

Chemical Analysis Report

NW-DIST-2017-10-03-01

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

Event Description: **Eglin West WBID 468A 495 644 786A 843A 517 683 833**
Request ID: **RQ-2017-09-11-31**
Customer: **NW-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
160 Government Center
Suite 308
Pensacola, FL 32502-5794
Attn: Cheryl Bunch

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator Date Certified: 24-OCT-2017 11:33



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: Turkey Creek abv Eglin Rd. 232

Collection Date/Time: 10/02/2017 12:00

Field ID: G3NW0093

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933597	EPA 180.1 Rev. 2.0	Turbidity	1.8		NTU	P332681	
	EPA 300.0 Rev. 2.1	Chloride	2.9		mg Cl/L	P332902	
		Sulfate	0.58		mg SO4/L	P332906	
	SM 2120 B	Color (true)	17		PCU	P332658	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P333034	
	SM 2540 C-97	TDS	15	U	mg/L	P333041	
	SM 2540 D-97	TSS	2	I	mg/L	P333087	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P333148	
1933600	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P333175	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.091	I	mg N/L	P332789	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P333164	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P333006	
	SM 5310 B-00	Organic Carbon	1.2		mg C/L	P332959	
1933603	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P332690	

Ref. Method and Comment:

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

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Juniper Creek @ HWY 85

Collection Date/Time: 10/02/2017 12:20

Field ID: G3NW0095

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933598	EPA 180.1 Rev. 2.0	Turbidity	2.0		NTU	P332681	
	EPA 300.0 Rev. 2.1	Chloride	2.6		mg Cl/L	P332902	
		Sulfate	0.69		mg SO4/L	P332906	
	SM 2120 B	Color (true)	21		PCU	P332658	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P333034	
	SM 2540 C-97	TDS	15	U	mg/L	P333041	
	SM 2540 D-97	TSS	5	I	mg/L	P333087	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P333148	
1933601	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P333175	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.10	I	mg N/L	P332789	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.077		mg N/L	P332968	
	EPA 365.1 Rev. 2.0	Total-P	0.003	I	mg P/L	P333006	
	SM 5310 B-00	Organic Carbon	1.5		mg C/L	P332961	
1933604	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P332690	

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: Bass Lake Drainage Mooney Dr Head

Collection Date/Time: 10/02/2017 13:05

Field ID: G3NW0097

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933594	EPA 180.1 Rev. 2.0	Turbidity	2.3		NTU	P332681	
	EPA 300.0 Rev. 2.1	Chloride	23		mg Cl/L	P332902	

Field ID: G3NW0097

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933594	EPA 300.0 Rev. 2.1	Sulfate	11		mg SO4/L	P332906	
	SM 2120 B	Color (true)	44		PCU	P332658	
	SM 2320 B-97	Total Alkalinity	36		mg CaCO3/L	P333034	
	SM 2540 C-97	TDS	104	A	mg/L	P333041	
	SM 2540 D-97	TSS	3	IA	mg/L	P333087	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P333148	
1933595	EPA 350.1 Rev. 2.0	Ammonia-N	0.050		mg N/L	P332931	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.54		mg N/L	P332789	
	EPA 353.2 Rev. 2.0	NO2NO3-N	1.0		mg N/L	P333164	
	EPA 365.1 Rev. 2.0	Total-P	0.020		mg P/L	P333006	
	SM 5310 B-00	Organic Carbon	5.6		mg C/L	P332959	
1933596	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	I	mg P/L	P332690	
1933610	EPA 200.7 Rev. 4.4	Calcium	8.38		mg/L	P332818	
		Iron	620		ug/L	P332818	
		Magnesium	1.90		mg/L	P332818	
		Potassium	5.9		mg/L	P332818	
		Sodium	22.9		mg/L	P332818	
		Zinc	5.0	U	ug/L	P332818	
	EPA 200.8 Rev. 5.4	Arsenic	1.62		ug/L	P332818	
		Cadmium	0.020	U	ug/L	P332818	
		Chromium	0.41	I	ug/L	P332818	
		Copper	1.75		ug/L	P332818	
		Lead	0.22		ug/L	P332818	
		Nickel	0.20	U	ug/L	P332818	
		Silver	0.010	U	ug/L	P332818	

Ref. Method and Comment:

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

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Mill Creek abv Bayshore Dr.

Collection Date/Time: 10/02/2017 12:35

Field ID: G3NW0141

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933599	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P332681	
	EPA 300.0 Rev. 2.1	Chloride	5.4	A	mg Cl/L	P332902	
		Sulfate	5.8	A	mg SO4/L	P332906	
	SM 2120 B	Color (true)	19		PCU	P332658	
	SM 2320 B-97	Total Alkalinity	15		mg CaCO3/L	P333034	
	SM 2540 C-97	TDS	39		mg/L	P333041	
	SM 2540 D-97	TSS	2	I	mg/L	P333087	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P333149	
1933602	EPA 350.1 Rev. 2.0	Ammonia-N	0.031		mg N/L	P332931	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.27		mg N/L	P332789	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P332968	
	EPA 365.1 Rev. 2.0	Total-P	0.015		mg P/L	P333006	
	SM 5310 B-00	Organic Carbon	2.6		mq C/L	P332961	

Field ID: G3NW0141

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933605	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P332690	

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: Gap Creek powerline south of Overbrook Dr. Collection Date/Time: 10/02/2017 13:45

Field ID: G3NW0142

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933724	EPA 180.1 Rev. 2.0	Turbidity	4.2	A	NTU	P332734	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P332902	
		Sulfate	5.6		mg SO4/L	P332906	
	SM 2120 B	Color (true)	40	A	PCU	P332686	
	SM 2320 B-97	Total Alkalinity	24		mg CaCO3/L	P333034	
	SM 2540 C-97	TDS	72		mg/L	P333042	
	SM 2540 D-97	TSS	3	I	mg/L	P333088	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P333149	
1933729	EPA 350.1 Rev. 2.0	Ammonia-N	0.039		mg N/L	P333176	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.31		mg N/L	P332830	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.097		mg N/L	P332969	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P332806	
	SM 5310 B-00	Organic Carbon	5.4		mg C/L	P332961	
1933734	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P332729	

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: Tom King Bayou Creek Collection Date/Time: 10/02/2017 09:45

Field ID: G4NW0193

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933725	EPA 180.1 Rev. 2.0	Turbidity	9.0	Q	NTU	P332734	
	EPA 300.0 Rev. 2.1	Chloride	25		mg Cl/L	P332902	
		Sulfate	9.1		mg SO4/L	P332906	
	SM 2120 B	Color (true)	68	Q	PCU	P332686	
	SM 2320 B-97	Total Alkalinity	10		mg CaCO3/L	P333034	
	SM 2540 C-97	TDS	83		mg/L	P333042	
	SM 2540 D-97	TSS	2	I	mg/L	P333088	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P333149	
1933730	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P333176	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.28		mg N/L	P332888	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.93		mg N/L	P332969	
	EPA 365.1 Rev. 2.0	Total-P	0.022		mg P/L	P332806	
	SM 5310 B-00	Organic Carbon	3.9		mg C/L	P333407	
1933735	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.010	Q	mg P/L	P332728	

Field ID: G4NW0193

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
Ref. Method and Comment:							
EPA 180.1 Rev. 2.0: The sample expired prior to receipt.							
SM 2120 B: The sample expired prior to receipt.							
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.							
EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired prior to receipt.							

Sample Location: Boiling Creek abv Eglin Rd 211

Collection Date/Time: 10/02/2017 10:45

Field ID: G4NW0342

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933726	EPA 180.1 Rev. 2.0	Turbidity	1.1	Q	NTU	P332734	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P332902	
		Sulfate	0.53		mg SO4/L	P332906	
	SM 2120 B	Color (true)	17	Q	PCU	P332686	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P333034	
	SM 2540 C-97	TDS	15	U	mg/L	P333043	
	SM 2540 D-97	TSS	2	I	mg/L	P333089	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P333149	
1933731	EPA 350.1 Rev. 2.0	Ammonia-N	0.005	I	mg N/L	P333176	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.11	I	mg N/L	P332888	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P332969	
	EPA 365.1 Rev. 2.0	Total-P	0.002	I	mg P/L	P332806	
	SM 5310 B-00	Organic Carbon	1.7		mg C/L	P333407	
1933736	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P332728	

Ref. Method and Comment:
 EPA 180.1 Rev. 2.0: The sample expired upon receipt. The result was confirmed on 10/04/2017
 SM 2120 B: The sample expired upon receipt.
 SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
 EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Sample Location: Boiling Creek abv Eglin Rd 211

Collection Date/Time: 10/02/2017 10:50

Field ID: G4NW0342DUPLICATE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933727	EPA 180.1 Rev. 2.0	Turbidity	0.80	Q	NTU	P332734	
	EPA 300.0 Rev. 2.1	Chloride	3.2		mg Cl/L	P332902	
		Sulfate	0.53		mg SO4/L	P332906	
	SM 2120 B	Color (true)	17	Q	PCU	P332686	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P333034	
	SM 2540 C-97	TDS	15	U	mg/L	P333043	
	SM 2540 D-97	TSS	3	I	mg/L	P333089	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P333149	
1933732	EPA 350.1 Rev. 2.0	Ammonia-N	0.003	I	mg N/L	P333176	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.091	I	mg N/L	P332888	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P332969	
	EPA 365.1 Rev. 2.0	Total-P	0.002	I	mg P/L	P332806	
	SM 5310 B-00	Organic Carbon	1.6		mg C/L	P333407	
1933737	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P332728	

Field ID: G4NW0342DUPLICATE

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
Ref. Method and Comment:							
EPA 180.1 Rev. 2.0: The sample expired upon receipt. The result was confirmed on 10/04/2017							
SM 2120 B: The sample expired upon receipt.							
SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.							
EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.							

Sample Location: Boiling Creek abv Eglin Rd 211

Collection Date/Time: 10/02/2017 10:55

Field ID: FIELDBLANK

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1933728	EPA 180.1 Rev. 2.0	Turbidity	0.10	UQ	NTU	P332734	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P332902	
		Sulfate	0.20	U	mg SO4/L	P332906	
	SM 2120 B	Color (true)	2.5	UQ	PCU	P332686	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P333034	
	SM 2540 C-97	TDS	15	U	mg/L	P333041	
	SM 2540 D-97	TSS	2	U	mg/L	P333087	
1933733	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P333149	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P333176	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P333123	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P332969	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P332806	
1933738	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P333407	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	UQ	mg P/L	P332728	

Ref. Method and Comment:
 EPA 180.1 Rev. 2.0: The sample expired upon receipt.
 SM 2120 B: The sample expired upon receipt.
 SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
 EPA 365.1 Rev. 2.0 dissolved: O-Phosphate-P: The sample expired upon receipt.

Non-Conformance Report

NCR ID: 6677

Event(s)

NW-DIST-2017-10-03-01

Job(s)

TLH-2017-10-04-01

Sample(s)

Test(s)

NCR Type: SHIPPING/RECEIVING

NCR Category: Samples arrived late

Observation: Samples arrived one or more days late,by common carrier or hand delivery.
 Resolution: Customer contacted, email correspondence attached to sample submittal forms.Biology and Chemistry supervisors were notified by email.
 Samples will be qualified as appropriate.Customer requested Group B be discarded due to temp. hold time.

Authorized by/Date: Joshua Ayres 10/9/2017

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

Chemistry Colin Wright (850) 245-8085
 Biology Cheryl Swanson (850) 245-8177

Quality Assurance Report Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P332681

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P332734

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P332818

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: P332818

Component	Result	Code	Units
Arsenic	0.050	U	ug/L
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: P332902

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332906

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P332931

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: P333175

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333176

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332789

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332830

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332888

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333123

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332968

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332969

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333164

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332806

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333006

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332690

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332728

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332729

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

Reference Method: SM 2120 B
Batch ID: P332658

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P332686

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P333034

Component	Result	Code	Units
Total Alkalinity	0.65	U	mg CaCO3/L

Reference Method: SM 2540 C-97
Batch ID: P333041

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P333042

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P333043

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P333087

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P333088

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P333089

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P333148

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P333149

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P332959

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

Reference Method: SM 5310 B-00
Batch ID: P332961

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

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P333407

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: P332818

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	109		P	85 - 115
Iron	106		P	85 - 115
Magnesium	112		P	85 - 115
Potassium	106		P	85 - 115
Sodium	107		P	85 - 115
Zinc	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P332818

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Arsenic	98.3		P	85 - 115
Cadmium	98.4		P	85 - 115
Chromium	94.5		P	85 - 115
Copper	94.5		P	85 - 115
Lead	93.0		P	85 - 115
Nickel	96.7		P	85 - 115
Silver	93.9		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332902

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332906

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	98.3		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P332931

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333175

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.4		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333176

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: P332789

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332830

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332888

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333123

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332968

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	107		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332969

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	108		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333164

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332806

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333006

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	95.9		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332690

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332728

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	97.4		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332729

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

Reference Method: SM 2320 B-97
Batch ID: P333034

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

Reference Method: SM 4500 F-C-97
Batch ID: P333148

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	99.0		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P333149

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P332959

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

Reference Method: SM 5310 B-00
Batch ID: P332961

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.6		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P333407

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: P332818

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933720	Calcium	105		P	80 - 120
1933720	Iron	103		P	80 - 120
1933720	Magnesium	108		P	80 - 120
1933720	Potassium	105		P	80 - 120
1933720	Sodium	101		P	80 - 120
1933720	Zinc	104		P	80 - 120
1933903	Calcium	103	104	P/P	80 - 120
1933903	Iron	101	103	P/P	80 - 120
1933903	Magnesium	105	106	P/P	80 - 120
1933903	Potassium	103	103	P/P	80 - 120
1933903	Sodium	101	102	P/P	80 - 120
1933903	Zinc	104	106	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P332818

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933720	Arsenic	97.8		P	80 - 120
1933720	Cadmium	97.2		P	80 - 120
1933720	Chromium	92.7		P	80 - 120
1933720	Copper	93.8		P	80 - 120
1933720	Lead	93.6		P	80 - 120
1933720	Nickel	93.9		P	80 - 120
1933720	Silver	92.9		P	80 - 120
1933903	Arsenic	97.3	97.4	P/P	80 - 120
1933903	Cadmium	100	99.6	P/P	80 - 120
1933903	Chromium	94.3	93.3	P/P	80 - 120
1933903	Copper	94.1	93.2	P/P	80 - 120
1933903	Lead	94.2	93.5	P/P	80 - 120
1933903	Nickel	95.3	94.9	P/P	80 - 120
1933903	Silver	94.0	94.7	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332902

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933597	Chloride	102		P	90 - 110
1933599	Chloride	101		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332906

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933597	Sulfate	99.5		P	90 - 110
1933599	Sulfate	97.6		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P332931

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933595	Ammonia-N	104	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333175

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933766	Ammonia-N	99.8	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333176

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933677	Ammonia-N	102	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332789

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933643	Kjeldahl Nitrogen	101	91.4	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332830

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933707	Kjeldahl Nitrogen	89.9	92.4	F/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332888

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933730	Kjeldahl Nitrogen	98.1	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333123

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1934345	Kjeldahl Nitrogen	98.7	105	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332968

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933601	NO2NO3-N	108	109	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P332969

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933729	NO2NO3-N	108	108	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P333164

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933516	NO2NO3-N	103	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P332806

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933729	Total-P	98.4	97.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P333006

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933885	Total-P	98.3	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P332690

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933603	O-Phosphate-P	98.7	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P332728

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933708	O-Phosphate-P	96.5	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P332729

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933645	O-Phosphate-P	97.8	106	P/P	90 - 110

Reference Method: SM 4500 F-C-97
 Batch ID: P333148

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933461	Fluoride	100	99.8	P/P	91 - 105

Reference Method: SM 4500 F-C-97
 Batch ID: P333149

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933774	Fluoride	98.4	99.6	P/P	91 - 105

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P332961

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933601	Organic Carbon	95.0	95.9	P/P	85 - 115

Reference Method: SM 5310 B-00
 Batch ID: P333407

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1933861	Organic Carbon	97.4	100	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P332681

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933396	Turbidity	3.69	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P332734

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933724	Turbidity	3.29	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P332818

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933903	Calcium	0.197	Spike	P	0 - 20
1933903	Iron	1.36	Spike	P	0 - 20
1933903	Magnesium	0.885	Spike	P	0 - 20
1933903	Potassium	0.179	Spike	P	0 - 20
1933903	Sodium	0.772	Spike	P	0 - 20
1933903	Zinc	1.39	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P332818

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933903	Arsenic	0.0930	Spike	P	0 - 20
1933903	Cadmium	0.489	Spike	P	0 - 20
1933903	Chromium	1.09	Spike	P	0 - 20
1933903	Copper	0.893	Spike	P	0 - 20
1933903	Lead	0.706	Spike	P	0 - 20
1933903	Nickel	0.342	Spike	P	0 - 20
1933903	Silver	0.703	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332902

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933599	Chloride	0.362	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332906

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933599	Sulfate	0.612	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P332931

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933595	Ammonia-N	0.743	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333175

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933766	Ammonia-N	0.250	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P333176

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933677	Ammonia-N	0.597	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933643	Kjeldahl Nitrogen	6.86	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332830

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933707	Kjeldahl Nitrogen	2.19	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332888

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933730	Kjeldahl Nitrogen	2.32	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P333123

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1934345	Kjeldahl Nitrogen	5.43	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332968

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933601	NO2NO3-N	0.341	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332969

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933729	NO2NO3-N	0.319	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P333164

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933516	NO2NO3-N	0.851	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332806

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933729	Total-P	1.30	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P333006

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933885	Total-P	1.87	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332690

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933603	O-Phosphate-P	0.101	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332728

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933708	O-Phosphate-P	1.95	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332729

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933645	O-Phosphate-P	4.62	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P332658

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933515	Color (true)	3.60	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P332686

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933724	Color (true)	1.12	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P333034

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933774	Total Alkalinity	0.403	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P333041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933594	TDS	6.70	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P333042

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933642	TDS	2.85	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P333043

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933750	TDS	8.99	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P333148

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933461	Fluoride	0.473	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P333149

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933774	Fluoride	0.993	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P332959

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933448	Organic Carbon	0.0946	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P332961

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933601	Organic Carbon	0.923	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P333407

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1933861	Organic Carbon	2.46	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: A79312
Included Lab Sample IDs: 1933594, 1933597, 1933598, 1933599

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	100	98.7	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A79320
Included Lab Sample IDs: 1933594, 1933597, 1933598, 1933599

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

Reference Method: SM 2120 B
Run ID: A79321
Included Lab Sample IDs: 1933724, 1933725, 1933726, 1933727, 1933728

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.4	102	P/P	85 - 115

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A79323

Included Lab Sample IDs: 1933596, 1933603, 1933604, 1933605

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.1	97.9	P/P	90 - 110
O-Phosphate-P	99.3	97.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A79336

Included Lab Sample IDs: 1933734, 1933735, 1933736, 1933737, 1933738

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A79338

Included Lab Sample IDs: 1933724, 1933725, 1933726, 1933727, 1933728

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A79401

Included Lab Sample IDs: 1933594, 1933597, 1933598, 1933599, 1933724, 1933725, 1933726, 1933727, 1933728

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	106	108	P/P	90 - 110
Chloride	107	108	P/P	90 - 110
Chloride	108	107	P/P	90 - 110
Sulfate	102	104	P/P	90 - 110
Sulfate	103	104	P/P	90 - 110
Sulfate	104	103	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A79408

Included Lab Sample IDs: 1933610

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	101	100	P/P	90 - 110
Cadmium	97.3	98.4	P/P	90 - 110
Chromium	96.7	94.6	P/P	90 - 110
Copper	99.1	99.1	P/P	90 - 110
Lead	94.9	95.2	P/P	90 - 110
Nickel	98.7	98.4	P/P	90 - 110
Silver	93.2	94.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A79409

Included Lab Sample IDs: 1933595, 1933602

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A79413

Included Lab Sample IDs: 1933595, 1933600, 1933601, 1933602

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.2	94.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A79419

Included Lab Sample IDs: 1933595, 1933600, 1933601, 1933602, 1933729

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.6	97.4	P/P	90 - 110
Organic Carbon	97.4	97.2	P/P	90 - 110
Organic Carbon	97.6	95.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A79421

Included Lab Sample IDs: 1933601, 1933602, 1933729, 1933730, 1933731, 1933732, 1933733

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	102	104	P/P	90 - 110
NO2NO3-N	104	105	P/P	90 - 110
NO2NO3-N	104	102	P/P	90 - 110
NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A79422

Included Lab Sample IDs: 1933729, 1933730, 1933731, 1933732, 1933733

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.5	98.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A79435

Included Lab Sample IDs: 1933730, 1933731, 1933732

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	104	P/P	90 - 110
Kjeldahl Nitrogen	98.9	100	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A79440

Included Lab Sample IDs: 1933610

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	101	96.7	P/P	90 - 110
Iron	97.8	96.4	P/P	90 - 110
Magnesium	99.4	97.9	P/P	90 - 110
Potassium	102	99.6	P/P	90 - 110
Sodium	98.6	96.3	P/P	90 - 110
Zinc	98.9	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A79441

Included Lab Sample IDs: 1933729

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.4	96.1	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A79442

Included Lab Sample IDs: 1933594, 1933597, 1933598, 1933599, 1933724, 1933725, 1933726, 1933727, 1933728

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	104	100	P/P	90 - 110
Total Alkalinity	99.4	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A79460

Included Lab Sample IDs: 1933595, 1933600, 1933601, 1933602

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

Reference Method: SM 4500 F-C-97

Run ID: A79482

Included Lab Sample IDs: 1933594, 1933597, 1933598, 1933599, 1933724, 1933725, 1933726, 1933727, 1933728

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	99.1	P/P	90 - 110
Fluoride	99.1	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A79483

Included Lab Sample IDs: 1933595, 1933600

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A79489

Included Lab Sample IDs: 1933600, 1933601, 1933729, 1933730, 1933731, 1933732, 1933733

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	102	P/P	90 - 110
Ammonia-N	102	103	P/P	90 - 110
Ammonia-N	103	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A79549

Included Lab Sample IDs: 1933733

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	91.5	98.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00

Run ID: A79563

Included Lab Sample IDs: 1933730, 1933731, 1933732, 1933733

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.4	100	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						3.69	
	Turbidity						3.29	
EPA 200.7 Rev. 4.4	Calcium	109	105	103	104			0.197
	Iron	106	103	101	103			1.36
	Magnesium	112	108	105	106			0.885
	Potassium	106	105	103	103			0.179
	Sodium	107	101	101	102			0.772
	Zinc	102	104	104	106			1.39
EPA 200.8 Rev. 5.4	Arsenic	98.3	97.8	97.3	97.4			0.0930
	Cadmium	98.4	97.2	100	99.6			0.489
	Chromium	94.5	92.7	94.3	93.3			1.09
	Copper	94.5	93.8	94.1	93.2			0.893
	Lead	93.0	93.6	94.2	93.5			0.706
	Nickel	96.7	93.9	95.3	94.9			0.342
	Silver	93.9	92.9	94.0	94.7			0.703
EPA 300.0 Rev. 2.1	Chloride	103	101	102			0.362	
	Sulfate	98.3	97.6	99.5			0.612	
EPA 350.1 Rev. 2.0	Ammonia-N	104	104	102				0.743
	Ammonia-N	99.4	99.8	99.5				0.250
	Ammonia-N	102	102	101				0.597
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.4	101	91.4				6.86
	Kjeldahl Nitrogen	100	89.9	92.4				2.19
	Kjeldahl Nitrogen	98.9	98.1	101				2.32
	Kjeldahl Nitrogen	103	98.7	105				5.43
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	107	108	109				0.341
	NO ₂ NO ₃ -N	108	108	108				0.319
	NO ₂ NO ₃ -N	103	103	102				0.851
EPA 365.1 Rev. 2.0	Total-P	102	98.4	97.1				1.30
	Total-P	95.9	98.3	100				1.87
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	101	98.7	98.8				0.101
	O-Phosphate-P	97.4	96.5	98.9				1.95
	O-Phosphate-P	102	97.8	106				4.62
SM 2120 B	Color (true)						3.60	
	Color (true)						1.12	
SM 2320 B-97	Total Alkalinity	103					0.403	
SM 2540 C-97	TDS						6.70	
	TDS						2.85	
	TDS						8.99	
SM 4500 F-C-97	Fluoride	99.0	100	99.8				0.473

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
SM 4500 F-C-97	Fluoride	98.6	98.4	99.6		0.993
SM 5310 B-00	Organic Carbon	95.4				0.0946
	Organic Carbon	95.6	95.0	95.9		0.923
	Organic Carbon	102	97.4	100		2.46

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1933594, 1933597, 1933598, 1933599, 1933724, 1933725, 1933726, 1933727, 1933728
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1933610
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1933610
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1933594, 1933597, 1933598, 1933599, 1933724, 1933725, 1933726, 1933727, 1933728
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1933594, 1933597, 1933598, 1933599, 1933724, 1933725, 1933726, 1933727, 1933728
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1933595, 1933600, 1933601, 1933602, 1933729, 1933730, 1933731, 1933732, 1933733
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1933595, 1933600, 1933601, 1933602, 1933729, 1933730, 1933731, 1933732, 1933733
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1933595, 1933600, 1933601, 1933602, 1933729, 1933730, 1933731, 1933732, 1933733
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1933595, 1933600, 1933601, 1933602, 1933729, 1933730, 1933731, 1933732, 1933733
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1933596, 1933603, 1933604, 1933605, 1933734, 1933735, 1933736, 1933737, 1933738
SM 2120 B / E31780	True Color measured at 450 nm	1933594, 1933597, 1933598, 1933599, 1933724, 1933725, 1933726, 1933727, 1933728
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1933594, 1933597, 1933598, 1933599, 1933724, 1933725, 1933726, 1933727, 1933728
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1933594, 1933597, 1933598, 1933599, 1933724, 1933725, 1933726, 1933727, 1933728
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1933594, 1933597, 1933598, 1933599, 1933724, 1933725, 1933726, 1933727, 1933728
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1933594, 1933597, 1933598, 1933599, 1933724, 1933725, 1933726, 1933727, 1933728
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1933595, 1933600, 1933601, 1933602, 1933729, 1933730, 1933731, 1933732, 1933733

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	10/03/2017			10/03/2017 15:52	DeAsia Armster	1933594, 1933597, 1933598, 1933599
	10/04/2017			10/04/2017 11:10	DeAsia Armster	1933724
	10/04/2017			10/04/2017 11:11	DeAsia Armster	1933725
	10/04/2017			10/04/2017 11:13	DeAsia Armster	1933726
	10/04/2017			10/04/2017 11:14	DeAsia Armster	1933727
	10/04/2017			10/04/2017 11:15	DeAsia Armster	1933728
EPA 200.7 Rev. 4.4	10/03/2017	10/05/2017	Elliott D. Healy	10/06/2017	Betina Topolski	1933610
EPA 200.8 Rev. 5.4	10/03/2017	10/05/2017	Elliott D. Healy	10/06/2017	Nadine Brooks	1933610
EPA 300.0 Rev. 2.1	10/03/2017			10/06/2017	Julia Storbeck	1933594, 1933597, 1933598, 1933599
	10/04/2017			10/06/2017	Julia Storbeck	1933724, 1933725, 1933726, 1933727, 1933728
EPA 350.1 Rev. 2.0	10/03/2017			10/06/2017	Sofia Elnemr	1933595, 1933602
	10/03/2017			10/10/2017	Sofia Elnemr	1933600, 1933601
	10/04/2017			10/10/2017	Sofia Elnemr	1933729, 1933730, 1933731, 1933732, 1933733
EPA 351.2 Rev. 2.0	10/03/2017	10/05/2017	Adrian Shelby	10/06/2017	Virginia P. Brown	1933595, 1933600, 1933601, 1933602
	10/04/2017	10/06/2017	Adrian Shelby	10/09/2017	Joseph Suarez	1933730, 1933731, 1933732
	10/04/2017	10/06/2017	Adrian Shelby	10/09/2017	Virginia P. Brown	1933729
	10/04/2017	10/11/2017	Adrian Shelby	10/13/2017	Joseph Suarez	1933733
EPA 353.2 Rev. 2.0	10/03/2017			10/09/2017	Beverly Y. Sanders	1933601, 1933602
	10/03/2017			10/11/2017	Beverly Y. Sanders	1933595, 1933600
	10/04/2017			10/09/2017	Beverly Y. Sanders	1933729, 1933730, 1933731, 1933732, 1933733
EPA 365.1 Rev. 2.0	10/03/2017	10/09/2017	Sima Feizi	10/10/2017	Lipi Saha	1933595, 1933600, 1933601, 1933602
	10/04/2017	10/05/2017	Sima Feizi	10/09/2017	Lipi Saha	1933729, 1933730, 1933731, 1933732, 1933733
EPA 365.1 Rev. 2.0 dissolved	10/03/2017			10/03/2017 15:03	Megan Treadwell	1933603
	10/03/2017			10/03/2017 15:29	Megan Treadwell	1933596, 1933604
	10/03/2017			10/03/2017 15:30	Megan Treadwell	1933605
	10/04/2017			10/04/2017 12:00	Megan Treadwell	1933734
	10/04/2017			10/04/2017 12:01	Megan Treadwell	1933735
	10/04/2017			10/04/2017 12:02	Megan Treadwell	1933736
	10/04/2017			10/04/2017 12:03	Megan Treadwell	1933737
	10/04/2017			10/04/2017 12:04	Megan Treadwell	1933738
	10/03/2017			10/03/2017 16:18	Tanya Welborn	1933594
SM 2120 B	10/03/2017			10/03/2017 16:19	Tanya Welborn	1933597
	10/03/2017			10/03/2017 16:20	Tanya Welborn	1933598, 1933599
	10/03/2017			10/04/2017 11:10	Tanya Welborn	1933724
	10/04/2017			10/04/2017 11:11	Tanya Welborn	1933725
	10/04/2017			10/04/2017 11:12	Tanya Welborn	1933726, 1933727
	10/04/2017			10/04/2017 11:13	Tanya Welborn	1933728

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 2320 B-97	10/03/2017			10/06/2017	Dale L. Simmons	1933594, 1933597, 1933598
	10/03/2017			10/07/2017	Dale L. Simmons	1933599
	10/04/2017			10/07/2017	Dale L. Simmons	1933724, 1933725, 1933726, 1933727, 1933728
SM 2540 C-97	10/03/2017			10/06/2017	Yijie Li	1933594, 1933597, 1933598, 1933599
	10/04/2017			10/06/2017	Yijie Li	1933724, 1933725, 1933726, 1933727, 1933728
SM 2540 D-97	10/03/2017			10/06/2017	Yijie Li	1933594, 1933597, 1933598, 1933599
	10/04/2017			10/06/2017	Yijie Li	1933724, 1933725, 1933726, 1933727, 1933728
SM 4500 F-C-97	10/03/2017			10/10/2017	Dale L. Simmons	1933594, 1933597, 1933598, 1933599
	10/04/2017			10/10/2017	Dale L. Simmons	1933724, 1933725, 1933726, 1933727, 1933728
SM 5310 B-00	10/03/2017			10/06/2017	Ping Hua	1933595, 1933600
	10/03/2017			10/07/2017	Ping Hua	1933601, 1933602
	10/04/2017			10/07/2017	Ping Hua	1933729
	10/04/2017			10/12/2017	Ping Hua	1933730, 1933731, 1933732, 1933733