

Chemical Analysis Report

NW-DIST-2016-01-21-01

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

Event Description: **SMP**
Request ID: **RQ-2016-01-18-36**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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160 W Government St
Suite 208A
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 11-FEB-2016 16:42

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

NON-CONFORMANCE REPORT INCLUDED

Case Narrative

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

Results for the following analytical 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: Boggy Creek Hwy 97A

Collection Date/Time: 01/19/2016 10:50

Field ID: G5NW0009

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1764064	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P297385	
	EPA 300.0 Rev. 2.1	Chloride	6.0		mg Cl/L	P297479	
		Sulfate	1.0		mg SO4/L	P297481	
	SM 2120 B	Color (true)	16	Q	PCU	P297352	
	SM 2320 B-97	Total Alkalinity	2.2	I	mg CaCO3/L	P297520	
	SM 2540 C-97	TDS	42		mg/L	P297900	
	SM 2540 D-97	TSS	2	I	mg/L	P297853	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P297513	
1764074	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P297626	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.085	I	mg N/L	P297534	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.92		mg N/L	P297617	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P297528	
	SM 5310 B-00	Organic Carbon	1.6		mg C/L	P297474	
1764084	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	IQ	mg P/L	P297358	

Ref. Method and Comment:

SM 2120 B: The sample expired upon receipt.

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

EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: Mitchell Creek @ Camp Rd.

Collection Date/Time: 01/19/2016 11:30

Field ID: G4NW0114

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1764065	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P297385	
	EPA 300.0 Rev. 2.1	Chloride	3.5		mg Cl/L	P297479	
		Sulfate	1.8		mg SO4/L	P297481	
	SM 2120 B	Color (true)	23		PCU	P297352	
	SM 2320 B-97	Total Alkalinity	1.5	I	mg CaCO3/L	P297520	
	SM 2540 C-97	TDS	27		mg/L	P297900	
	SM 2540 D-97	TSS	2	I	mg/L	P297853	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P297513	
1764075	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P297627	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.14	I	mg N/L	P297534	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P297617	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P297528	
	SM 5310 B-00	Organic Carbon	2.3		mg C/L	P297474	
1764085	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P297358	

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: Mitchell Creek @ Hwy 29

Collection Date/Time: 01/19/2016 12:00

Field ID: G4NW0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1764066	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P297385	

Field ID: G4NW0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1764066	EPA 300.0 Rev. 2.1	Chloride	3.1		mg Cl/L	P297597	
		Sulfate	1.2		mg SO4/L	P297599	
	SM 2120 B	Color (true)	22	A	PCU	P297352	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P297521	
	SM 2540 C-97	TDS	26		mg/L	P297900	
	SM 2540 D-97	TSS	3	I	mg/L	P297853	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P297515	
1764076	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P297627	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.081	I	mg N/L	P297534	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P297617	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P297528	
	SM 5310 B-00	Organic Carbon	2.4		mg C/L	P297474	
1764086	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P297358	

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: McCostill Mill Creek Ebenezer Rd.

Collection Date/Time: 01/19/2016 14:35

Field ID: G4NW0320

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1764067	EPA 180.1 Rev. 2.0	Turbidity	1.2	A	NTU	P297385	
	EPA 300.0 Rev. 2.1	Chloride	5.8	A	mg Cl/L	P297683	
		Sulfate	1.2	A	mg SO4/L	P297681	
	SM 2120 B	Color (true)	8.9		PCU	P297352	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P297521	
	SM 2540 C-97	TDS	34		mg/L	P297900	
	SM 2540 D-97	TSS	2	I	mg/L	P297853	
1764077	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P297515	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P297627	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.098	I	mg N/L	P297534	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.7		mg N/L	P297617	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P297528	
1764087	SM 5310 B-00	Organic Carbon	1.3		mg C/L	P297474	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P297358	

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: Canoe Creek Above Hwy 29

Collection Date/Time: 01/19/2016 12:20

Field ID: G4NW0201

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1764068	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P297385	
	EPA 300.0 Rev. 2.1	Chloride	4.8		mg Cl/L	P297683	
		Sulfate	0.92		mg SO4/L	P297681	
	SM 2120 B	Color (true)	22		PCU	P297352	
	SM 2320 B-97	Total Alkalinity	1.9	I	mg CaCO3/L	P297521	

Field ID: G4NW0201

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1764068	SM 2540 C-97	TDS	35		mg/L	P297900	
	SM 2540 D-97	TSS	2	I	mg/L	P297853	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P297515	
1764078	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P297627	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.12	I	mg N/L	P297534	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.93		mg N/L	P297617	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P297528	
	SM 5310 B-00	Organic Carbon	1.8		mg C/L	P297474	
1764088	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P297358	

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: Canoe Creek Above Bratt Rd.

Collection Date/Time: 01/19/2016 13:45

Field ID: G4NW0202

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1764069	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P297385	
	EPA 300.0 Rev. 2.1	Chloride	5.1		mg Cl/L	P297683	
		Sulfate	0.90		mg SO4/L	P297681	
	SM 2120 B	Color (true)	19		PCU	P297352	
	SM 2320 B-97	Total Alkalinity	2.3	I	mg CaCO3/L	P297521	
	SM 2540 C-97	TDS	28		mg/L	P297900	
	SM 2540 D-97	TSS	4	I	mg/L	P297853	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P297515	
1764079	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P297627	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.092	I	mg N/L	P297534	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.96		mg N/L	P297617	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P297528	
	SM 5310 B-00	Organic Carbon	1.6		mg C/L	P297474	
1764089	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P297358	

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: Canoe Creek CR-4

Collection Date/Time: 01/19/2016 12:50

Field ID: G4NW0280

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1764070	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P297385	
	EPA 300.0 Rev. 2.1	Chloride	5.4		mg Cl/L	P297683	
		Sulfate	0.78		mg SO4/L	P297681	
	SM 2120 B	Color (true)	17		PCU	P297352	
	SM 2320 B-97	Total Alkalinity	2.4	I	mg CaCO3/L	P297521	
	SM 2540 C-97	TDS	28		mg/L	P297900	
	SM 2540 D-97	TSS	2	I	mg/L	P297853	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P297515	
1764080	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P297627	

Field ID: G4NW0280

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1764080	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.10	I	mg N/L	P297534	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.1		mg N/L	P297617	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P297528	
	SM 5310 B-00	Organic Carbon	1.4		mg C/L	P297474	
1764090	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P297358	

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: Canoe Creek CR-168

Collection Date/Time: 01/19/2016 13:15

Field ID: G4NW0282

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1764071	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P297385	
	EPA 300.0 Rev. 2.1	Chloride	7.8		mg Cl/L	P297683	
		Sulfate	0.91		mg SO4/L	P297681	
		Color (true)	9.5		PCU	P297352	
	SM 2320 B-97	Total Alkalinity	3.5		mg CaCO3/L	P297521	
	SM 2540 C-97	TDS	38		mg/L	P297900	
	SM 2540 D-97	TSS	2	I	mg/L	P297853	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P297515	
1764081	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P297627	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P297535	
	EPA 353.2 Rev. 2.0	NO2NO3-N	2.2		mg N/L	P297617	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P297528	
	SM 5310 B-00	Organic Carbon	1.0		mg C/L	P297474	
1764091	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P297358	

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: Bray Mill Creek North of Oil Plant Road

Collection Date/Time: 01/19/2016 15:10

Field ID: G4NW0066

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1764072	EPA 180.1 Rev. 2.0	Turbidity	6.1		NTU	P297385	
	EPA 300.0 Rev. 2.1	Chloride	9.7		mg Cl/L	P297683	
		Sulfate	5.2		mg SO4/L	P297681	
		Color (true)	7.7		PCU	P297352	
	SM 2320 B-97	Total Alkalinity	2.3	I	mg CaCO3/L	P297521	
	SM 2540 C-97	TDS	56		mg/L	P297900	
	SM 2540 D-97	TSS	7	I	mg/L	P297853	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P297515	
1764082	EPA 350.1 Rev. 2.0	Ammonia-N	0.16		mg N/L	P297627	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.23		mg N/L	P297535	
	EPA 353.2 Rev. 2.0	NO2NO3-N	3.9		mg N/L	P297617	
	EPA 365.1 Rev. 2.0	Total-P	0.018		mg P/L	P297528	
	SM 5310 B-00	Organic Carbon	0.96	I	mg C/L	P297474	

Field ID: G4NW0066

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1764092	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P297358	

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: 01/19/2016 16:05

Field ID: G4NW0355

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1764073	EPA 180.1 Rev. 2.0	Turbidity	3.5		NTU	P297385	
	EPA 300.0 Rev. 2.1	Chloride	5.8		mg Cl/L	P297683	
		Sulfate	0.79		mg SO4/L	P297681	
	SM 2120 B	Color (true)	15		PCU	P297352	
	SM 2320 B-97	Total Alkalinity	1.9	I	mg CaCO3/L	P297521	
	SM 2540 C-97	TDS	41		mg/L	P297901	
	SM 2540 D-97	TSS	4	I	mg/L	P297854	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P297515	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.007		mg N/L	P297627	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.083	I	mg N/L	P297535	
1764083	EPA 353.2 Rev. 2.0	NO2NO3-N	2.1		mg N/L	P297723	
	EPA 365.1 Rev. 2.0	Total-P	0.004	I	mg P/L	P297528	
	SM 5310 B-00	Organic Carbon	1.3		mg C/L	P297475	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P297358	

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: Canoe Creek Above Hwy 29

Collection Date/Time: 01/19/2016 12:20

Field ID: G4NW0201

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1764126	EPA 200.7 Rev. 4.4	Calcium	1.51		mg/L	P297558	
		Iron	530		ug/L	P297558	
		Magnesium	1.44		mg/L	P297558	
		Potassium	0.68	I	mg/L	P297558	
		Sodium	2.4		mg/L	P297558	
		Zinc	5.0	U	ug/L	P297558	
	EPA 200.8 Rev. 5.4	Arsenic	0.23		ug/L	P297558	
		Cadmium	0.020	U	ug/L	P297558	
		Chromium	0.27		ug/L	P297558	
		Copper	0.17	I	ug/L	P297558	
		Lead	0.17	I	ug/L	P297558	
		Nickel	0.38		ug/L	P297558	
		Silver	0.0050	U	ug/L	P297558	

Sample Location: Canoe Creek Above Bratt Rd.

Collection Date/Time: 01/19/2016 13:45

Field ID: G4NW0202

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1764127	EPA 200.7 Rev. 4.4	Calcium	1.51		mg/L	P297558	
		Iron	400		ug/L	P297558	
		Magnesium	1.42		mg/L	P297558	
		Potassium	0.67	I	mg/L	P297558	
		Sodium	2.4		mg/L	P297558	
		Zinc	5.0	U	ug/L	P297558	
	EPA 200.8 Rev. 5.4	Arsenic	0.19	I	ug/L	P297558	
		Cadmium	0.020	U	ug/L	P297558	
		Chromium	0.16	I	ug/L	P297558	
		Copper	0.13	I	ug/L	P297558	
		Lead	0.10	I	ug/L	P297558	
		Nickel	0.40		ug/L	P297558	
		Silver	0.0050	U	ug/L	P297558	

Sample Location: Canoe Creek CR-4

Collection Date/Time: 01/19/2016 12:50

Field ID: G4NW0280

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1764128	EPA 200.7 Rev. 4.4	Calcium	1.70		mg/L	P297558	
		Iron	410		ug/L	P297558	
		Magnesium	1.59		mg/L	P297558	
		Potassium	0.71	I	mg/L	P297558	
		Sodium	2.5		mg/L	P297558	
		Zinc	5.0	U	ug/L	P297558	
	EPA 200.8 Rev. 5.4	Arsenic	0.21		ug/L	P297558	
		Cadmium	0.020	U	ug/L	P297558	
		Chromium	0.15	I	ug/L	P297558	
		Copper	0.22	I	ug/L	P297558	
		Lead	0.11	I	ug/L	P297558	
		Nickel	0.43		ug/L	P297558	
		Silver	0.0050	U	ug/L	P297558	

Sample Location: Canoe Creek CR-168

Collection Date/Time: 01/19/2016 13:15

Field ID: G4NW0282

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1764129	EPA 200.7 Rev. 4.4	Calcium	2.83		mg/L	P297558	
		Iron	370		ug/L	P297558	
		Magnesium	2.68		mg/L	P297558	
		Potassium	1.1	I	mg/L	P297558	
		Sodium	2.8		mg/L	P297558	
		Zinc	5.0	U	ug/L	P297558	
	EPA 200.8 Rev. 5.4	Arsenic	0.22		ug/L	P297558	
		Cadmium	0.020	U	ug/L	P297558	
		Chromium	0.12	I	ug/L	P297558	

Field ID: G4NW0282

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1764129	EPA 200.8 Rev. 5.4	Copper	0.18	I	ug/L	P297558	
		Lead	0.15	I	ug/L	P297558	
		Nickel	0.58		ug/L	P297558	
		Silver	0.0050	U	ug/L	P297558	

Non-Conformance Report

NCR ID: 5665

Event(s)

Job(s)

Sample(s)

Test(s)

NW-DIST-2016-01-21-01

NCR Type: SHIPPING/RECEIVING

NCR Category: Samples arrived late

Observation: FedEx code: 782198630750, 809234360750, 782198637965

Resolution: Samples arrived 1 or more days late, common carrier or hand delivery.
Samples for turbidity, color, and orthophosphate analyses expired on the day of arrival.
Biology and Chemistry supervisors were notified by phone and email.
Field ID G5NW0009: Color and orthophosphate analysis were performed past the holding time and reported Q qualified.

Authorised by/Date: Bettina S. Steinbock 2/4/2016

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

Chemistry Tim Fitzpatrick (850) 245-8085
Biology Lori Wolfe (850) 245-8177

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P297385

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P297558

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: P297558

Component	Result	Code	Units
Arsenic	0.050	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P297558

Component	Result	Code	Units
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: P297479

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297481

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297597

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297599

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297681

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297683

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297626

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297627

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P297534

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P297535

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297617

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: P297723

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: P297528

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P297358

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

Reference Method: SM 2120 B
Batch ID: P297352

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P297520

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: P297521

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

Reference Method: SM 2540 C-97
Batch ID: P297900

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P297901

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P297853

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P297854

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P297513

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P297515

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P297474

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

Reference Method: SM 5310 B-00
Batch ID: P297475

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: P297558

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	106		P	85 - 115
Iron	103		P	85 - 115
Magnesium	111		P	85 - 115
Potassium	108		P	85 - 115
Sodium	106		P	85 - 115
Zinc	97.6		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P297558

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	99.4		P	85 - 115
Cadmium	95.9		P	85 - 115
Chromium	97.7		P	85 - 115
Copper	96.4		P	85 - 115
Lead	90.4		P	85 - 115
Nickel	97.8		P	85 - 115
Silver	98.3		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297479

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	105		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297481

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297597

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297599

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297681

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	93.9		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297683

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297626

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297627

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P297534

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P297535

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297617

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297723

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P297528

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P297358

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P297520

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	100		P	95 - 105

Reference Method: SM 2320 B-97
Batch ID: P297521

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

Reference Method: SM 4500 F-C-97
Batch ID: P297513

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	94 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P297515

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	94 - 108

Reference Method: SM 5310 B-00
Batch ID: P297474

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

Reference Method: SM 5310 B-00
Batch ID: P297475

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	92.6		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P297558

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1764126	Calcium	105	105	P/P	80 - 120
1764126	Iron	103	103	P/P	80 - 120
1764126	Magnesium	108	108	P/P	80 - 120
1764126	Potassium	107	106	P/P	80 - 120
1764126	Sodium	101	102	P/P	80 - 120
1764126	Zinc	97.3	97.5	P/P	80 - 120
1764176	Calcium	99.8		P	80 - 120
1764176	Iron	100		P	80 - 120
1764176	Magnesium	99.7		P	80 - 120
1764176	Potassium	105		P	80 - 120
1764176	Sodium	104		P	80 - 120
1764176	Zinc	97.7		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P297558

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1764126	Arsenic	98.2	99.1	P/P	80 - 120
1764126	Cadmium	96.0	98.0	P/P	80 - 120
1764126	Chromium	96.3	97.8	P/P	80 - 120
1764126	Copper	96.0	95.7	P/P	80 - 120
1764126	Lead	90.6	90.7	P/P	80 - 120
1764126	Nickel	96.6	97.7	P/P	80 - 120
1764126	Silver	97.7	97.9	P/P	80 - 120
1764176	Arsenic	102		P	80 - 120
1764176	Cadmium	98.4		P	80 - 120
1764176	Chromium	96.6		P	80 - 120
1764176	Copper	94.4		P	80 - 120
1764176	Lead	92.1		P	80 - 120
1764176	Nickel	96.2		P	80 - 120
1764176	Silver	97.4		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297479

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1764030	Chloride	104		P	90 - 110
1764031	Chloride	106		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297481

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1764030	Sulfate	97.9		P	90 - 110
1764031	Sulfate	101		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297597

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1764066	Chloride	101	102	P/P	90 - 110
1764751	Chloride	98.0		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297599

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1764066	Sulfate	97.6	98.2	P/P	90 - 110
1764751	Sulfate	95.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297681

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1764067	Sulfate	101		P	90 - 110
1764068	Sulfate	95.5		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297683

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1764067	Chloride	104		P	90 - 110
1764068	Chloride	104		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297626

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1764035	Ammonia-N	102	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297627

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1764079	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P297534

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1764036	Kjeldahl Nitrogen	95.4	98.7	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P297535

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1764081	Kjeldahl Nitrogen	101	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297617

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1764075	NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297723

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1764146	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P297528

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1764074	Total-P	103	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P297358

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1764085	O-Phosphate-P	100	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
 Batch ID: P297513

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1763980	Fluoride	96.7	97.3	P/P	94 - 107

Reference Method: SM 4500 F-C-97
 Batch ID: P297515

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1764135	Fluoride	95.6	97.7	P/P	94 - 107

Reference Method: SM 5310 B-00
 Batch ID: P297474

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1763982	Organic Carbon	96.4		P	85 - 115

Reference Method: SM 5310 B-00
 Batch ID: P297475

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1764137	Organic Carbon	90.2	90.4	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P297385

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1764067	Turbidity	3.42	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P297558

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1764126	Calcium	0.152	Spike	P	0 - 20
1764126	Iron	0.655	Spike	P	0 - 20
1764126	Magnesium	0.375	Spike	P	0 - 20
1764126	Potassium	0.881	Spike	P	0 - 20
1764126	Sodium	0.323	Spike	P	0 - 20
1764126	Zinc	0.225	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P297558

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1764126	Arsenic	0.939	Spike	P	0 - 20
1764126	Cadmium	2.11	Spike	P	0 - 20
1764126	Chromium	1.54	Spike	P	0 - 20
1764126	Copper	0.359	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P297558

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1764126	Lead	0.165	Spike	P	0 - 20
1764126	Nickel	1.10	Spike	P	0 - 20
1764126	Silver	0.241	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297479

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1764030	Chloride	0.500	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297481

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1764030	Sulfate	0.256	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297597

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1764066	Chloride	1.23	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297599

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1764066	Sulfate	0.564	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297681

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1764067	Sulfate	4.84	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P297683

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1764067	Chloride	0.0907	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297626

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297626

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1764035	Ammonia-N	0.278	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P297627

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1764079	Ammonia-N	1.58	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P297534

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1764036	Kjeldahl Nitrogen	2.73	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P297535

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1764081	Kjeldahl Nitrogen	3.22	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297617

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1764075	NO2NO3-N	0.656	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P297723

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1764146	NO2NO3-N	0.491	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P297528

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1764074	Total-P	0.214	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P297358

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1764085	O-Phosphate-P	0.990	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P297352

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1764066	Color (true)	0.333	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P297520

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1763980	Total Alkalinity	1.29	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P297521

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1764135	Total Alkalinity	0.838	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P297900

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1764957	TDS	1.94	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P297901

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1764959	TDS	1.17	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P297513

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1763980	Fluoride	0.490	Spike	P	0 - 3.7

Reference Method: SM 4500 F-C-97
Batch ID: P297515

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1764135	Fluoride	2.00	Spike	P	0 - 3.7

Reference Method: SM 5310 B-00
Batch ID: P297474

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1763982	Organic Carbon	0.717	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P297475

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1764137	Organic Carbon	0.268	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: A67194

Included Lab Sample IDs: 1764064, 1764065, 1764066, 1764067, 1764068, 1764069, 1764070, 1764071, 1764072, 1764073

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	101	P/P	85 - 115
Color (true)	101	102	P/P	85 - 115
Color (true)	99.3	101	P/P	85 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A67195

Included Lab Sample IDs: 1764084, 1764085, 1764086, 1764087, 1764088, 1764089, 1764090, 1764091, 1764092, 1764093

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	99.6	P/P	90 - 110
O-Phosphate-P	99.2	99.7	P/P	90 - 110
O-Phosphate-P	99.6	99.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A67201

Included Lab Sample IDs: 1764064, 1764065, 1764066, 1764067, 1764068, 1764069, 1764070, 1764071, 1764072, 1764073

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

Reference Method: SM 5310 B-00
Run ID: A67237

Included Lab Sample IDs: 1764074, 1764075, 1764076, 1764077, 1764078, 1764079, 1764080, 1764081, 1764082, 1764083

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	92.6	92.8	P/P	90 - 110
Organic Carbon	93.1	92.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A67241

Included Lab Sample IDs: 1764064, 1764065

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	104	105	P/P	90 - 110
Sulfate	100	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A67252

Included Lab Sample IDs: 1764064, 1764065, 1764066, 1764067, 1764068, 1764069, 1764070, 1764071, 1764072, 1764073

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.0	99.0	P/P	90 - 110
Fluoride	99.0	99.0	P/P	90 - 110
Fluoride	99.0	99.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A67254

Included Lab Sample IDs: 1764064, 1764065, 1764066, 1764067, 1764068, 1764069, 1764070, 1764071, 1764072, 1764073

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	97.5	P/P	90 - 110
Total Alkalinity	97.5	99.5	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A67286

Included Lab Sample IDs: 1764066, 1764067, 1764068, 1764069, 1764070, 1764071, 1764072, 1764073

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	104	P/P	90 - 110
Chloride	103	102	P/P	90 - 110
Chloride	104	104	P/P	90 - 110
Sulfate	95.7	98.7	P/P	90 - 110
Sulfate	98.7	99.8	P/P	90 - 110
Sulfate	99.8	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A67290

Included Lab Sample IDs: 1764074, 1764075, 1764076, 1764077, 1764078, 1764079, 1764080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	99.5	P/P	90 - 110
Kjeldahl Nitrogen	99.1	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A67292

Included Lab Sample IDs: 1764074, 1764075, 1764076, 1764077, 1764078, 1764079, 1764080, 1764081, 1764082

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A67294

Included Lab Sample IDs: 1764074, 1764075, 1764076, 1764077, 1764078, 1764079, 1764080, 1764081, 1764082, 1764083

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	103	P/P	90 - 110
Ammonia-N	104	103	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A67300

Included Lab Sample IDs: 1764081, 1764082, 1764083

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	95.5	97.9	P/P	90 - 110
Kjeldahl Nitrogen	99.3	95.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A67329

Included Lab Sample IDs: 1764083

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A67332

Included Lab Sample IDs: 1764074, 1764075, 1764076, 1764077, 1764078, 1764079, 1764080, 1764081, 1764082, 1764083

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	96.2	97.8	P/P	90 - 110
Total-P	97.8	96.2	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A67333

Included Lab Sample IDs: 1764126, 1764127, 1764128, 1764129

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	100	99.5	P/P	95 - 105
Calcium	99.5	98.0	P/P	90 - 110
Iron	100	99.5	P/P	95 - 105
Iron	99.5	98.7	P/P	90 - 110
Magnesium	100	99.1	P/P	95 - 105
Magnesium	99.1	99.0	P/P	90 - 110
Potassium	101	102	P/P	90 - 110
Potassium	102	101	P/P	95 - 105
Sodium	102	103	P/P	95 - 105
Sodium	103	101	P/P	90 - 110
Zinc	101	98.2	P/P	95 - 105
Zinc	98.2	98.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A67344

Included Lab Sample IDs: 1764126, 1764127, 1764128, 1764129

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	103	103	P/P	90 - 110
Arsenic	105	103	P/P	90 - 110
Cadmium	100	101	P/P	90 - 110
Cadmium	99.2	100	P/P	90 - 110
Chromium	101	100	P/P	90 - 110
Chromium	99.2	101	P/P	90 - 110
Copper	102	101	P/P	90 - 110
Copper	103	102	P/P	90 - 110
Lead	95.8	96.6	P/P	90 - 110
Lead	96.8	95.8	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A67344

Included Lab Sample IDs: 1764126, 1764127, 1764128, 1764129

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Nickel	101	99.6	P/P	90 - 110
Nickel	103	101	P/P	90 - 110
Silver	98.6	99.5	P/P	90 - 110
Silver	99.5	99.3	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						3.42	
EPA 200.7 Rev. 4.4	Calcium	106	105	105	99.8			0.152
	Iron	103	103	103	100			0.655
	Magnesium	111	108	108	99.7			0.375
	Potassium	108	107	106	105			0.881
	Sodium	106	101	102	104			0.323
	Zinc	97.6	97.3	97.5	97.7			0.225
EPA 200.8 Rev. 5.4	Arsenic	99.4	98.2	99.1	102			0.939
	Cadmium	95.9	96.0	98.0	98.4			2.11
	Chromium	97.7	96.3	97.8	96.6			1.54
	Copper	96.4	96.0	95.7	94.4			0.359
	Lead	90.4	90.6	90.7	92.1			0.165
	Nickel	97.8	96.6	97.7	96.2			1.10
	Silver	98.3	97.7	97.9	97.4			0.241
EPA 300.0 Rev. 2.1	Chloride	105	104	106			0.500	
	Chloride	101	101	102	98.0			1.23
	Chloride	103	104	104			0.0907	
	Sulfate	99.7	97.9	101			0.256	
	Sulfate	97.8	97.6	98.2	95.1			0.564
	Sulfate	93.9	101	95.5			4.84	
EPA 350.1 Rev. 2.0	Ammonia-N	103	102	102				0.278
	Ammonia-N	102	101	103				1.58
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	92.5	95.4	98.7				2.73
	Kjeldahl Nitrogen	96.2	101	105				3.22
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5	100	99.5				0.656
	NO2NO3-N	102	102	102				0.491
EPA 365.1 Rev. 2.0	Total-P	100	103	103				0.214
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	100	102				0.990
SM 2120 B	Color (true)						0.333	
SM 2320 B-97	Total Alkalinity	100					1.29	
	Total Alkalinity	102					0.838	
SM 2540 C-97	TDS						1.94	
	TDS						1.17	
SM 4500 F-C-97	Fluoride	96.5	96.7	97.3				0.490
	Fluoride	96.5	95.6	97.7				2.00
SM 5310 B-00	Organic Carbon	92.4	96.4					0.717

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	Precision
				LCS SMP MS
SM 5310 B-00	Organic Carbon	92.6	90.2 90.4	0.268

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1764064, 1764065, 1764066, 1764067, 1764068, 1764069, 1764070, 1764071, 1764072, 1764073
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1764126, 1764127, 1764128, 1764129
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1764126, 1764127, 1764128, 1764129
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1764064, 1764065, 1764066, 1764067, 1764068, 1764069, 1764070, 1764071, 1764072, 1764073
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1764064, 1764065, 1764066, 1764067, 1764068, 1764069, 1764070, 1764071, 1764072, 1764073
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1764074, 1764075, 1764076, 1764077, 1764078, 1764079, 1764080, 1764081, 1764082, 1764083
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1764074, 1764075, 1764076, 1764077, 1764078, 1764079, 1764080, 1764081, 1764082, 1764083
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1764074, 1764075, 1764076, 1764077, 1764078, 1764079, 1764080, 1764081, 1764082, 1764083
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1764074, 1764075, 1764076, 1764077, 1764078, 1764079, 1764080, 1764081, 1764082, 1764083
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1764084, 1764085, 1764086, 1764087, 1764088, 1764089, 1764090, 1764091, 1764092, 1764093
SM 2120 B / E31780	True Color measured at 450 nm	1764064, 1764065, 1764066, 1764067, 1764068, 1764069, 1764070, 1764071, 1764072, 1764073
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1764064, 1764065, 1764066, 1764067, 1764068, 1764069, 1764070, 1764071, 1764072, 1764073
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1764064, 1764065, 1764066, 1764067, 1764068, 1764069, 1764070, 1764071, 1764072, 1764073
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1764064, 1764065, 1764066, 1764067, 1764068, 1764069, 1764070, 1764071, 1764072, 1764073
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1764064, 1764065, 1764066, 1764067, 1764068, 1764069, 1764070, 1764071, 1764072, 1764073
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1764074, 1764075, 1764076, 1764077, 1764078, 1764079, 1764080, 1764081, 1764082, 1764083

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	01/21/2016			01/21/2016 10:48	Sima Feizi	1764064
	01/21/2016			01/21/2016 10:51	Sima Feizi	1764065
	01/21/2016			01/21/2016 10:52	Sima Feizi	1764066
	01/21/2016			01/21/2016 10:54	Sima Feizi	1764067
	01/21/2016			01/21/2016 10:57	Sima Feizi	1764068
	01/21/2016			01/21/2016 10:59	Sima Feizi	1764069
	01/21/2016			01/21/2016 11:01	Sima Feizi	1764070
	01/21/2016			01/21/2016 11:02	Sima Feizi	1764071
	01/21/2016			01/21/2016 11:03	Sima Feizi	1764072
	01/21/2016			01/21/2016 11:05	Sima Feizi	1764073
EPA 200.7 Rev. 4.4	01/21/2016	01/26/2016	Elliott D. Healy	01/28/2016	Joshua Ayres	1764126, 1764127, 1764128, 1764129
EPA 200.8 Rev. 5.4	01/21/2016	01/26/2016	Elliott D. Healy	01/28/2016	Charles J. Peterson	1764126, 1764127, 1764128, 1764129
EPA 300.0 Rev. 2.1	01/21/2016			01/23/2016	Ping Hua	1764064, 1764065
	01/21/2016			01/26/2016	Ping Hua	1764066
	01/21/2016			01/27/2016	Ping Hua	1764067, 1764068
	01/21/2016			01/28/2016	Ping Hua	1764069, 1764070, 1764071, 1764072, 1764073
EPA 350.1 Rev. 2.0	01/21/2016			01/27/2016	Diana M. Turner	1764074, 1764075, 1764076, 1764077, 1764078, 1764079, 1764080, 1764081, 1764082, 1764083
EPA 351.2 Rev. 2.0	01/21/2016	01/26/2016	Christopher Armour	01/27/2016	Bryan A. Werth	1764074, 1764075, 1764076, 1764077, 1764078, 1764079, 1764080, 1764081, 1764082, 1764083
EPA 353.2 Rev. 2.0	01/21/2016			01/27/2016	Virginia P. Brown	1764074, 1764075, 1764076, 1764077, 1764078, 1764079, 1764080, 1764081, 1764082
EPA 365.1 Rev. 2.0	01/21/2016			01/28/2016	Peter D. Kaus	1764083
	01/21/2016	01/26/2016	Christopher Armour	01/28/2016	Lipi Saha	1764074, 1764075, 1764076, 1764077, 1764078, 1764079, 1764080, 1764081, 1764082, 1764083
EPA 365.1 Rev. 2.0 dissolved	01/21/2016			01/21/2016 11:12	Julia Storbeck	1764085
	01/21/2016			01/21/2016 11:23	Julia Storbeck	1764084
	01/21/2016			01/21/2016 11:24	Julia Storbeck	1764086
	01/21/2016			01/21/2016 11:25	Julia Storbeck	1764087
	01/21/2016			01/21/2016 11:26	Julia Storbeck	1764088
	01/21/2016			01/21/2016 11:27	Julia Storbeck	1764089
	01/21/2016			01/21/2016 11:32	Julia Storbeck	1764090
	01/21/2016			01/21/2016 11:33	Julia Storbeck	1764091
	01/21/2016			01/21/2016 11:34	Julia Storbeck	1764092, 1764093
	01/21/2016			01/21/2016 10:55	Rochelle Y Jackson	1764064
SM 2120 B	01/21/2016			01/21/2016 11:00	Rochelle Y Jackson	1764065
	01/21/2016			01/21/2016 11:02	Rochelle Y Jackson	1764066, 1764067

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2120 B	01/21/2016			01/21/2016 11:03	Rochelle Y Jackson	1764068
	01/21/2016			01/21/2016 11:05	Rochelle Y Jackson	1764069
	01/21/2016			01/21/2016 11:06	Rochelle Y Jackson	1764070
	01/21/2016			01/21/2016 11:07	Rochelle Y Jackson	1764071
	01/21/2016			01/21/2016 11:08	Rochelle Y Jackson	1764072, 1764073
SM 2320 B-97	01/21/2016			01/25/2016	Dale L. Simmons	1764064, 1764065, 1764066, 1764067, 1764068, 1764069, 1764070, 1764071, 1764072, 1764073
SM 2540 C-97	01/21/2016			01/25/2016	Yijie Li	1764064, 1764065, 1764066, 1764067, 1764068, 1764069, 1764070, 1764071, 1764072, 1764073
SM 2540 D-97	01/21/2016			01/25/2016	Yijie Li	1764064, 1764065, 1764066, 1764067, 1764068, 1764069, 1764070, 1764071, 1764072, 1764073
SM 4500 F-C-97	01/21/2016			01/25/2016	Dale L. Simmons	1764064, 1764065, 1764066, 1764067, 1764068, 1764069, 1764070, 1764071, 1764072, 1764073
SM 5310 B-00	01/21/2016			01/23/2016	Sofia Elnemr	1764074, 1764075, 1764076, 1764077, 1764078, 1764079, 1764080, 1764081, 1764082, 1764083