

Chemical Analysis Report

SE-DIST-2016-08-23-01

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

Event Description: **SMP- North run**
Request ID: **RQ-2016-08-22-53**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
FL Dept. of Environmental Protection
2199 South Rock Road
Fort Pierce, FL 34945
Attn: Matthew Sewell

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 20-SEP-2016 10:11

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: KID CREEK

Collection Date/Time: 08/22/2016 11:50

Field ID: G5SE0050

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1825775	EPA 180.1 Rev. 2.0	Turbidity	1.5		NTU	P310160	
	EPA 300.0 Rev. 2.1	Chloride	110		mg Cl/L	P310943	
		Sulfate	13		mg SO4/L	P310946	
	SM 2120 B	Color (true)	71		PCU	P310164	
	SM 2320 B-97	Total Alkalinity	67		mg CaCO3/L	P310296	
	SM 2540 C-97	TDS	321	A	mg/L	P310627	
	SM 2540 D-97	TSS	3	I	mg/L	P310576	
	SM 4500 F-C-97	Fluoride	0.057	I	mg F/L	P310299	
1825779	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P310171	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P310465	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.038		mg N/L	P310593	
	EPA 365.1 Rev. 2.0	Total-P	0.028		mg P/L	P310228	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P310350	
1825783	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.016		mg P/L	P310153	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: MICCO DITCH

Collection Date/Time: 08/22/2016 12:35

Field ID: G5SE0048

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1825776	EPA 180.1 Rev. 2.0	Turbidity	8.1		NTU	P310160	
	EPA 300.0 Rev. 2.1	Chloride	120		mg Cl/L	P310943	
		Sulfate	24		mg SO4/L	P310946	
	SM 2120 B	Color (true)	120		PCU	P310164	
	SM 2320 B-97	Total Alkalinity	203		mg CaCO3/L	P310442	
	SM 2540 C-97	TDS	482		mg/L	P310627	
	SM 2540 D-97	TSS	7	I	mg/L	P310576	
	SM 4500 F-C-97	Fluoride	0.25		mg F/L	P310446	
1825780	EPA 350.1 Rev. 2.0	Ammonia-N	0.15		mg N/L	P310171	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.95		mg N/L	P310318	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.020		mg N/L	P310593	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P310229	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P310350	
1825784	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.044		mg P/L	P310154	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: SOUTH PRONG SEBASTAN

Collection Date/Time: 08/22/2016 13:25

Field ID: G5SE0042

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1825777	EPA 180.1 Rev. 2.0	Turbidity	6.1		NTU	P310160	
	EPA 300.0 Rev. 2.1	Chloride	330		mg Cl/L	P310943	
		Sulfate	86		mg SO4/L	P310946	

Field ID: G5SE0042

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1825777	SM 2120 B	Color (true)	87		PCU	P310164	
	SM 2320 B-97	Total Alkalinity	165		mg CaCO3/L	P310442	
	SM 2540 C-97	TDS	925		mg/L	P310627	
	SM 2540 D-97	TSS	8	I	mg/L	P310576	
	SM 4500 F-C-97	Fluoride	0.36		mg F/L	P310446	
1825781	EPA 350.1 Rev. 2.0	Ammonia-N	0.067		mg N/L	P310171	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.86		mg N/L	P310466	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P310593	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P310229	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P310350	
1825785	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.069		mg P/L	P310154	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: DUPE

Collection Date/Time: 08/22/2016 13:35

Field ID: DUPE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1825778	EPA 180.1 Rev. 2.0	Turbidity	6.1		NTU	P310160	
	EPA 300.0 Rev. 2.1	Chloride	330		mg Cl/L	P310943	
		Sulfate	85		mg SO4/L	P310946	
	SM 2120 B	Color (true)	87		PCU	P310164	
	SM 2320 B-97	Total Alkalinity	166		mg CaCO3/L	P310442	
	SM 2540 C-97	TDS	907		mg/L	P310627	
	SM 2540 D-97	TSS	8	I	mg/L	P310576	
	SM 4500 F-C-97	Fluoride	0.36		mg F/L	P310446	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.067		mg N/L	P310171	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.82		mg N/L	P310466	
1825782	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P310593	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P310229	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P310350	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.070		mg P/L	P310154	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: NORTH CANAL @ US 1

Collection Date/Time: 08/22/2016 14:15

Field ID: G5SE0043

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1825787	EPA 180.1 Rev. 2.0	Turbidity	5.0		NTU	P310160	
	EPA 300.0 Rev. 2.1	Chloride	210		mg Cl/L	P310943	
		Sulfate	64		mg SO4/L	P310946	
	SM 2120 B	Color (true)	89	A	PCU	P310164	
	SM 2320 B-97	Total Alkalinity	180		mg CaCO3/L	P310442	
	SM 2540 C-97	TDS	640		mg/L	P310627	
	SM 2540 D-97	TSS	6	I	mg/L	P310576	

Field ID: G5SE0043

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1825787	SM 4500 F-C-97	Fluoride	0.35		mg F/L	P310446	
1825788	EPA 350.1 Rev. 2.0	Ammonia-N	0.041		mg N/L	P310171	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.91		mg N/L	P310466	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P310593	
	EPA 365.1 Rev. 2.0	Total-P	0.20		mg P/L	P310229	
	SM 5310 B-00	Organic Carbon	16		mg C/L	P310350	
1825789	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.10		mg P/L	P310154	
1825799	EPA 200.7 Rev. 4.4	Calcium	87.1		mg/L	P310344	
		Iron	850		ug/L	P310344	
		Magnesium	23.5		mg/L	P310344	
		Potassium	6.5		mg/L	P310344	
		Sodium	104		mg/L	P310344	
		Zinc	5.0	U	ug/L	P310344	
	EPA 200.8 Rev. 5.4	Arsenic	1.32		ug/L	P310344	
		Cadmium	0.020	U	ug/L	P310344	
		Chromium	0.72		ug/L	P310344	
		Copper	1.85		ug/L	P310344	
		Lead	0.20	I	ug/L	P310344	
		Nickel	0.54		ug/L	P310344	
		Silver	0.0050	U	ug/L	P310344	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: IRL SOUTH OF SR 60

Collection Date/Time: 08/22/2016 14:40

Field ID: G5SE0051

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1825790	EPA 180.1 Rev. 2.0	Turbidity	5.0	A	NTU	P310161	
	SM 2320 B-97	Total Alkalinity	125		mg CaCO3/L	P310364	
	SM 2540 D-97	TSS	7	I	mg/L	P310579	
	SM 4500 F-C-97	Fluoride	0.96		mg F/L	P310366	
1825791	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P310172	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.63		mg N/L	P310394	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P310415	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P310232	
	SM 5310 B-00	Organic Carbon	7.1		mg C/L	P310557	
1825792	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.063		mg P/L	P310155	
1825800	EPA 200.7 Rev. 4.4	Iron	250	I	ug/L	P310573	
	EPA 200.8 Rev. 5.4	Arsenic	2.40		ug/L	P310911	
		Cadmium	0.060	U	ug/L	P310911	
		Chromium	0.44	I	ug/L	P310911	
		Copper	2.5		ug/L	P310911	
		Lead	0.37	I	ug/L	P310911	
		Silver	0.015	U	ug/L	P310911	
		Zinc	3.0	U	ug/L	P310911	

Field ID: G5SE0051

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
Ref. Method and Comment: SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.							

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P310160

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P310161

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P310344

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 200.7 Rev. 4.4
Batch ID: P310573

Component	Result	Code	Units
Iron	30	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P310344

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.050	U	ug/L
Copper	0.10	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.050	U	ug/L
Silver	0.0050	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P310911

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.050	U	ug/L
Copper	0.10	U	ug/L
Lead	0.050	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P310911

Component	Result	Code	Units
Silver	0.0050	U	ug/L
Zinc	1.0	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P310943

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P310946

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310171

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310172

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310318

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310394

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310465

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310466

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310415

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310593

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310228

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310229

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310232

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310153

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310154

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310155

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

Reference Method: SM 2120 B
Batch ID: P310164

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P310296

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

Reference Method: SM 2320 B-97
Batch ID: P310364

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

Reference Method: SM 2320 B-97
Batch ID: P310442

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

Reference Method: SM 2540 C-97
Batch ID: P310627

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P310576

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P310579

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P310299

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P310366

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P310446

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P310350

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

Reference Method: SM 5310 B-00
Batch ID: P310557

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: P310344

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Iron	108		P	85 - 115
Magnesium	103		P	85 - 115
Potassium	104		P	85 - 115
Sodium	110		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P310573

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P310344

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	101		P	85 - 115
Cadmium	97.4		P	85 - 115
Chromium	95.5		P	85 - 115
Copper	100		P	85 - 115
Lead	97.1		P	85 - 115
Nickel	102		P	85 - 115
Silver	98.5		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P310911

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	102		P	85 - 115
Cadmium	101		P	85 - 115
Chromium	100		P	85 - 115
Copper	98.4		P	85 - 115
Lead	101		P	85 - 115
Silver	99.8		P	85 - 115
Zinc	99.6		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P310943

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P310946

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310171

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310172

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310318

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310394

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: P310465

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310466

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310415

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310593

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: P310228

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310229

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310232

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310153

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	98.6		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310154

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310155

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

Reference Method: SM 2320 B-97
Batch ID: P310296

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P310364

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P310442

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P310299

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.5		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P310366

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.6		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P310446

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P310350

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	104		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P310557

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P310344

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1826814	Calcium	106		P	80 - 120
1826814	Iron	108	108	P/P	80 - 120
1826814	Magnesium	106		P	80 - 120
1826814	Potassium	104	103	P/P	80 - 120
1826814	Sodium	106	106	P/P	80 - 120
1826814	Zinc	100	101	P/P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P310573

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1825800	Iron	96.4		P	70 - 130

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P310573

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1826290	Iron	91.8	92.3	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P310344

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1826814	Arsenic	103	102	P/P	80 - 120
1826814	Cadmium	101	101	P/P	80 - 120
1826814	Chromium	100	98.9	P/P	80 - 120
1826814	Copper	97.0	96.8	P/P	80 - 120
1826814	Lead	99.3	98.9	P/P	80 - 120
1826814	Nickel	98.8	97.1	P/P	80 - 120
1826814	Silver	101	100	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P310911

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1829142	Arsenic	105	104	P/P	70 - 130
1829142	Cadmium	96.2	95.9	P/P	70 - 130
1829142	Chromium	86.5	84.7	P/P	70 - 130
1829142	Copper	94.2	91.9	P/P	70 - 130
1829142	Lead	104	102	P/P	70 - 130
1829142	Silver	92.7	92.5	P/P	70 - 130
1829142	Zinc	94.0	93.8	P/P	70 - 130
1829183	Arsenic	104		P	70 - 130
1829183	Cadmium	90.7		P	70 - 130
1829183	Chromium	81.8		P	70 - 130
1829183	Copper	92.6		P	70 - 130
1829183	Lead	105		P	70 - 130
1829183	Silver	92.4		P	70 - 130
1829183	Zinc	91.0		P	70 - 130

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P310943

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1825726	Chloride	98.9		P	90 - 110
1826314	Chloride	98.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P310946

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1825726	Sulfate	98.4		P	90 - 110
1826314	Sulfate	96.9		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310171

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1825779	Ammonia-N	102	104	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310172

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1825652	Ammonia-N	106	108	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310318

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1825780	Kjeldahl Nitrogen	103	97.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310394

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1825652	Kjeldahl Nitrogen	96.9	94.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310465

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1825713	Kjeldahl Nitrogen	97.5	95.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310466

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1825828	Kjeldahl Nitrogen	103	97.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310415

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1825123	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310593

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1825737	NO2NO3-N	96.1	94.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310228

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1825710	Total-P	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310229

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1825818	Total-P	98.9	103	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310232

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1825652	Total-P	95.3	95.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310153

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1825718	O-Phosphate-P	96.9	98.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310154

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1825784	O-Phosphate-P	97.7	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310155

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1825656	O-Phosphate-P	98.0	99.8	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P310299

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1825591	Fluoride	98.7	98.7	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P310366

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1825648	Fluoride	93.9	93.9	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P310446

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1826501	Fluoride	96.6	97.6	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P310350

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1825708	Organic Carbon	102	100	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P310557

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1824750	Organic Carbon	93.5	95.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P310160

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825702	Turbidity	4.12	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P310161

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825790	Turbidity	1.20	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P310344

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1826814	Calcium	0.492	Spike	P	0 - 20
1826814	Iron	0.231	Spike	P	0 - 20
1826814	Magnesium	0.639	Spike	P	0 - 20
1826814	Potassium	0.551	Spike	P	0 - 20
1826814	Sodium	0.154	Spike	P	0 - 20
1826814	Zinc	0.482	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P310573

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1826290	Iron	0.470	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P310344

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1826814	Arsenic	1.15	Spike	P	0 - 20
1826814	Cadmium	0.528	Spike	P	0 - 20
1826814	Chromium	1.33	Spike	P	0 - 20
1826814	Copper	0.130	Spike	P	0 - 20
1826814	Lead	0.421	Spike	P	0 - 20
1826814	Nickel	1.68	Spike	P	0 - 20
1826814	Silver	0.708	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P310911

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829142	Arsenic	1.05	Spike	P	0 - 20
1829142	Cadmium	0.325	Spike	P	0 - 20
1829142	Chromium	1.99	Spike	P	0 - 20
1829142	Copper	2.34	Spike	P	0 - 20
1829142	Lead	1.17	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P310911

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1829142	Silver	0.220	Spike	P	0 - 20
1829142	Zinc	0.299	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P310943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825726	Chloride	0.0216	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P310946

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825726	Sulfate	0.599	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310171

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825779	Ammonia-N	1.88	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P310172

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825652	Ammonia-N	1.62	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310318

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825780	Kjeldahl Nitrogen	3.39	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310394

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825652	Kjeldahl Nitrogen	2.76	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310465

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825713	Kjeldahl Nitrogen	1.87	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P310466

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825828	Kjeldahl Nitrogen	4.12	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825123	NO2NO3-N	0.482	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P310593

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825737	NO2NO3-N	1.52	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310228

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825710	Total-P	0.583	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310229

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825818	Total-P	3.64	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P310232

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825652	Total-P	0.315	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310153

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825718	O-Phosphate-P	1.21	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310154

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825784	O-Phosphate-P	0.843	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P310155

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825656	O-Phosphate-P	1.82	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P310164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825787	Color (true)	0.467	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P310296

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825591	Total Alkalinity	0.171	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P310364

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825648	Total Alkalinity	0.629	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P310442

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1826501	Total Alkalinity	0.403	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P310627

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825775	TDS	4.36	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P310299

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825591	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P310366

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825648	Fluoride	0.0	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P310446

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1826501	Fluoride	0.979	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P310350

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1825708	Organic Carbon	1.19	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P310557

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1824750	Organic Carbon	2.22	Spike	P	0 - 20

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A71271
Included Lab Sample IDs: 1825783, 1825784, 1825785, 1825786, 1825789, 1825792

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	101	100	P/P	90 - 110
O-Phosphate-P	99.1	99.5	P/P	90 - 110
O-Phosphate-P	99.5	99.1	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A71272
Included Lab Sample IDs: 1825775, 1825776, 1825777, 1825778, 1825787, 1825790

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

Reference Method: SM 2120 B
Run ID: A71273
Included Lab Sample IDs: 1825775, 1825776, 1825777, 1825778, 1825787

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.7	100	P/P	90 - 115

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A71275

Included Lab Sample IDs: 1825779, 1825780, 1825781, 1825782, 1825788, 1825791

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	104	105	P/P	90 - 110
Ammonia-N	105	105	P/P	90 - 110
Ammonia-N	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A71308

Included Lab Sample IDs: 1825780, 1825781, 1825782, 1825788

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	100	P/P	90 - 110
Total-P	99.0	101	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A71312

Included Lab Sample IDs: 1825775

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

Reference Method: SM 4500 F-C-97

Run ID: A71312

Included Lab Sample IDs: 1825775

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A71321

Included Lab Sample IDs: 1825779, 1825791

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	96.5	97.0	P/P	90 - 110
Total-P	97.2	96.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A71324

Included Lab Sample IDs: 1825779, 1825780, 1825781, 1825782, 1825788

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	102	P/P	90 - 110
Organic Carbon	101	100	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A71330

Included Lab Sample IDs: 1825790

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

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A71330

Included Lab Sample IDs: 1825790

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.6	98.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A71345

Included Lab Sample IDs: 1825791

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A71355

Included Lab Sample IDs: 1825780

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

Reference Method: SM 2320 B-97

Run ID: A71361

Included Lab Sample IDs: 1825776, 1825777, 1825778, 1825787

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	101	104	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A71361

Included Lab Sample IDs: 1825776, 1825777, 1825778, 1825787

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A71370

Included Lab Sample IDs: 1825791

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	102	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A71387

Included Lab Sample IDs: 1825799

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	102	102	P/P	90 - 110
Iron	102	103	P/P	90 - 110
Magnesium	101	104	P/P	90 - 110
Potassium	102	103	P/P	90 - 110
Sodium	102	101	P/P	90 - 110
Zinc	100	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A71393

Included Lab Sample IDs: 1825799

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	102	101	P/P	90 - 110
Cadmium	97.1	97.1	P/P	90 - 110
Chromium	94.0	96.8	P/P	90 - 110
Copper	103	100	P/P	90 - 110
Lead	96.8	95.1	P/P	90 - 110
Nickel	103	99.8	P/P	90 - 110
Silver	98.2	97.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A71398

Included Lab Sample IDs: 1825779, 1825780, 1825781, 1825782, 1825788

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

Reference Method: SM 5310 B-00

Run ID: A71405

Included Lab Sample IDs: 1825791

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	100	90.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A71414

Included Lab Sample IDs: 1825779, 1825781, 1825782, 1825788

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	106	106	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A71474

Included Lab Sample IDs: 1825800

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	100	97.2	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A71540

Included Lab Sample IDs: 1825775, 1825776, 1825777, 1825787

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	103	P/P	90 - 110
Chloride	103	101	P/P	90 - 110
Sulfate	99.4	99.8	P/P	90 - 110
Sulfate	99.9	99.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A71542

Included Lab Sample IDs: 1825800

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A71542

Included Lab Sample IDs: 1825800

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	101	101	P/P	90 - 110
Cadmium	99.2	98.8	P/P	90 - 110
Chromium	98.5	95.6	P/P	90 - 110
Copper	101	100	P/P	90 - 110
Lead	99.0	99.2	P/P	90 - 110
Silver	99.5	98.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A71576

Included Lab Sample IDs: 1825778

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A71665

Included Lab Sample IDs: 1825800

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Zinc	99.9	98.2	P/P	90 - 110

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					4.12	
	Turbidity					1.20	
EPA 200.7 Rev. 4.4	Calcium	104	106				0.492
	Iron	108	108	108			0.231
	Iron	102	96.4	91.8	92.3		0.470
	Magnesium	103	106				0.639
	Potassium	104	104	103			0.551
	Sodium	110	106	106			0.154
	Zinc	101	100	101			0.482
EPA 200.8 Rev. 5.4	Arsenic	101	103	102			1.15
	Arsenic	102	105	104	104		1.05
	Cadmium	97.4	101	101			0.528
	Cadmium	101	96.2	95.9	90.7		0.325
	Chromium	95.5	100	98.9			1.33
	Chromium	100	86.5	84.7	81.8		1.99
	Copper	100	97.0	96.8			0.130
	Copper	98.4	94.2	91.9	92.6		2.34
	Lead	97.1	99.3	98.9			0.421
	Lead	101	104	102	105		1.17

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision	MS
			LCS	SMP	MS		
EPA 200.8 Rev. 5.4	Nickel	102	98.8	97.1			1.68
	Silver	98.5	101	100			0.708
	Silver	99.8	92.7	92.5	92.4		0.220
	Zinc	99.6	94.0	93.8	91.0		0.299
EPA 300.0 Rev. 2.1	Chloride	101	98.9	98.9		0.0216	
	Sulfate	98.9	98.4	96.9		0.599	
EPA 350.1 Rev. 2.0	Ammonia-N	106	102	104			1.88
	Ammonia-N	107	106	108			1.62
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.8	103	97.4			3.39
	Kjeldahl Nitrogen	102	96.9	94.1			2.76
	Kjeldahl Nitrogen	104	97.5	95.1			1.87
	Kjeldahl Nitrogen	102	103	97.1			4.12
EPA 353.2 Rev. 2.0	NO2NO3-N	102	104	104			0.482
	NO2NO3-N	102	96.1	94.6			1.52
EPA 365.1 Rev. 2.0	Total-P	98.5	102	102			0.583
	Total-P	105	98.9	103			3.64
	Total-P	103	95.3	95.0			0.315
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.6	96.9	98.2			1.21
	O-Phosphate-P	100	97.7	98.9			0.843
	O-Phosphate-P	98.9	98.0	99.8			1.82
SM 2120 B	Color (true)					0.467	
SM 2320 B-97	Total Alkalinity	104				0.171	
	Total Alkalinity	103				0.629	
	Total Alkalinity	103				0.403	
SM 2540 C-97	TDS					4.36	
SM 4500 F-C-97	Fluoride	98.5	98.7	98.7			0.0
	Fluoride	96.6	93.9	93.9			0.0
	Fluoride	97.9	96.6	97.6			0.979
SM 5310 B-00	Organic Carbon	104	102	100			1.19
	Organic Carbon	102	93.5	95.8			2.22

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1825775, 1825776, 1825777, 1825778, 1825787, 1825790
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1825799, 1825800
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1825799, 1825800
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1825775, 1825776, 1825777, 1825778, 1825787
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1825775, 1825776, 1825777, 1825778, 1825787
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1825779, 1825780, 1825781, 1825782, 1825788, 1825791
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1825779, 1825780, 1825781, 1825782, 1825788, 1825791
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1825779, 1825780, 1825781, 1825782, 1825788, 1825791
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1825779, 1825780, 1825781, 1825782, 1825788, 1825791
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1825783, 1825784, 1825785, 1825786, 1825789, 1825792

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 2120 B / E31780	True Color measured at 450 nm	1825775, 1825776, 1825777, 1825778, 1825787
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1825775, 1825776, 1825777, 1825778, 1825787, 1825790
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1825775, 1825776, 1825777, 1825778, 1825787
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1825775, 1825776, 1825777, 1825778, 1825787, 1825790
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1825775, 1825776, 1825777, 1825778, 1825787, 1825790
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1825779, 1825780, 1825781, 1825782, 1825788, 1825791

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	08/23/2016			08/23/2016 14:34	Sima Feizi	1825775, 1825776, 1825777, 1825778, 1825787, 1825790
EPA 200.7 Rev. 4.4	08/23/2016	08/25/2016	Elliott D. Healy	08/26/2016	Joshua Ayres	1825799
	08/23/2016	08/30/2016	Elliott D. Healy	09/07/2016	Joshua Ayres	1825800
EPA 200.8 Rev. 5.4	08/23/2016	08/25/2016	Elliott D. Healy	08/29/2016	Charles J. Peterson	1825799
	08/23/2016	09/09/2016	Elliott D. Healy	09/11/2016	Charles J. Peterson	1825800
	08/23/2016			09/15/2016	Charles J. Peterson	1825800
EPA 300.0 Rev. 2.1	08/23/2016			09/10/2016	Ping Hua	1825775, 1825776, 1825777, 1825787
	08/23/2016			09/13/2016	Ping Hua	1825778
EPA 350.1 Rev. 2.0	08/23/2016			08/23/2016	Julie Michelle Frank	1825779, 1825780, 1825781, 1825782, 1825788, 1825791
EPA 351.2 Rev. 2.0	08/23/2016	08/25/2016	Adrian Shelby	08/26/2016	Virginia P. Brown	1825780
	08/23/2016	08/26/2016	Adrian Shelby	08/29/2016	Virginia P. Brown	1825791
	08/23/2016	08/29/2016	Adrian Shelby	08/30/2016	Christopher Armour	1825779, 1825781, 1825782, 1825788
EPA 353.2 Rev. 2.0	08/23/2016			08/26/2016	Beverly Y. Sanders	1825791
	08/23/2016			08/30/2016	Beverly Y. Sanders	1825779, 1825780, 1825781, 1825782, 1825788
EPA 365.1 Rev. 2.0	08/23/2016	08/24/2016	Vijayalakshmi Reddy	08/24/2016	Lipi Saha	1825780, 1825781, 1825782, 1825788
	08/23/2016	08/24/2016	Vijayalakshmi Reddy	08/25/2016	Lipi Saha	1825779, 1825791
EPA 365.1 Rev. 2.0 dissolved	08/23/2016			08/23/2016 14:38	Julia Storbeck	1825784
	08/23/2016			08/23/2016 14:49	Julia Storbeck	1825785
	08/23/2016			08/23/2016 14:50	Julia Storbeck	1825786
	08/23/2016			08/23/2016 15:30	Julia Storbeck	1825783
	08/23/2016			08/23/2016 15:31	Julia Storbeck	1825789
	08/23/2016			08/23/2016 15:38	Julia Storbeck	1825792
SM 2120 B	08/23/2016			08/23/2016 16:24	Rochelle Y Jackson	1825775
	08/23/2016			08/23/2016 16:25	Rochelle Y Jackson	1825776
	08/23/2016			08/23/2016 16:26	Rochelle Y Jackson	1825777, 1825778
	08/23/2016			08/23/2016 16:28	Rochelle Y Jackson	1825787
SM 2320 B-97	08/23/2016			08/25/2016	Dale L. Simmons	1825775, 1825790
	08/23/2016			08/27/2016	Dale L. Simmons	1825776, 1825777, 1825778, 1825787
SM 2540 C-97	08/23/2016			08/26/2016	Yijie Li	1825775, 1825776, 1825777, 1825778, 1825787
SM 2540 D-97	08/23/2016			08/26/2016	Yijie Li	1825775, 1825776, 1825777, 1825778, 1825787, 1825790
SM 4500 F-C-97	08/23/2016			08/25/2016	Dale L. Simmons	1825775, 1825790
	08/23/2016			08/27/2016	Dale L. Simmons	1825776, 1825777, 1825778, 1825787
SM 5310 B-00	08/23/2016			08/25/2016	Sofia Elnemr	1825779, 1825780, 1825781, 1825782, 1825788
	08/23/2016			08/30/2016	Sofia Elnemr	1825791