/06/2016 12:40	Rochelle Y Jackson	1796581
SM 2320 B-97	05/06/2016			05/14/2016	Dale L. Simmons	1796559, 1796560
	05/06/2016			05/17/2016	Dale L. Simmons	1796561, 1796562, 1796563, 1796564, 1796577, 1796578, 1796579, 1796580, 1796581
SM 2540 C-97	05/06/2016			05/11/2016	Yijie Li	1796559, 1796560, 1796561, 1796562, 1796563, 1796564, 1796577, 1796578, 1796579, 1796580, 1796581
SM 2540 D-97	05/06/2016			05/11/2016	Yijie Li	1796559, 1796560, 1796561, 1796562, 1796563, 1796564, 1796577, 1796578, 1796579, 1796580, 1796581
SM 4500 F-C-97	05/06/2016			05/14/2016	Dale L. Simmons	1796559, 1796560
	05/06/2016			05/17/2016	Dale L. Simmons	1796561, 1796562, 1796563, 1796564, 1796577, 1796578, 1796579, 1796580, 1796581
SM 5310 B-00	05/06/2016			05/23/2016	Diana M. Turner	1796565, 1796566
	05/06/2016			05/24/2016	Diana M. Turner	1796567, 1796568, 1796569, 1796570, 1796582, 1796583, 1796584, 1796585, 1796586