

Chemical Analysis Report

NE-DIST-2019-01-11-02

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

Event Description: **UEC**
Request ID: **RQ-2019-01-07-42**
Customer: **NE-DIST**
Project ID: **SMP**

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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 30-JAN-2019 11:26

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the first name.

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: LAKE VEDRA AT SOLANA RD

Collection Date/Time: 01/10/2019 09:15

Field ID: 27010180

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2053825	EPA 180.1 Rev. 2.0	Turbidity	10	A	NTU	P357234	
	EPA 300.0 Rev. 2.1	Chloride	130		mg Cl/L	P357337	
		Sulfate	94		mg SO4/L	P357339	
	SM 2120 B	Color (true)	57	A	PCU	P357177	
	SM 2320 B-97	Total Alkalinity	133		mg CaCO3/L	P357658	
	SM 2540 C-97	TDS	560		mg/L	P357619	
	SM 2540 D-97	TSS	14		mg/L	P357612	
	SM 4500 F-C-97	Fluoride	0.28		mg F/L	P357662	
2053826	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P357367	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.0		mg N/L	P357344	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P357212	
	EPA 365.1 Rev. 2.0	Total-P	0.38		mg P/L	P357282	
	SM 5310 B-00	Organic Carbon	17		mg C/L	P357327	
2053827	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.14		mg P/L	P357181	
2053871	EPA 200.7 Rev. 4.4	Barium	17.2		ug/L	P357312	
		Calcium	67.1		mg/L	P357312	
		Iron	75	I	ug/L	P357312	
		Magnesium	20.8		mg/L	P357312	
		Potassium	8.6		mg/L	P357312	
		Sodium	81.9		mg/L	P357312	
		Zinc	5.0	U	ug/L	P357312	
	EPA 200.8 Rev. 5.4	Aluminum	130		ug/L	P357312	
		Antimony	0.19	I	ug/L	P357312	
		Arsenic	7.51		ug/L	P357312	
		Boron**	73.8		ug/L	P357312	
		Cadmium	0.057	I	ug/L	P357312	
		Chromium	1.3	I	ug/L	P357312	
		Copper	7.23		ug/L	P357312	
		Lead	0.37	I	ug/L	P357312	
		Nickel	0.52	I	ug/L	P357312	
		Selenium	0.20	U	ug/L	P357312	
		Silver	0.010	U	ug/L	P357312	
		Thallium	0.10	U	ug/L	P357312	

Ref. Method and Comment:

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

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium, potassium and sodium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for boron are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: MOSES CREEK @ US1

Collection Date/Time: 01/10/2019 10:40

Field ID: 27010050

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2053822	EPA 180.1 Rev. 2.0	Turbidity	3.0		NTU	P357234	
	EPA 300.0 Rev. 2.1	Chloride	41		mg Cl/L	P357337	
		Sulfate	2.4		mg SO4/L	P357417	
		Color (true)	600		PCU	P357177	
	SM 2320 B-97	Total Alkalinity	23		mg CaCO3/L	P357658	
	SM 2540 C-97	TDS	214		mg/L	P357619	
	SM 2540 D-97	TSS	4	I	mg/L	P357612	
	SM 4500 F-C-97	Fluoride	0.055	I	mg F/L	P357662	
2053823	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P357366	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P357344	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P357212	
	EPA 365.1 Rev. 2.0	Total-P	0.073		mg P/L	P357281	
	SM 5310 B-00	Organic Carbon	51		mg C/L	P357327	
2053824	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.045		mg P/L	P357181	
2053870	EPA 200.7 Rev. 4.4	Barium	13.0		ug/L	P357312	
		Calcium	16.7		mg/L	P357312	
		Iron	1.49E+03		ug/L	P357312	
		Magnesium	3.08		mg/L	P357312	
		Potassium	0.47	I	mg/L	P357312	
		Sodium	23.9		mg/L	P357312	
		Zinc	5.9	I	ug/L	P357312	
	EPA 200.8 Rev. 5.4	Aluminum	607		ug/L	P357312	
		Antimony	0.052	I	ug/L	P357312	
		Arsenic	0.79		ug/L	P357312	
		Boron**	22.5		ug/L	P357312	
		Cadmium	0.020	U	ug/L	P357312	
		Chromium	0.93	I	ug/L	P357312	
		Copper	0.40	U	ug/L	P357312	
		Lead	0.59		ug/L	P357312	
		Nickel	0.62	I	ug/L	P357312	
		Selenium	0.25	I	ug/L	P357312	
		Silver	0.010	U	ug/L	P357312	
		Thallium	0.10	U	ug/L	P357312	

Ref. Method and Comment:

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

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium, potassium and sodium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for boron are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Sample Location: CRACKER BRANCH @ CR 204

Collection Date/Time: 01/10/2019 11:10

Field ID: 27010060

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2053828	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P357235	
	EPA 300.0 Rev. 2.1	Chloride	28		mg Cl/L	P357337	
		Sulfate	3.6		mg SO4/L	P357339	
	SM 2120 B	Color (true)	600		PCU	P357177	
	SM 2320 B-97	Total Alkalinity	12		mg CaCO3/L	P357659	
	SM 2540 C-97	TDS	165		mg/L	P357619	
	SM 2540 D-97	TSS	2	I	mg/L	P357612	
	SM 4500 F-C-97	Fluoride	0.042	I	mg F/L	P357663	
2053831	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P357367	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P357344	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P357212	
	EPA 365.1 Rev. 2.0	Total-P	0.072		mg P/L	P357282	
	SM 5310 B-00	Organic Carbon	44		mg C/L	P357327	
2053834	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.052		mg P/L	P357181	

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: PALM COAST CANAL 0.6MI DOWN FROM ROAD

Collection Date/Time: 01/10/2019 12:40

Field ID: G5NE0026

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2053829	EPA 180.1 Rev. 2.0	Turbidity	3.1		NTU	P357234	
	EPA 300.0 Rev. 2.1	Chloride	31		mg Cl/L	P357337	
		Sulfate	9.5		mg SO4/L	P357339	
	SM 2120 B	Color (true)	280		PCU	P357177	
	SM 2320 B-97	Total Alkalinity	65		mg CaCO3/L	P357659	
	SM 2540 C-97	TDS	205		mg/L	P357619	
	SM 2540 D-97	TSS	2	I	mg/L	P357612	
	SM 4500 F-C-97	Fluoride	0.073	I	mg F/L	P357663	
2053832	EPA 350.1 Rev. 2.0	Ammonia-N	0.074		mg N/L	P357367	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.91		mg N/L	P357344	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.048		mg N/L	P357212	
	EPA 365.1 Rev. 2.0	Total-P	0.089		mg P/L	P357282	
	SM 5310 B-00	Organic Carbon	27		mg C/L	P357328	
2053835	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.052		mg P/L	P357181	

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: CRACKER BRANCH @ CR 204

Collection Date/Time: 01/10/2019 11:20

Field ID: 27010060 dup

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2053830	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P357235	
	EPA 300.0 Rev. 2.1	Chloride	27		mg Cl/L	P357337	
		Sulfate	3.5		mg SO4/L	P357339	
	SM 2120 B	Color (true)	600		PCU	P357176	
	SM 2320 B-97	Total Alkalinity	12		mg CaCO3/L	P357659	
	SM 2540 C-97	TDS	150		mg/L	P357619	
	SM 2540 D-97	TSS	2	U	mg/L	P357612	
	SM 4500 F-C-97	Fluoride	0.042	I	mg F/L	P357663	
2053833	EPA 350.1 Rev. 2.0	Ammonia-N	0.014		mg N/L	P357367	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P357344	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P357212	
	EPA 365.1 Rev. 2.0	Total-P	0.070		mg P/L	P357282	
	SM 5310 B-00	Organic Carbon	44		mg C/L	P357328	
2053836	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.052		mg P/L	P357181	

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: LAKE VEDRA AT SOLANA RD

Collection Date/Time: 01/10/2019 09:25

Field ID: FB 01102019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2053837	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P357234	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P357337	
		Sulfate	0.20	U	mg SO4/L	P357339	
	SM 2120 B	Color (true)	2.5	U	PCU	P357178	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P357659	
	SM 2540 C-97	TDS	15	U	mg/L	P357618	
	SM 2540 D-97	TSS	2	U	mg/L	P357611	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P357663	
2053838	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P357367	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P357344	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P357410	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P357282	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P357328	
2053839	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P357181	
2053872	EPA 200.7 Rev. 4.4	Barium	1.0	U	ug/L	P357312	
		Calcium	0.075	U	mg/L	P357312	
		Iron	30	U	ug/L	P357312	
		Magnesium	0.040	U	mg/L	P357312	
		Potassium	0.30	U	mg/L	P357312	
		Sodium	0.50	U	mg/L	P357312	
		Zinc	5.0	U	ug/L	P357312	
		Aluminum	5.0	U	ug/L	P357312	
		Antimony	0.050	U	ug/L	P357312	
		Arsenic	0.050	U	ug/L	P357312	
		Boron**	2.0	U	ug/L	P357312	
		Cadmium	0.020	U	ug/L	P357312	
		Chromium	0.40	U	ug/L	P357312	
	EPA 200.8 Rev. 5.4	Copper	0.40	U	ug/L	P357312	
		Lead	0.20	U	ug/L	P357312	
		Nickel	0.50	U	ug/L	P357312	
		Selenium	0.20	U	ug/L	P357312	
		Silver	0.010	U	ug/L	P357312	
		Thallium	0.10	U	ug/L	P357312	

Ref. Method and Comment:

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

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium, potassium and sodium are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

EPA 200.8 Rev. 5.4: Batch matrix spike recoveries for boron are unavailable for one of two spiked samples because of high analyte concentration in the QC sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P357234

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P357235

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P357312

Component	Result	Code	Units
Barium	1.0	U	ug/L
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: P357312

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Boron	2.0	U	ug/L
Cadmium	0.020	U	ug/L
Chromium	0.40	U	ug/L
Copper	0.40	U	ug/L
Lead	0.20	U	ug/L
Nickel	0.50	U	ug/L
Selenium	0.20	U	ug/L
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357337

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357339

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357417

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357366

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357367

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357344

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357212

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357410

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357281

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357282

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357181

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P357176

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P357177

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P357178

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P357658

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

Reference Method: SM 2320 B-97
Batch ID: P357659

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

Reference Method: SM 2540 C-97
Batch ID: P357618

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P357619

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P357611

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P357612

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report

Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P357662

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P357663

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P357327

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

Reference Method: SM 5310 B-00
Batch ID: P357328

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: P357312

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	101		P	85 - 115
Calcium	105		P	85 - 115
Iron	107		P	85 - 115
Magnesium	109		P	85 - 115
Potassium	105		P	85 - 115
Sodium	109		P	85 - 115
Zinc	98.5		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357312

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	101		P	85 - 115
Antimony	97.6		P	85 - 115
Arsenic	104		P	85 - 115
Boron	103		P	85 - 115
Cadmium	103		P	85 - 115
Chromium	103		P	85 - 115
Copper	103		P	85 - 115
Lead	99.6		P	85 - 115
Nickel	103		P	85 - 115
Selenium	102		P	85 - 115
Silver	99.1		P	85 - 115
Thallium	98.4		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357337

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357339

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357417

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sulfate	96.4		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357366

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357367

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.2		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357344

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357212

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357410

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357281

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357282

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357181

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

Reference Method: SM 2120 B
Batch ID: P357176

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

Reference Method: SM 2120 B
Batch ID: P357177

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P357178

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

Reference Method: SM 2320 B-97
Batch ID: P357658

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 2320 B-97
Batch ID: P357659

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	98 - 107

Reference Method: SM 4500 F-C-97
Batch ID: P357662

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P357663

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.9		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P357327

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.0		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P357328

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P357312

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053668	Barium	98.7		P	80 - 120
2053668	Iron	103		P	80 - 120
2053668	Magnesium	102		P	80 - 120
2053668	Zinc	101		P	80 - 120
2054037	Barium	104	103	P/P	80 - 120
2054037	Calcium	108	107	P/P	80 - 120
2054037	Iron	110	108	P/P	80 - 120
2054037	Magnesium	113	111	P/P	80 - 120
2054037	Potassium	111	110	P/P	80 - 120
2054037	Sodium	107		P	80 - 120
2054037	Zinc	103	102	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357312

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053668	Aluminum	99.6		P	80 - 120
2053668	Antimony	102		P	80 - 120
2053668	Arsenic	108		P	80 - 120
2053668	Cadmium	103		P	80 - 120
2053668	Chromium	97.6		P	80 - 120
2053668	Copper	97.2		P	80 - 120
2053668	Lead	103		P	80 - 120
2053668	Nickel	97.5		P	80 - 120
2053668	Selenium	101		P	80 - 120
2053668	Silver	95.1		P	80 - 120
2053668	Thallium	104		P	80 - 120
2054037	Aluminum	98.0	99.6	P/P	80 - 120
2054037	Antimony	97.7	96.7	P/P	80 - 120
2054037	Arsenic	104	104	P/P	80 - 120
2054037	Boron	103	101	P/P	80 - 120
2054037	Cadmium	104	103	P/P	80 - 120
2054037	Chromium	105	104	P/P	80 - 120
2054037	Copper	106	105	P/P	80 - 120
2054037	Lead	100	99.7	P/P	80 - 120
2054037	Nickel	103	103	P/P	80 - 120
2054037	Selenium	102	101	P/P	80 - 120
2054037	Silver	99.5	98.5	P/P	80 - 120
2054037	Thallium	102	103	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357337

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053754	Chloride	99.8	98.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357339

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053754	Sulfate	97.8	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357417

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054028	Sulfate	95.9		P	90 - 110
2054093	Sulfate	95.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357366

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053713	Ammonia-N	99.4	102	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357367

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053826	Ammonia-N	97.6	97.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357344

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053832	Kjeldahl Nitrogen	104	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357212

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053750	NO2NO3-N	97.5	97.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357410

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2052264	NO2NO3-N	93.4	92.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357281

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053723	Total-P	102	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357282

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053826	Total-P	99.2	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357181

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053835	O-Phosphate-P	94.2	93.9	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P357662

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054742	Fluoride	98.2	98.8	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P357663

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054040	Fluoride	96.7	96.7	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P357327

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053623	Organic Carbon	99.8	98.2	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P357328

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2053832	Organic Carbon	104		P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P357234

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053825	Turbidity	1.70	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P357235

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053621	Turbidity	0.772	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P357312

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054037	Barium	1.51	Spike	P	0 - 20
2054037	Calcium	1.06	Spike	P	0 - 20
2054037	Iron	1.21	Spike	P	0 - 20
2054037	Magnesium	1.27	Spike	P	0 - 20
2054037	Potassium	1.03	Spike	P	0 - 20
2054037	Sodium	1.54	Spike	P	0 - 20
2054037	Zinc	1.56	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357312

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054037	Aluminum	0.979	Spike	P	0 - 20
2054037	Antimony	1.01	Spike	P	0 - 20
2054037	Arsenic	0.0539	Spike	P	0 - 20
2054037	Boron	1.63	Spike	P	0 - 20
2054037	Cadmium	0.375	Spike	P	0 - 20
2054037	Chromium	1.04	Spike	P	0 - 20
2054037	Copper	0.416	Spike	P	0 - 20
2054037	Lead	0.356	Spike	P	0 - 20
2054037	Nickel	0.371	Spike	P	0 - 20
2054037	Selenium	0.672	Spike	P	0 - 20
2054037	Silver	0.966	Spike	P	0 - 20
2054037	Thallium	0.714	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357337

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053754	Chloride	0.612	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357339

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053754	Sulfate	2.31	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357417

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054028	Sulfate	0.862	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357366

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053713	Ammonia-N	1.38	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357367

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053826	Ammonia-N	0.308	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357344

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053832	Kjeldahl Nitrogen	0.807	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357212

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053750	NO2NO3-N	0.300	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357410

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2052264	NO2NO3-N	0.484	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357281

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053723	Total-P	2.38	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357282

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053826	Total-P	1.01	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357181

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053835	O-Phosphate-P	0.206	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P357176

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053642	Color (true)	3.96	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P357177

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053825	Color (true)	1.42	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P357178

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053653	Color (true)	0.983	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P357658

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054742	Total Alkalinity	0.294	Sample	P	0 - 1.6

Reference Method: SM 2320 B-97
Batch ID: P357659

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054040	Total Alkalinity	0.286	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P357618

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053643	TDS	5.13	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
 Batch ID: P357619

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053747	TDS	6.57	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
 Batch ID: P357662

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054742	Fluoride	0.477	Spike	P	0 - 3.5

Reference Method: SM 4500 F-C-97
 Batch ID: P357663

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054040	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
 Batch ID: P357327

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053623	Organic Carbon	1.16	Spike	P	0 - 20

Reference Method: SM 5310 B-00
 Batch ID: P357328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2053832	Organic Carbon	0.545	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: A88775

Included Lab Sample IDs: 2053822, 2053825, 2053828, 2053829, 2053830, 2053837

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A88776

Included Lab Sample IDs: 2053824, 2053827, 2053834, 2053835, 2053836, 2053839

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.1	99.4	P/P	90 - 110
O-Phosphate-P	99.4	98.9	P/P	90 - 110
O-Phosphate-P	99.7	99.1	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A88788

Included Lab Sample IDs: 2053822, 2053825, 2053828, 2053829, 2053830, 2053837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	102	P/P	90 - 110
Sulfate	101	101	P/P	90 - 110
Sulfate	98.6	99.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88791

Included Lab Sample IDs: 2053823, 2053826, 2053831, 2053832, 2053833

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A88797

Included Lab Sample IDs: 2053822, 2053825, 2053828, 2053829, 2053830, 2053837

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

Reference Method: SM 5310 B-00

Run ID: A88833

Included Lab Sample IDs: 2053823, 2053826, 2053831, 2053832, 2053833, 2053838

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	102	P/P	90 - 110
Organic Carbon	99.9	101	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88851

Included Lab Sample IDs: 2053823, 2053826, 2053831, 2053832, 2053833, 2053838

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	99.5	P/P	90 - 110
Ammonia-N	102	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88851

Included Lab Sample IDs: 2053823, 2053826, 2053831, 2053832, 2053833, 2053838

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.5	98.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88860

Included Lab Sample IDs: 2053823, 2053826, 2053831, 2053832, 2053833

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88870

Included Lab Sample IDs: 2053838

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88877

Included Lab Sample IDs: 2053838

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A88886

Included Lab Sample IDs: 2053823, 2053826, 2053831, 2053832, 2053833, 2053838

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	102	P/P	90 - 110
Kjeldahl Nitrogen	102	105	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A88888

Included Lab Sample IDs: 2053870, 2053871, 2053872

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	100	101	P/P	95 - 105
Barium	101	101	P/P	90 - 110
Calcium	101	102	P/P	95 - 105
Calcium	103	104	P/P	90 - 110
Iron	102	103	P/P	95 - 105
Iron	103	103	P/P	90 - 110
Magnesium	102	103	P/P	95 - 105
Magnesium	103	103	P/P	90 - 110
Potassium	100	101	P/P	90 - 110
Potassium	99.2	101	P/P	95 - 105
Sodium	104	108	P/P	95 - 105
Sodium	107	108	P/P	90 - 110
Zinc	101	100	P/P	95 - 105
Zinc	101	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A88896

Included Lab Sample IDs: 2053870, 2053871, 2053872

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	100	101	P/P	90 - 110
Aluminum	101	100	P/P	90 - 110
Aluminum	102	101	P/P	90 - 110
Antimony	98.8	99.7	P/P	90 - 110
Antimony	99.2	98.8	P/P	90 - 110
Antimony	99.7	99.7	P/P	90 - 110
Arsenic	102	102	P/P	90 - 110
Arsenic	103	103	P/P	90 - 110
Arsenic	103	102	P/P	90 - 110
Cadmium	101	99.9	P/P	90 - 110
Cadmium	101	101	P/P	90 - 110
Cadmium	99.9	101	P/P	90 - 110
Chromium	101	103	P/P	90 - 110
Chromium	103	103	P/P	90 - 110
Chromium	103	105	P/P	90 - 110
Copper	103	103	P/P	90 - 110
Copper	103	104	P/P	90 - 110
Copper	103	103	P/P	90 - 110
Lead	101	101	P/P	90 - 110
Lead	101	102	P/P	90 - 110
Lead	101	101	P/P	90 - 110
Nickel	103	103	P/P	90 - 110
Nickel	103	103	P/P	90 - 110
Nickel	103	103	P/P	90 - 110
Selenium	101	103	P/P	90 - 110
Selenium	102	101	P/P	90 - 110
Selenium	103	101	P/P	90 - 110
Thallium	92.4	92.7	P/P	90 - 110
Thallium	92.7	94.5	P/P	90 - 110
Thallium	94.5	95.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A88947

Included Lab Sample IDs: 2053822, 2053825, 2053828, 2053829, 2053830, 2053837

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	100	P/P	90 - 110
Total Alkalinity	99.4	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A88947

Included Lab Sample IDs: 2053822, 2053825, 2053828, 2053829, 2053830, 2053837

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A88956

Included Lab Sample IDs: 2053870, 2053871, 2053872

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Boron	100	98.3	P/P	90 - 110
Boron	98.3	99.1	P/P	90 - 110
Silver	96.7	98.1	P/P	90 - 110
Silver	98.1	97.7	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						1.70	
	Turbidity						0.772	
EPA 200.7 Rev. 4.4	Barium	101	98.7	104	103			1.51
	Calcium	105	108	107				1.06
	Iron	107	103	110	108			1.21
	Magnesium	109	102	113	111			1.27
	Potassium	105	111	110				1.03
	Sodium	109	107					1.54
	Zinc	98.5	101	103	102			1.56
EPA 200.8 Rev. 5.4	Aluminum	101	99.6	98.0	99.6			0.979
	Antimony	97.6	102	97.7	96.7			1.01
	Arsenic	104	108	104	104			0.0539
	Boron	103	103	101				1.63
	Cadmium	103	103	104	103			0.375
	Chromium	103	97.6	105	104			1.04
	Copper	103	97.2	106	105			0.416
	Lead	99.6	103	100	99.7			0.356
	Nickel	103	97.5	103	103			0.371
	Selenium	102	101	102	101			0.672
	Silver	99.1	95.1	99.5	98.5			0.966
	Thallium	98.4	104	102	103			0.714
EPA 300.0 Rev. 2.1	Chloride	103	99.8	98.1				0.612
	Sulfate	102	97.8	102				2.31
	Sulfate	96.4	95.9	95.8			0.862	
EPA 350.1 Rev. 2.0	Ammonia-N	98.8	99.4	102				1.38
	Ammonia-N	99.2	97.6	97.3				0.308
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.7	104	102				0.807
EPA 353.2 Rev. 2.0	NO2NO3-N	102	97.5	97.0				0.300
	NO2NO3-N	99.0	93.4	92.8				0.484
EPA 365.1 Rev. 2.0	Total-P	102	102	99.3				2.38
	Total-P	104	99.2	101				1.01
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.9	94.2	93.9				0.206
SM 2120 B	Color (true)	100					3.96	
	Color (true)	101					1.42	
	Color (true)	101					0.983	
SM 2320 B-97	Total Alkalinity	102					0.294	
	Total Alkalinity	102					0.286	
SM 2540 C-97	TDS						5.13	
	TDS						6.57	
SM 4500 F-C-97	Fluoride	97.9	98.2	98.8				0.477
	Fluoride	97.9	96.7	96.7				0.0
SM 5310 B-00	Organic Carbon	98.0	99.8	98.2				1.16
	Organic Carbon	97.4	104					0.545

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2053822, 2053825, 2053828, 2053829, 2053830, 2053837
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2053870, 2053871, 2053872
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2053870, 2053871, 2053872

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2053822, 2053825, 2053828, 2053829, 2053830, 2053837
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2053822, 2053825, 2053828, 2053829, 2053830, 2053837
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2053823, 2053826, 2053831, 2053832, 2053833, 2053838
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2053823, 2053826, 2053831, 2053832, 2053833, 2053838
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2053823, 2053826, 2053831, 2053832, 2053833, 2053838
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2053823, 2053826, 2053831, 2053832, 2053833, 2053838
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2053824, 2053827, 2053834, 2053835, 2053836, 2053839
SM 2120 B / E31780	True Color measured at 450 nm	2053822, 2053825, 2053828, 2053829, 2053830, 2053837
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2053822, 2053825, 2053828, 2053829, 2053830, 2053837
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2053822, 2053825, 2053828, 2053829, 2053830, 2053837
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2053822, 2053825, 2053828, 2053829, 2053830, 2053837
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2053822, 2053825, 2053828, 2053829, 2053830, 2053837
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2053823, 2053826, 2053831, 2053832, 2053833, 2053838

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	01/11/2019			01/11/2019 17:41	Megan Treadwell	2053822, 2053825, 2053828, 2053829, 2053830, 2053837
EPA 200.7 Rev. 4.4	01/11/2019	01/15/2019 18:15	Elliott D. Healy	01/17/2019 14:06	Betina Topolski	2053872
	01/11/2019	01/15/2019 18:15	Elliott D. Healy	01/17/2019 16:26	Betina Topolski	2053870
	01/11/2019	01/15/2019 18:15	Elliott D. Healy	01/17/2019 16:38	Betina Topolski	2053871
EPA 200.8 Rev. 5.4	01/11/2019	01/15/2019 18:15	Elliott D. Healy	01/17/2019 19:54	Allison Taylor	2053872
	01/11/2019	01/15/2019 18:15	Elliott D. Healy	01/17/2019 22:46	Allison Taylor	2053870
	01/11/2019	01/15/2019 18:15	Elliott D. Healy	01/17/2019 23:24	Allison Taylor	2053871
	01/11/2019	01/15/2019 18:15	Elliott D. Healy	01/22/2019 15:45	Allison Taylor	2053872
	01/11/2019	01/15/2019 18:15	Elliott D. Healy	01/22/2019 18:18	Allison Taylor	2053870
	01/11/2019	01/15/2019 18:15	Elliott D. Healy	01/22/2019 18:28	Allison Taylor	2053871
EPA 300.0 Rev. 2.1	01/11/2019			01/15/2019 21:47	Lipi Saha	2053822
	01/11/2019			01/15/2019 21:59	Lipi Saha	2053825
	01/11/2019			01/15/2019 22:11	Lipi Saha	2053828
	01/11/2019			01/15/2019 22:23	Lipi Saha	2053829
	01/11/2019			01/15/2019 22:35	Lipi Saha	2053830
	01/11/2019			01/15/2019 22:47	Lipi Saha	2053837
	01/11/2019			01/16/2019 20:36	Lipi Saha	2053822
EPA 350.1 Rev. 2.0	01/11/2019			01/16/2019 12:35	Ping Hua	2053823
	01/11/2019			01/16/2019 12:47	Ping Hua	2053826
	01/11/2019			01/16/2019 12:52	Ping Hua	2053831
	01/11/2019			01/16/2019 12:53	Ping Hua	2053832
	01/11/2019			01/16/2019 12:55	Ping Hua	2053833
	01/11/2019			01/16/2019 13:10	Ping Hua	2053838
EPA 351.2 Rev. 2.0	01/11/2019	01/16/2019 11:15	Adrian Shelby	01/17/2019 13:41	Joseph Suarez	2053823
	01/11/2019	01/16/2019 11:15	Adrian Shelby	01/17/2019 13:42	Joseph Suarez	2053826
	01/11/2019	01/16/2019 11:15	Adrian Shelby	01/17/2019 13:44	Joseph Suarez	2053831
	01/11/2019	01/16/2019 11:15	Adrian Shelby	01/17/2019 13:45	Joseph Suarez	2053832
	01/11/2019	01/16/2019 11:15	Adrian Shelby	01/17/2019 13:53	Joseph Suarez	2053833
	01/11/2019	01/16/2019 11:15	Adrian Shelby	01/17/2019 13:55	Joseph Suarez	2053838
EPA 353.2 Rev. 2.0	01/11/2019			01/14/2019 10:37	Beverly Y. Sanders	2053823
	01/11/2019			01/14/2019 10:39	Beverly Y. Sanders	2053826
	01/11/2019			01/14/2019 10:40	Beverly Y. Sanders	2053831
	01/11/2019			01/14/2019 10:41	Beverly Y. Sanders	2053832
	01/11/2019			01/14/2019 10:42	Beverly Y. Sanders	2053833
	01/11/2019			01/16/2019 11:13	Beverly Y. Sanders	2053838
EPA 365.1 Rev. 2.0	01/11/2019	01/15/2019 12:00	Sima Feizi	01/16/2019 17:21	Rosalyn Ballman	2053823
	01/11/2019	01/15/2019 12:00	Sima Feizi	01/16/2019 17:27	Rosalyn Ballman	2053826
	01/11/2019	01/15/2019 12:00	Sima Feizi	01/16/2019 17:30	Rosalyn Ballman	2053831
	01/11/2019	01/15/2019 12:00	Sima Feizi	01/16/2019 17:31	Rosalyn Ballman	2053832

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 365.1 Rev. 2.0	01/11/2019	01/15/2019 12:00	Sima Feizi	01/16/2019 17:33	Rosalyn Ballman	2053833
	01/11/2019	01/15/2019 12:00	Sima Feizi	01/17/2019 13:16	Rosalyn Ballman	2053838
EPA 365.1 Rev. 2.0 dissolved	01/11/2019			01/11/2019 15:36	Jhamieka S. Greenwood	2053835
	01/11/2019			01/11/2019 15:44	Jhamieka S. Greenwood	2053839
	01/11/2019			01/11/2019 15:45	Jhamieka S. Greenwood	2053834
	01/11/2019			01/11/2019 15:46	Jhamieka S. Greenwood	2053836
	01/11/2019			01/11/2019 15:47	Jhamieka S. Greenwood	2053827
	01/11/2019			01/11/2019 16:03	Jhamieka S. Greenwood	2053824
SM 2120 B	01/11/2019			01/11/2019 16:09	Chelsea Hernandez	2053825
	01/11/2019			01/11/2019 16:16	Chelsea Hernandez	2053830, 2053837
	01/11/2019			01/11/2019 16:20	Chelsea Hernandez	2053822
	01/11/2019			01/11/2019 16:21	Chelsea Hernandez	2053828
SM 2320 B-97	01/11/2019			01/11/2019 16:22	Chelsea Hernandez	2053829
	01/11/2019			01/21/2019 14:21	Dale L. Simmons	2053822
	01/11/2019			01/21/2019 15:19	Dale L. Simmons	2053825
	01/11/2019			01/21/2019 16:44	Dale L. Simmons	2053828
	01/11/2019			01/21/2019 16:56	Dale L. Simmons	2053829
	01/11/2019			01/21/2019 17:07	Dale L. Simmons	2053830
SM 2540 C-97	01/11/2019			01/21/2019 17:21	Dale L. Simmons	2053837
	01/11/2019			01/14/2019 14:21	Yijie Li	2053822, 2053825, 2053828, 2053829, 2053830, 2053837
SM 2540 D-97	01/11/2019			01/14/2019 14:21	Yijie Li	2053822, 2053825, 2053828, 2053829, 2053830, 2053837
SM 4500 F-C-97	01/11/2019			01/21/2019 14:21	Dale L. Simmons	2053822
	01/11/2019			01/21/2019 15:19	Dale L. Simmons	2053825
	01/11/2019			01/21/2019 16:44	Dale L. Simmons	2053828
	01/11/2019			01/21/2019 16:56	Dale L. Simmons	2053829
	01/11/2019			01/21/2019 17:07	Dale L. Simmons	2053830
	01/11/2019			01/21/2019 17:21	Dale L. Simmons	2053837
SM 5310 B-00	01/11/2019			01/15/2019 19:32	Megan Treadwell	2053823
	01/11/2019			01/15/2019 19:44	Megan Treadwell	2053826
	01/11/2019			01/15/2019 19:56	Megan Treadwell	2053831
	01/11/2019			01/15/2019 20:33	Megan Treadwell	2053832
	01/11/2019			01/15/2019 21:46	Megan Treadwell	2053833
	01/11/2019			01/15/2019 21:58	Megan Treadwell	2053838