

Chemical Analysis Report

NW-DIST-2017-06-29-01

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

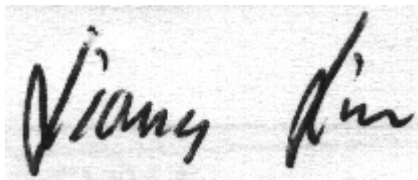
Event Description: **Santa Rosa County WBID 21 19 42C 27 271 179 28**
Request ID: **RQ-2017-06-26-13**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 24-JUL-2017 13:18

A handwritten signature in black ink, appearing to read "Liang Lin", 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: Big Horse Creek

Collection Date/Time: 06/28/2017 10:45

Field ID: G4NW0298

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909986	EPA 180.1 Rev. 2.0	Turbidity	7.0		NTU	P327748	
	EPA 300.0 Rev. 2.1	Chloride	3.1		mg Cl/L	P328145	
		Sulfate	0.93		mg SO4/L	P328150	
	SM 2120 B	Color (true)	63	A	PCU	P327733	
	SM 2320 B-97	Total Alkalinity	2.1	I	mg CaCO3/L	P327909	
	SM 2540 C-97	TDS	23	I	mg/L	P328161	
	SM 2540 D-97	TSS	12		mg/L	P328174	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P327983	
1909992	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P327892	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26		mg N/L	P328110	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.056		mg N/L	P327854	
	EPA 365.1 Rev. 2.0	Total-P	0.039		mg P/L	P327860	
	SM 5310 B-00	Organic Carbon	5.1		mg C/L	P327943	
1909998	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P327741	

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: Panther Creek

Collection Date/Time: 06/28/2017 11:20

Field ID: G4NW0417

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909987	EPA 180.1 Rev. 2.0	Turbidity	6.6		NTU	P327748	
	EPA 300.0 Rev. 2.1	Chloride	2.9		mg Cl/L	P328149	
		Sulfate	0.95		mg SO4/L	P328152	
	SM 2120 B	Color (true)	56		PCU	P327733	
	SM 2320 B-97	Total Alkalinity	0.91	I	mg CaCO3/L	P327909	
	SM 2540 C-97	TDS	18	I	mg/L	P328161	
	SM 2540 D-97	TSS	6	I	mg/L	P328174	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P327983	
1909993	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P327893	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.29		mg N/L	P328110	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.13		mg N/L	P327854	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P327860	
	SM 5310 B-00	Organic Carbon	4.9		mg C/L	P327944	
1909999	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327742	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Chloride: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

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

Sample Location: Bear Creek

Collection Date/Time: 06/28/2017 11:50

Field ID: G4NW0380

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909988	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P327748	
	EPA 300.0 Rev. 2.1	Chloride	2.2		mg Cl/L	P328145	

Field ID: G4NW0380

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909988	EPA 300.0 Rev. 2.1	Sulfate	0.37	I	mg SO4/L	P328150	
	SM 2120 B	Color (true)	64		PCU	P327733	
	SM 2320 B-97	Total Alkalinity	7.5		mg CaCO3/L	P327909	
	SM 2540 C-97	TDS	16	I	mg/L	P328161	
	SM 2540 D-97	TSS	2	I	mg/L	P328174	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P327983	
1909994	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P327893	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31		mg N/L	P328110	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.024		mg N/L	P327854	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P327860	
	SM 5310 B-00	Organic Carbon	5.2		mg C/L	P327944	
1910000	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327742	

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: Sweetwater Creek

Collection Date/Time: 06/28/2017 12:10

Field ID: G4NW0419

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909989	EPA 180.1 Rev. 2.0	Turbidity	5.4		NTU	P327748	
	EPA 300.0 Rev. 2.1	Chloride	2.4		mg Cl/L	P328145	
		Sulfate	0.68		mg SO4/L	P328150	
	SM 2120 B	Color (true)	77		PCU	P327733	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P327909	
	SM 2540 C-97	TDS	22	I	mg/L	P328161	
	SM 2540 D-97	TSS	27		mg/L	P328174	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P327983	
1909995	EPA 350.1 Rev. 2.0	Ammonia-N	0.005		mg N/L	P327893	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31		mg N/L	P328110	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.046		mg N/L	P327854	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P327861	
	SM 5310 B-00	Organic Carbon	6.4		mg C/L	P327944	
1910001	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327742	

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: Big Juniper Creek

Collection Date/Time: 06/28/2017 12:40

Field ID: G4NW0418

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909990	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P327748	
	EPA 300.0 Rev. 2.1	Chloride	2.5		mg Cl/L	P328145	
		Sulfate	0.72		mg SO4/L	P328150	
	SM 2120 B	Color (true)	64		PCU	P327733	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P327909	
	SM 2540 C-97	TDS	15	U	mg/L	P328161	

Field ID: G4NW0418

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909990	SM 2540 D-97	TSS	7	I	mg/L	P328174	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P327983	
1909996	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P327893	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.30		mg N/L	P328110	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.068		mg N/L	P327855	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P327861	
	SM 5310 B-00	Organic Carbon	5.9		mg C/L	P327944	
1910002	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327742	

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: Ates Creek

Collection Date/Time: 06/28/2017 13:05

Field ID: G4NW0332

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909991	EPA 180.1 Rev. 2.0	Turbidity	5.0	A	NTU	P327749	
	EPA 300.0 Rev. 2.1	Chloride	3.5		mg Cl/L	P328145	
		Sulfate	0.55		mg SO4/L	P328150	
	SM 2120 B	Color (true)	43		PCU	P327734	
	SM 2320 B-97	Total Alkalinity	6.7		mg CaCO3/L	P328061	
	SM 2540 C-97	TDS	19	I	mg/L	P328161	
	SM 2540 D-97	TSS	6	I	mg/L	P328174	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P328068	
1909997	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P327893	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.19	I	mg N/L	P328110	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P327855	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P327861	
	SM 5310 B-00	Organic Carbon	3.2		mg C/L	P327944	
1910003	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327742	

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: Blackwater River

Collection Date/Time: 06/28/2017 13:15

Field ID: G4NW0413

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909983	EPA 180.1 Rev. 2.0	Turbidity	5.3	A	NTU	P327748	
	EPA 300.0 Rev. 2.1	Chloride	2.7		mg Cl/L	P328145	
		Sulfate	0.74		mg SO4/L	P328150	
	SM 2120 B	Color (true)	160		PCU	P327733	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P327909	
	SM 2540 C-97	TDS	49		mg/L	P328161	
	SM 2540 D-97	TSS	9	I	mg/L	P328174	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P327983	
1909984	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P327892	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.45		mg N/L	P328109	

Field ID: G4NW0413

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1909984	EPA 353.2 Rev. 2.0	NO2NO3-N	0.10		mg N/L	P327854	
	EPA 365.1 Rev. 2.0	Total-P	0.014		mg P/L	P327860	
	SM 5310 B-00	Organic Carbon	12		mg C/L	P327943	
1909985	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327741	
1910029	EPA 200.7 Rev. 4.4	Calcium	0.86		mg/L	P327754	
		Iron	1.06E+03		ug/L	P327754	
		Magnesium	0.50		mg/L	P327754	
		Potassium	0.36	I	mg/L	P327754	
		Sodium	1.6	I	mg/L	P327754	
		Zinc	5.0	U	ug/L	P327754	
		Arsenic	0.43		ug/L	P327754	
	EPA 200.8 Rev. 5.4	Cadmium	0.020	U	ug/L	P327754	
		Chromium	0.58	I	ug/L	P327754	
		Copper	0.31	I	ug/L	P327754	
		Lead	0.45		ug/L	P327754	
		Nickel	0.67	I	ug/L	P327754	
		Silver	0.010	U	ug/L	P327754	

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: P327748

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P327749

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P327754

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: P327754

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: P327754

Component	Result	Code	Units
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.20	U	ug/L
Lead	0.050	U	ug/L
Nickel	0.20	U	ug/L
Silver	0.010	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328145

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328149

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328150

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328152

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327892

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327893

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328109

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328110

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327854

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327855

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327860

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327861

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327741

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327742

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

Reference Method: SM 2120 B
Batch ID: P327733

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P327734

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P327909

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

Reference Method: SM 2320 B-97
Batch ID: P328061

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

Reference Method: SM 2540 C-97
Batch ID: P328161

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P328174

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P327983

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P328068

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P327943

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

Reference Method: SM 5310 B-00
Batch ID: P327944

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: P327754

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

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P327754

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	100		P	85 - 115
Iron	102		P	85 - 115
Magnesium	103		P	85 - 115
Potassium	99.0		P	85 - 115
Sodium	102		P	85 - 115
Zinc	95.5		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P327754

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	99.0		P	85 - 115
Cadmium	98.5		P	85 - 115
Chromium	95.9		P	85 - 115
Copper	95.8		P	85 - 115
Lead	95.1		P	85 - 115
Nickel	98.6		P	85 - 115
Silver	96.2		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328145

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.3		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328149

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	99.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328150

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.9		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328152

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.5		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327892

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327893

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328109

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328110

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327854

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327855

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327860

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	92.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327861

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327741

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327742

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P327909

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

Reference Method: SM 2320 B-97
Batch ID: P328061

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P327983

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.4		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P328068

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P327943

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.8		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P327944

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.9		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P327754

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909385	Calcium	97.9		P	80 - 120
1909385	Iron	98.8		P	80 - 120
1909385	Magnesium	96.3		P	80 - 120
1909385	Potassium	96.1		P	80 - 120
1909385	Sodium	102		P	80 - 120
1909385	Zinc	93.0		P	80 - 120
1909850	Calcium	97.9		P	80 - 120
1909850	Iron	103	102	P/P	80 - 120
1909850	Magnesium	104	101	P/P	80 - 120
1909850	Potassium	98.1	97.5	P/P	80 - 120
1909850	Sodium	103	99.8	P/P	80 - 120
1909850	Zinc	95.0	92.1	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P327754

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909385	Arsenic	101		P	80 - 120
1909385	Cadmium	100		P	80 - 120
1909385	Chromium	97.3		P	80 - 120
1909385	Copper	92.7		P	80 - 120
1909385	Lead	96.5		P	80 - 120
1909385	Nickel	96.2		P	80 - 120
1909385	Silver	96.1		P	80 - 120
1909850	Arsenic	99.7	98.5	P/P	80 - 120
1909850	Cadmium	100	101	P/P	80 - 120
1909850	Chromium	98.0	97.3	P/P	80 - 120
1909850	Copper	93.3	92.7	P/P	80 - 120
1909850	Lead	96.7	96.2	P/P	80 - 120
1909850	Nickel	97.2	96.0	P/P	80 - 120
1909850	Silver	96.4	96.9	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328145

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910181	Chloride	95.9		P	90 - 110
1910183	Chloride	96.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328150

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910181	Sulfate	98.1		P	90 - 110
1910183	Sulfate	97.1		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328152

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910529	Sulfate	90.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327892

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909884	Ammonia-N	98.1	98.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327893

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909993	Ammonia-N	100	99.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328109

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909905	Kjeldahl Nitrogen	97.5	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328110

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909997	Kjeldahl Nitrogen	99.9	98.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327854

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909984	NO2NO3-N	100	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327855

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909996	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327860

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909994	Total-P	101	103	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327861

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909997	Total-P	101	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327741

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909907	O-Phosphate-P	95.6	98.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327742

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910000	O-Phosphate-P	98.5	99.4	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P327983

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909623	Fluoride	99.9	100	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P328068

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910183	Fluoride	97.4	98.6	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P327943

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909559	Organic Carbon	95.4	97.4	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P327944

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1909993	Organic Carbon	89.0	92.8	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P327748

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909983	Turbidity	1.52	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P327749

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909991	Turbidity	2.60	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P327754

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909850	Calcium	2.13	Spike	P	0 - 20
1909850	Iron	1.76	Spike	P	0 - 20
1909850	Magnesium	1.65	Spike	P	0 - 20
1909850	Potassium	0.503	Spike	P	0 - 20
1909850	Sodium	1.85	Spike	P	0 - 20
1909850	Zinc	3.05	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P327754

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909850	Arsenic	1.23	Spike	P	0 - 20
1909850	Cadmium	0.826	Spike	P	0 - 20
1909850	Chromium	0.751	Spike	P	0 - 20
1909850	Copper	0.670	Spike	P	0 - 20
1909850	Lead	0.497	Spike	P	0 - 20
1909850	Nickel	1.19	Spike	P	0 - 20
1909850	Silver	0.461	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328145

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910181	Chloride	0.561	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328149

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910529	Chloride	0.533	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328150

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910181	Sulfate	2.75	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328152

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910529	Sulfate	0.389	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327892

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909884	Ammonia-N	0.438	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327893

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909993	Ammonia-N	0.939	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328109

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909905	Kjeldahl Nitrogen	2.84	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328110

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909997	Kjeldahl Nitrogen	0.859	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327854

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909984	NO2NO3-N	0.329	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327855

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909996	NO2NO3-N	0.364	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327860

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909994	Total-P	2.44	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327861

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909997	Total-P	0.677	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327741

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909907	O-Phosphate-P	1.72	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327742

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910000	O-Phosphate-P	0.910	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P327733

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909986	Color (true)	0.318	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P327734

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910005	Color (true)	1.69	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
 Batch ID: P327909

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909623	Total Alkalinity	0.893	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
 Batch ID: P328061

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910183	Total Alkalinity	0.359	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
 Batch ID: P328161

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910005	TDS	2.56	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P327983

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909623	Fluoride	0.542	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
 Batch ID: P328068

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910183	Fluoride	0.996	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P327943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909559	Organic Carbon	1.29	Spike	P	0 - 20

Reference Method: SM 5310 B-00
 Batch ID: P327944

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1909993	Organic Carbon	3.33	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A77426

Included Lab Sample IDs: 1909985, 1909998, 1909999, 1910000, 1910001, 1910002, 1910003

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	99.6	P/P	90 - 110
O-Phosphate-P	99.6	101	P/P	90 - 110
O-Phosphate-P	99.8	99.9	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A77427

Included Lab Sample IDs: 1909983, 1909986, 1909987, 1909988, 1909989, 1909990, 1909991

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	94.0	97.7	P/P	85 - 115
Color (true)	96.3	96.3	P/P	85 - 115
Color (true)	97.7	99.0	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A77435

Included Lab Sample IDs: 1909983, 1909986, 1909987, 1909988, 1909989, 1909990, 1909991

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A77476

Included Lab Sample IDs: 1910029

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	96.2	97.6	P/P	90 - 110
Iron	97.1	96.9	P/P	90 - 110
Magnesium	97.0	96.7	P/P	90 - 110
Potassium	96.7	95.3	P/P	90 - 110
Sodium	97.6	98.1	P/P	90 - 110
Zinc	95.3	95.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A77492

Included Lab Sample IDs: 1909984, 1909992, 1909993, 1909994, 1909995, 1909996, 1909997

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.0	100	P/P	90 - 110
NO2NO3-N	99.5	99.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A77506

Included Lab Sample IDs: 1909984, 1909992, 1909993, 1909994, 1909995, 1909996, 1909997

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.0	99.7	P/P	90 - 110
Ammonia-N	99.7	99.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A77508

Included Lab Sample IDs: 1909983, 1909986, 1909987, 1909988, 1909989, 1909990

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	104	P/P	90 - 110
Total Alkalinity	103	102	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A77524

Included Lab Sample IDs: 1909984, 1909992, 1909993, 1909994, 1909995, 1909996, 1909997

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	94.1	96.4	P/P	90 - 110
Organic Carbon	95.5	94.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A77532

Included Lab Sample IDs: 1909983, 1909986, 1909987, 1909988, 1909989, 1909990

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A77551

Included Lab Sample IDs: 1909983, 1909986, 1909987, 1909988, 1909989, 1909990, 1909991

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	102	P/P	90 - 110
Chloride	102	102	P/P	90 - 110
Chloride	103	102	P/P	90 - 110
Chloride	105	103	P/P	90 - 110
Sulfate	100	94.4	P/P	90 - 110
Sulfate	101	93.6	P/P	90 - 110
Sulfate	94.4	100	P/P	90 - 110
Sulfate	96.8	100	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A77557

Included Lab Sample IDs: 1909991

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.9	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A77557

Included Lab Sample IDs: 1909991

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.1	97.0	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A77564

Included Lab Sample IDs: 1910029

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	100	99.1	P/P	90 - 110
Cadmium	98.7	99.5	P/P	90 - 110
Chromium	98.1	98.5	P/P	90 - 110
Copper	98.9	98.0	P/P	90 - 110
Lead	96.5	97.0	P/P	90 - 110
Nickel	99.1	98.5	P/P	90 - 110
Silver	94.8	95.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77565

Included Lab Sample IDs: 1909984, 1909992, 1909993, 1909994, 1909995, 1909996, 1909997

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.0	99.0	P/P	90 - 110
Total-P	99.0	99.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77578

Included Lab Sample IDs: 1909984, 1909992, 1909993, 1909994, 1909995, 1909996, 1909997

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	94.2	94.8	P/P	90 - 110
Kjeldahl Nitrogen	94.8	90.1	P/P	90 - 110

* Pass/Fail determinations are made for each bracketing calibration verification check.
 Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.
 Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery	LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity				1.52	
	Turbidity				2.60	
EPA 200.7 Rev. 4.4	Calcium	100	97.9 97.9			2.13
	Iron	102	98.8 103 102			1.76
	Magnesium	103	96.3 104 101			1.65
	Potassium	99.0	96.1 98.1 97.5			0.503
	Sodium	102	102 103 99.8			1.85
	Zinc	95.5	93.0 95.0 92.1			3.05
EPA 200.8 Rev. 5.4	Arsenic	99.0	101 99.7 98.5			1.23
	Cadmium	98.5	100 100 101			0.826
	Chromium	95.9	97.3 98.0 97.3			0.751
	Copper	95.8	92.7 93.3 92.7			0.670
	Lead	95.1	96.5 96.7 96.2			0.497
	Nickel	98.6	96.2 97.2 96.0			1.19
	Silver	96.2	96.1 96.4 96.9			0.461
EPA 300.0 Rev. 2.1	Chloride	99.3			0.561	
	Chloride	99.1			0.533	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 300.0 Rev. 2.1	Sulfate	96.9	98.1	97.1	2.75	
	Sulfate	96.5	90.1		0.389	
EPA 350.1 Rev. 2.0	Ammonia-N	104	98.1	98.7		0.438
	Ammonia-N	103	100	99.3		0.939
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.5	97.5	101		2.84
	Kjeldahl Nitrogen	99.8	99.9	98.9		0.859
EPA 353.2 Rev. 2.0	NO2NO3-N	104	100	101		0.329
	NO2NO3-N	104	104	103		0.364
EPA 365.1 Rev. 2.0	Total-P	92.2	101	103		2.44
	Total-P	101	101	102		0.677
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	95.6	98.5		1.72
	O-Phosphate-P	100	98.5	99.4		0.910
SM 2120 B	Color (true)				0.318	
	Color (true)				1.69	
SM 2320 B-97	Total Alkalinity	103			0.893	
	Total Alkalinity	101			0.359	
SM 2540 C-97	TDS				2.56	
SM 4500 F-C-97	Fluoride	98.4	99.9	100		0.542
	Fluoride	94.6	97.4	98.6		0.996
SM 5310 B-00	Organic Carbon	98.8	95.4	97.4		1.29
	Organic Carbon	98.9	89.0	92.8		3.33

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1909983, 1909986, 1909987, 1909988, 1909989, 1909990, 1909991
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1910029
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1910029
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1909983, 1909986, 1909987, 1909988, 1909989, 1909990, 1909991
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1909983, 1909986, 1909987, 1909988, 1909989, 1909990, 1909991
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1909984, 1909992, 1909993, 1909994, 1909995, 1909996, 1909997
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1909984, 1909992, 1909993, 1909994, 1909995, 1909996, 1909997
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1909984, 1909992, 1909993, 1909994, 1909995, 1909996, 1909997
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1909984, 1909992, 1909993, 1909994, 1909995, 1909996, 1909997
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1909985, 1909998, 1909999, 1910000, 1910001, 1910002, 1910003
SM 2120 B / E31780	True Color measured at 450 nm	1909983, 1909986, 1909987, 1909988, 1909989, 1909990, 1909991
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1909983, 1909986, 1909987, 1909988, 1909989, 1909990, 1909991
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1909983, 1909986, 1909987, 1909988, 1909989, 1909990, 1909991
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1909983, 1909986, 1909987, 1909988, 1909989, 1909990, 1909991
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1909983, 1909986, 1909987, 1909988, 1909989, 1909990, 1909991

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1909984, 1909992, 1909993, 1909994, 1909995, 1909996, 1909997

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	06/29/2017			06/29/2017 16:54	DeAsia Armster	1909983, 1909986, 1909987, 1909988, 1909989, 1909990, 1909991
EPA 200.7 Rev. 4.4	06/29/2017	06/29/2017	Elliott D. Healy	06/30/2017	Betina Topolski	1910029
EPA 200.8 Rev. 5.4	06/29/2017	06/29/2017	Elliott D. Healy	07/06/2017	Nadine Brooks	1910029
EPA 300.0 Rev. 2.1	06/29/2017			07/07/2017	Ping Hua	1909983, 1909986, 1909988, 1909989, 1909990, 1909991
	06/29/2017			07/08/2017	Ping Hua	1909987
EPA 350.1 Rev. 2.0	06/29/2017			07/03/2017	Sofia Elnemr	1909984, 1909992, 1909993, 1909994, 1909995, 1909996, 1909997
EPA 351.2 Rev. 2.0	06/29/2017	07/03/2017	Adrian Shelby	07/06/2017	Tanya Welborn	1909984, 1909992, 1909993, 1909994, 1909995, 1909996, 1909997
EPA 353.2 Rev. 2.0	06/29/2017			07/03/2017	Beverly Y. Sanders	1909984, 1909992, 1909993, 1909994, 1909995, 1909996, 1909997
EPA 365.1 Rev. 2.0	06/29/2017	07/03/2017	Vijayalakshmi Reddy	07/06/2017	Lipi Saha	1909984, 1909992, 1909993, 1909994, 1909995, 1909996, 1909997
EPA 365.1 Rev. 2.0 dissolved	06/29/2017			06/29/2017 11:46	Ping Hua	1909999
	06/29/2017			06/29/2017 11:49	Ping Hua	1910000
	06/29/2017			06/29/2017 11:51	Ping Hua	1910001
	06/29/2017			06/29/2017 11:52	Ping Hua	1910002
	06/29/2017			06/29/2017 11:53	Ping Hua	1910003
	06/29/2017			06/29/2017 12:59	Ping Hua	1909985
	06/29/2017			06/29/2017 13:04	Ping Hua	1909998
SM 2120 B	06/29/2017			06/29/2017 14:40	Julia Storbeck	1909986
	06/29/2017			06/29/2017 14:45	Julia Storbeck	1909987, 1909988
	06/29/2017			06/29/2017 14:46	Julia Storbeck	1909989
	06/29/2017			06/29/2017 14:47	Julia Storbeck	1909990
	06/29/2017			06/29/2017 14:52	Julia Storbeck	1909991
	06/29/2017			06/29/2017 15:11	Julia Storbeck	1909983
SM 2320 B-97	06/29/2017			07/01/2017	Dale L. Simmons	1909983, 1909986, 1909987, 1909988, 1909989, 1909990
	06/29/2017			07/06/2017	Dale L. Simmons	1909991
SM 2540 C-97	06/29/2017			07/03/2017	Sima Feizi	1909983, 1909986, 1909987, 1909988, 1909989, 1909990, 1909991
SM 2540 D-97	06/29/2017			07/03/2017	Sima Feizi	1909983, 1909986, 1909987, 1909988, 1909989, 1909990, 1909991
SM 4500 F-C-97	06/29/2017			07/05/2017	Dale L. Simmons	1909983, 1909986, 1909987, 1909988, 1909989, 1909990
	06/29/2017			07/06/2017	Dale L. Simmons	1909991
SM 5310 B-00	06/29/2017			07/04/2017	Sofia Elnemr	1909984, 1909992, 1909993, 1909994, 1909995, 1909996, 1909997