

Chemical Analysis Report

TLH-ROC-2019-01-15-01

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

Event Description: **Run 4**
Request ID: **RQ-2018-12-31-31**
Customer: **TLH-ROC**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
Tallahassee, FL 32399
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 06-FEB-2019 10:54

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 "T" and a long horizontal stroke at the end.

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: UNNAMED BRANCH @ FLAT CREEK RD

Collection Date/Time: 01/15/2019 09:35

Field ID: G2TLHR0031

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2054441	EPA 180.1 Rev. 2.0	Turbidity	9.9		NTU	P357326	
	EPA 300.0 Rev. 2.1	Chloride	4.2		mg Cl/L	P357416	
		Sulfate	1.7		mg SO4/L	P357418	
	SM 2120 B	Color (true)	38		PCU	P357304	
	SM 2320 B-97	Total Alkalinity	40		mg CaCO3/L	P357659	
	SM 2540 C-97	TDS	56		mg/L	P357767	
	SM 2540 D-97	TSS	7	I	mg/L	P357863	
	SM 4500 F-C-97	Fluoride	0.090	I	mg F/L	P357663	
2054446	EPA 350.1 Rev. 2.0	Ammonia-N	0.011		mg N/L	P357490	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.16	I	mg N/L	P357432	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.17		mg N/L	P357549	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P357360	
	SM 5310 B-00	Organic Carbon	3.1		mg C/L	P357397	
2054451	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.019		mg P/L	P357297	
2054468	EPA 200.7 Rev. 4.4	Barium	15.3		ug/L	P357375	
		Calcium	10.7		mg/L	P357375	
		Iron	760		ug/L	P357375	
		Magnesium	4.86		mg/L	P357375	
		Potassium	0.36	I	mg/L	P357375	
		Sodium	2.4		mg/L	P357375	
		Zinc	5.0	U	ug/L	P357375	
		Aluminum	795	J	ug/L	P357375	
		Antimony	0.050	U	ug/L	P357375	
		Arsenic	0.40		ug/L	P357375	
	EPA 200.8 Rev. 5.4	Boron**	9.2		ug/L	P357375	
		Cadmium	0.020	U	ug/L	P357375	
		Chromium	1.1	I	ug/L	P357375	
		Copper	0.40	U	ug/L	P357375	
		Lead	0.39	I	ug/L	P357375	
		Nickel	0.50	U	ug/L	P357375	
		Selenium	0.20	U	ug/L	P357375	
		Silver	0.010	U	ug/L	P357375	
		Thallium	0.10	U	ug/L	P357375	

Ref. Method and Comment:

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

EPA 200.8 Rev. 5.4: The sample was digested and analyzed twice and it appears to be heterogeneous with respect to aluminum.

Sample Location: MOSQUITO CREEK @ SR269

Collection Date/Time: 01/15/2019 10:00

Field ID: G2TLHR0015

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2054442	EPA 180.1 Rev. 2.0	Turbidity	9.6		NTU	P357326	
	EPA 300.0 Rev. 2.1	Chloride	4.2		mg Cl/L	P357508	
		Sulfate	1.0		mg SO4/L	P357509	
		Color (true)	60		PCU	P357304	
	SM 2320 B-97	Total Alkalinity	24		mg CaCO3/L	P357659	
	SM 2540 C-97	TDS	52		mg/L	P357767	
	SM 2540 D-97	TSS	6	I	mg/L	P357863	
	SM 4500 F-C-97	Fluoride	0.055	I	mg F/L	P357663	
2054447	EPA 350.1 Rev. 2.0	Ammonia-N	0.032		mg N/L	P357490	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32		mg N/L	P357432	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.76		mg N/L	P357549	
	EPA 365.1 Rev. 2.0	Total-P	0.046		mg P/L	P357360	
	SM 5310 B-00	Organic Carbon	4.2		mg C/L	P357397	
2054452	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.015		mg P/L	P357297	
2054469	EPA 200.7 Rev. 4.4	Barium	19.3		ug/L	P357375	
		Calcium	7.35		mg/L	P357375	
		Iron	1.02E+03		ug/L	P357375	
		Magnesium	3.21		mg/L	P357375	
		Potassium	0.84	I	mg/L	P357375	
		Sodium	2.4		mg/L	P357375	
		Zinc	5.0	U	ug/L	P357375	
	EPA 200.8 Rev. 5.4	Aluminum	478		ug/L	P357789	
		Antimony	0.050	U	ug/L	P357375	
		Arsenic	0.43		ug/L	P357375	
		Boron**	10.1		ug/L	P357375	
		Cadmium	0.020	U	ug/L	P357375	
		Chromium	0.67	I	ug/L	P357375	
		Copper	0.75	I	ug/L	P357907	
		Lead	0.39	I	ug/L	P357375	
		Nickel	0.50	U	ug/L	P357375	
		Selenium	0.20	U	ug/L	P357375	
		Silver	0.010	U	ug/L	P357375	
		Thallium	0.10	U	ug/L	P357375	

Ref. Method and Comment:

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

Sample Location: SOUTH MOSQUITO CREEK @ POWER LINE

Collection Date/Time: 01/15/2019 10:30

Field ID: G2TLHR0039

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2054443	EPA 180.1 Rev. 2.0	Turbidity	9.7		NTU	P357326	
	EPA 300.0 Rev. 2.1	Chloride	3.6		mg Cl/L	P357508	
		Sulfate	0.85		mg SO4/L	P357509	
	SM 2120 B	Color (true)	48		PCU	P357304	
	SM 2320 B-97	Total Alkalinity	18		mg CaCO3/L	P357660	
	SM 2540 C-97	TDS	33		mg/L	P357767	
	SM 2540 D-97	TSS	9	I	mg/L	P357863	
	SM 4500 F-C-97	Fluoride	0.052	I	mg F/L	P357664	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.024		mg N/L	P357490	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.21		mg N/L	P357432	
2054448	EPA 353.2 Rev. 2.0	NO2NO3-N	0.48		mg N/L	P357549	
	EPA 365.1 Rev. 2.0	Total-P	0.039		mg P/L	P357360	
	SM 5310 B-00	Organic Carbon	3.4		mg C/L	P357397	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.010		mg P/L	P357297	
	dissolved						
2054470	EPA 200.7 Rev. 4.4	Barium	14.4		ug/L	P357375	
		Calcium	5.39		mg/L	P357375	
		Iron	800		ug/L	P357375	
		Magnesium	2.66		mg/L	P357375	
		Potassium	0.50	I	mg/L	P357375	
		Sodium	2.2		mg/L	P357375	
		Zinc	5.0	U	ug/L	P357375	
	EPA 200.8 Rev. 5.4	Aluminum	365		ug/L	P357375	
		Antimony	0.050	U	ug/L	P357375	
		Arsenic	0.39		ug/L	P357375	
		Boron**	9.4		ug/L	P357375	
		Cadmium	0.020	U	ug/L	P357375	
		Chromium	0.58	I	ug/L	P357375	
		Copper	0.40	U	ug/L	P357375	
		Lead	0.28	I	ug/L	P357375	
		Nickel	0.50	U	ug/L	P357375	
		Selenium	0.20	U	ug/L	P357375	
		Silver	0.010	U	ug/L	P357375	
		Thallium	0.10	U	ug/L	P357375	

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 SEMINOLE 200M FROM BOAT RAMP @ RIVER **Collection Date/Time: 01/15/2019 11:30**

Field ID: G2TLHR0002

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2054438	EPA 180.1 Rev. 2.0	Turbidity	15		NTU	P357326	
	EPA 300.0 Rev. 2.1	Chloride	4.1		mg Cl/L	P357416	
		Sulfate	3.4		mg SO4/L	P357418	
	SM 2120 B	Color (true)	26		PCU	P357306	
	SM 2320 B-97	Total Alkalinity	48		mg CaCO3/L	P357659	
	SM 2540 C-97	TDS	72		mg/L	P357767	
	SM 2540 D-97	TSS	12		mg/L	P357863	
	SM 4500 F-C-97	Fluoride	0.062	I	mg F/L	P357663	
2054439	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P357490	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P357432	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.46		mg N/L	P357549	
	EPA 365.1 Rev. 2.0	Total-P	0.040		mg P/L	P357360	
	SM 5310 B-00	Organic Carbon	4.6		mg C/L	P357397	
2054440	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.005	I	mg P/L	P357297	
2054467	EPA 200.7 Rev. 4.4	Barium	20.8		ug/L	P357375	
		Calcium	16.5		mg/L	P357375	
		Iron	1.27E+03		ug/L	P357375	
		Magnesium	3.31		mg/L	P357375	
		Potassium	1.6		mg/L	P357375	
		Sodium	3.4		mg/L	P357375	
		Zinc	5.0	U	ug/L	P357375	
	EPA 200.8 Rev. 5.4	Aluminum	608	J	ug/L	P357789	
		Antimony	0.055	I	ug/L	P357375	
		Arsenic	0.43		ug/L	P357375	
		Boron**	13.8		ug/L	P357375	
		Cadmium	0.020	U	ug/L	P357375	
		Chromium	0.92	I	ug/L	P357375	
		Copper	0.73	I	ug/L	P357789	
		Lead	0.46		ug/L	P357375	
		Nickel	0.50	U	ug/L	P357375	
		Selenium	0.20	U	ug/L	P357375	
		Silver	0.010	U	ug/L	P357375	
		Thallium	0.10	U	ug/L	P357375	

Ref. Method and Comment:

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

EPA 200.8 Rev. 5.4: The sample was digested and analyzed three times and it appears to be heterogeneous with respect to aluminum.

Sample Location: UNNAMED BRANCH @ HARDAWAY RD 2

Collection Date/Time: 01/15/2019 12:15

Field ID: G2TLHR0041

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2054445	EPA 180.1 Rev. 2.0	Turbidity	5.8		NTU	P357326	
	EPA 300.0 Rev. 2.1	Chloride	3.5		mg Cl/L	P357508	
		Sulfate	1.0		mg SO4/L	P357509	
		Color (true)	43	A	PCU	P357305	
	SM 2320 B-97	Total Alkalinity	3.6		mg CaCO3/L	P357660	
	SM 2540 C-97	TDS	23	I	mg/L	P357767	
	SM 2540 D-97	TSS	4	I	mg/L	P357863	
	SM 4500 F-C-97	Fluoride	0.040	I	mg F/L	P357664	
2054450	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P357490	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.26		mg N/L	P357433	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.15		mg N/L	P357549	
	EPA 365.1 Rev. 2.0	Total-P	0.062		mg P/L	P357360	
	SM 5310 B-00	Organic Carbon	3.9		mg C/L	P357397	
2054455	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.024		mg P/L	P357297	
2054472	EPA 200.7 Rev. 4.4	Barium	11.6		ug/L	P357375	
		Calcium	1.43		mg/L	P357375	
		Iron	670		ug/L	P357375	
		Magnesium	0.79		mg/L	P357375	
		Potassium	0.40	I	mg/L	P357375	
		Sodium	2.0		mg/L	P357375	
		Zinc	5.0	U	ug/L	P357375	
	EPA 200.8 Rev. 5.4	Aluminum	328		ug/L	P357375	
		Antimony	0.050	U	ug/L	P357375	
		Arsenic	0.50		ug/L	P357375	
		Boron**	8.3		ug/L	P357375	
		Cadmium	0.020	U	ug/L	P357375	
		Chromium	0.47	I	ug/L	P357375	
		Copper	0.40	U	ug/L	P357375	
		Lead	0.23	I	ug/L	P357375	
		Nickel	0.50	U	ug/L	P357375	
		Selenium	0.20	U	ug/L	P357375	
		Silver	0.010	U	ug/L	P357375	
		Thallium	0.10	U	ug/L	P357375	

Ref. Method and Comment:

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

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P357326

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P357375

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: P357375

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 200.8 Rev. 5.4
Batch ID: P357789

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Copper	0.40	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357907

Component	Result	Code	Units
Copper	0.40	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357416

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357418

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357508

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357509

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357490

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357432

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357433

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357549

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357360

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357297

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: P357304

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P357305

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P357306

Component	Result	Code	Units
Color (true)	2.5	U	PCU

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

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

Reference Method: SM 2320 B-97
Batch ID: P357660

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

Reference Method: SM 2540 C-97
Batch ID: P357767

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P357863

Component	Result	Code	Units
TSS	2	U	mg/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 4500 F-C-97
Batch ID: P357664

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P357397

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: P357375

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	104		P	85 - 115
Calcium	107		P	85 - 115
Iron	107		P	85 - 115
Magnesium	110		P	85 - 115
Potassium	105		P	85 - 115
Sodium	102		P	85 - 115
Zinc	102		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357375

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	99.1		P	85 - 115
Antimony	97.9		P	85 - 115
Arsenic	103		P	85 - 115
Boron	103		P	85 - 115
Cadmium	103		P	85 - 115
Chromium	104		P	85 - 115
Copper	101		P	85 - 115
Lead	98.5		P	85 - 115
Nickel	103		P	85 - 115
Selenium	99.7		P	85 - 115
Silver	101		P	85 - 115
Thallium	97.0		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357789

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	99.5		P	85 - 115
Copper	98.1		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357907

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Copper	103		P	85 - 115

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357416

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	96.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357418

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357508

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357509

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357490

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	96.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357432

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357433

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357549

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357360

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: P357297

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

Reference Method: SM 2120 B
Batch ID: P357304

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2120 B
Batch ID: P357305

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

Reference Method: SM 2120 B
Batch ID: P357306

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

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 2320 B-97
Batch ID: P357660

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

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 4500 F-C-97
Batch ID: P357664

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.3		P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P357397

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P357375

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054535	Barium	102		P	80 - 120
2054535	Calcium	105		P	80 - 120
2054535	Iron	108		P	80 - 120
2054535	Magnesium	110		P	80 - 120
2054535	Potassium	104		P	80 - 120
2054535	Sodium	102		P	80 - 120
2054535	Zinc	104		P	80 - 120
2054557	Barium	105	106	P/P	80 - 120
2054557	Calcium	103	104	P/P	80 - 120
2054557	Iron	107	108	P/P	80 - 120
2054557	Magnesium	110	110	P/P	80 - 120
2054557	Potassium	107	107	P/P	80 - 120
2054557	Sodium	99.9		P	80 - 120
2054557	Zinc	104	105	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357375

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054535	Aluminum	97.7		P	80 - 120
2054535	Antimony	102		P	80 - 120
2054535	Arsenic	108		P	80 - 120
2054535	Boron	101		P	80 - 120
2054535	Cadmium	106		P	80 - 120
2054535	Chromium	103		P	80 - 120
2054535	Copper	101		P	80 - 120
2054535	Lead	99.8		P	80 - 120
2054535	Nickel	103		P	80 - 120
2054535	Selenium	106		P	80 - 120
2054535	Silver	99.4		P	80 - 120
2054535	Thallium	102		P	80 - 120
2054557	Aluminum	96.9	98.0	P/P	80 - 120
2054557	Antimony	101	101	P/P	80 - 120
2054557	Arsenic	105	107	P/P	80 - 120
2054557	Boron	98.3	99.4	P/P	80 - 120
2054557	Cadmium	106	106	P/P	80 - 120
2054557	Chromium	104	104	P/P	80 - 120
2054557	Copper	101	102	P/P	80 - 120
2054557	Lead	99.4	100	P/P	80 - 120
2054557	Nickel	102	104	P/P	80 - 120
2054557	Selenium	104	106	P/P	80 - 120
2054557	Silver	99.2	99.4	P/P	80 - 120
2054557	Thallium	102	103	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357789

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054090	Aluminum	103	104	P/P	80 - 120
2054090	Copper	100	102	P/P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357907

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2055992	Copper	99.6		P	80 - 120
2056739	Copper	98.6	101	P/P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357416

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054106	Chloride	99.4	99.3	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357418

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054106	Sulfate	98.3	98.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357508

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054507	Chloride	97.0		P	90 - 110
2054583	Chloride	99.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357509

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054507	Sulfate	101		P	90 - 110
2054583	Sulfate	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357490

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054160	Ammonia-N	97.5	97.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357432

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054159	Kjeldahl Nitrogen	102	97.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357433

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054450	Kjeldahl Nitrogen	99.4	98.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357549

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054446	NO2NO3-N	98.0	98.0	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357360

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054446	Total-P	105	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357297

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054165	O-Phosphate-P	97.9	99.6	P/P	90 - 110

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 4500 F-C-97
Batch ID: P357664

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054513	Fluoride	97.8	97.8	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P357397

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2054156	Organic Carbon	97.7	98.3	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P357326

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054294	Turbidity	2.15	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P357375

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054557	Barium	1.37	Spike	P	0 - 20
2054557	Calcium	0.627	Spike	P	0 - 20
2054557	Iron	0.637	Spike	P	0 - 20
2054557	Magnesium	0.113	Spike	P	0 - 20
2054557	Potassium	0.153	Spike	P	0 - 20
2054557	Sodium	0.0975	Spike	P	0 - 20
2054557	Zinc	0.937	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357375

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054557	Aluminum	0.813	Spike	P	0 - 20
2054557	Antimony	0.627	Spike	P	0 - 20
2054557	Arsenic	1.24	Spike	P	0 - 20
2054557	Boron	0.980	Spike	P	0 - 20
2054557	Cadmium	0.240	Spike	P	0 - 20
2054557	Chromium	0.228	Spike	P	0 - 20
2054557	Copper	1.29	Spike	P	0 - 20
2054557	Lead	0.843	Spike	P	0 - 20
2054557	Nickel	1.91	Spike	P	0 - 20
2054557	Selenium	2.17	Spike	P	0 - 20
2054557	Silver	0.224	Spike	P	0 - 20
2054557	Thallium	1.13	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357789

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054090	Aluminum	0.846	Spike	P	0 - 20
2054090	Copper	1.74	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P357907

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2056739	Copper	2.13	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357416

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054106	Chloride	0.0970	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357418

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054106	Sulfate	0.432	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357508

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054507	Chloride	0.0586	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P357509

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054507	Sulfate	0.934	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P357490

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054160	Ammonia-N	0.162	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357432

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054159	Kjeldahl Nitrogen	4.54	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P357433

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054450	Kjeldahl Nitrogen	0.385	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P357549

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054446	NO2NO3-N	0.0	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P357360

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054446	Total-P	0.657	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P357297

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054165	O-Phosphate-P	1.72	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P357304

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054166	Color (true)	1.38	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P357305

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054445	Color (true)	1.30	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P357306

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054105	Color (true)	1.66	Sample	P	0 - 20

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 2320 B-97
Batch ID: P357660

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054513	Total Alkalinity	0.0932	Sample	P	0 - 1.6

Reference Method: SM 2540 C-97
Batch ID: P357767

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054513	TDS	2.21	Sample	P	0 - 10

Quality Assurance Report Precision

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 4500 F-C-97
Batch ID: P357664

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054513	Fluoride	0.0	Spike	P	0 - 3.5

Reference Method: SM 5310 B-00
Batch ID: P357397

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2054156	Organic Carbon	0.586	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A88788

Included Lab Sample IDs: 2054438, 2054441

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Sulfate	99.6	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A88821

Included Lab Sample IDs: 2054440, 2054451, 2054452, 2054453, 2054455

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

Reference Method: SM 2120 B

Run ID: A88822

Included Lab Sample IDs: 2054438, 2054441, 2054442, 2054443, 2054445

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	102	P/P	90 - 115
Color (true)	102	104	P/P	90 - 115
Color (true)	104	102	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A88832

Included Lab Sample IDs: 2054438, 2054441, 2054442, 2054443, 2054445

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	100	P/P	95 - 105

Reference Method: SM 5310 B-00

Run ID: A88861

Included Lab Sample IDs: 2054439, 2054446, 2054447, 2054448, 2054450

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A88887

Included Lab Sample IDs: 2054467, 2054468, 2054469, 2054470, 2054472

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	102	101	P/P	90 - 110
Calcium	101	102	P/P	90 - 110
Iron	102	102	P/P	90 - 110
Magnesium	102	102	P/P	90 - 110
Potassium	99.2	98.8	P/P	90 - 110
Sodium	98.9	98.9	P/P	90 - 110
Zinc	104	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A88889

Included Lab Sample IDs: 2054439, 2054446, 2054447, 2054448, 2054450

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	100	102	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A88896

Included Lab Sample IDs: 2054467, 2054468, 2054469, 2054470, 2054472

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	101	P/P	90 - 110
Antimony	101	102	P/P	90 - 110
Antimony	99.7	101	P/P	90 - 110
Arsenic	102	103	P/P	90 - 110
Arsenic	102	102	P/P	90 - 110
Cadmium	101	103	P/P	90 - 110
Cadmium	103	104	P/P	90 - 110
Chromium	105	105	P/P	90 - 110
Chromium	105	106	P/P	90 - 110
Copper	103	103	P/P	90 - 110
Lead	102	103	P/P	90 - 110
Lead	103	103	P/P	90 - 110
Nickel	103	104	P/P	90 - 110
Nickel	103	103	P/P	90 - 110
Selenium	101	102	P/P	90 - 110
Selenium	102	103	P/P	90 - 110
Thallium	93.1	93.5	P/P	90 - 110
Thallium	95.0	93.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88898

Included Lab Sample IDs: 2054439, 2054447, 2054448

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88899

Included Lab Sample IDs: 2054450

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.4	99.9	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A88900

Included Lab Sample IDs: 2054442, 2054443, 2054445

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A88905

Included Lab Sample IDs: 2054439, 2054446, 2054447, 2054448, 2054450

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	103	P/P	90 - 110
Kjeldahl Nitrogen	99.2	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A88910

Included Lab Sample IDs: 2054439, 2054446, 2054447, 2054448, 2054450

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A88913

Included Lab Sample IDs: 2054446

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.8	99.2	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A88947

Included Lab Sample IDs: 2054438, 2054441, 2054442, 2054443, 2054445

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	103	P/P	90 - 110
Total Alkalinity	103	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A88947

Included Lab Sample IDs: 2054438, 2054441, 2054442, 2054443, 2054445

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A88956

Included Lab Sample IDs: 2054467, 2054468, 2054469, 2054470, 2054472

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Boron	101	99.8	P/P	90 - 110
Boron	104	101	P/P	90 - 110
Silver	98.3	98.5	P/P	90 - 110
Silver	98.5	99.2	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A89030

Included Lab Sample IDs: 2054467, 2054469

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	99.2	101	P/P	90 - 110
Copper	96.8	100	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A89155

Included Lab Sample IDs: 2054469

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

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

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

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					2.15	
EPA 200.7 Rev. 4.4	Barium	104	102	105	106		1.37
	Calcium	107	105	103	104		0.627
	Iron	107	108	107	108		0.637
	Magnesium	110	110	110	110		0.113
	Potassium	105	104	107	107		0.153
	Sodium	102	102	99.9			0.0975
	Zinc	102	104	104	105		0.937
EPA 200.8 Rev. 5.4	Aluminum	99.1	97.7	96.9	98.0		0.813
	Aluminum	99.5	103	104			0.846
	Antimony	97.9	102	101	101		0.627
	Arsenic	103	108	105	107		1.24
	Boron	103	101	98.3	99.4		0.980
	Cadmium	103	106	106	106		0.240
	Chromium	104	103	104	104		0.228
	Copper	101	101	101	102		1.29
	Copper	98.1	100	102			1.74
	Copper	103	99.6	98.6	101		2.13
	Lead	98.5	99.8	99.4	100		0.843
	Nickel	103	103	102	104		1.91
	Selenium	99.7	106	104	106		2.17
	Silver	101	99.4	99.2	99.4		0.224
	Thallium	97.0	102	102	103		1.13
EPA 300.0 Rev. 2.1	Chloride	96.6	99.4	99.3			0.0970
	Chloride	100	97.0	99.6		0.0586	
	Sulfate	96.4	98.3	98.8			0.432
	Sulfate	103	101	101		0.934	
EPA 350.1 Rev. 2.0	Ammonia-N	96.7	97.5	97.8			0.162
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.2	102	97.1			4.54
	Kjeldahl Nitrogen	102	99.4	98.9			0.385
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.5	98.0	98.0			0.0
EPA 365.1 Rev. 2.0	Total-P	104	105	106			0.657
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.1	97.9	99.6			1.72
SM 2120 B	Color (true)	100				1.38	
	Color (true)	101				1.30	
	Color (true)	102				1.66	
SM 2320 B-97	Total Alkalinity	102				0.286	
	Total Alkalinity	102				0.0932	
SM 2540 C-97	TDS					2.21	
SM 4500 F-C-97	Fluoride	97.9	96.7	96.7			0.0
	Fluoride	98.3	97.8	97.8			0.0
SM 5310 B-00	Organic Carbon	98.2	97.7	98.3			0.586

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2054438, 2054441, 2054442, 2054443, 2054445
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2054467, 2054468, 2054469, 2054470, 2054472
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2054467, 2054468, 2054469, 2054470, 2054472
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2054438, 2054441, 2054442, 2054443, 2054445

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2054438, 2054441, 2054442, 2054443, 2054445
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2054439, 2054446, 2054447, 2054448, 2054450
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2054439, 2054446, 2054447, 2054448, 2054450
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2054439, 2054446, 2054447, 2054448, 2054450
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2054439, 2054446, 2054447, 2054448, 2054450
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2054440, 2054451, 2054452, 2054453, 2054455
SM 2120 B / E31780	True Color measured at 450 nm	2054438, 2054441, 2054442, 2054443, 2054445
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2054438, 2054441, 2054442, 2054443, 2054445
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2054438, 2054441, 2054442, 2054443, 2054445
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2054438, 2054441, 2054442, 2054443, 2054445
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2054438, 2054441, 2054442, 2054443, 2054445
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2054439, 2054446, 2054447, 2054448, 2054450

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	01/15/2019			01/15/2019 17:10	Megan Treadwell	2054438, 2054441, 2054442, 2054443, 2054445
EPA 200.7 Rev. 4.4	01/15/2019	01/16/2019 16:40	Elliott D. Healy	01/17/2019 18:38	Betina Topolski	2054467
	01/15/2019	01/16/2019 16:40	Elliott D. Healy	01/17/2019 18:45	Betina Topolski	2054468
	01/15/2019	01/16/2019 16:40	Elliott D. Healy	01/17/2019 18:52	Betina Topolski	2054469
	01/15/2019	01/16/2019 16:40	Elliott D. Healy	01/17/2019 19:00	Betina Topolski	2054470
	01/15/2019	01/16/2019 16:40	Elliott D. Healy	01/17/2019 19:07	Betina Topolski	2054472
EPA 200.8 Rev. 5.4	01/15/2019	01/16/2019 16:40	Elliott D. Healy	01/18/2019 02:53	Allison Taylor	2054467
	01/15/2019	01/16/2019 16:40	Elliott D. Healy	01/18/2019 03:31	Allison Taylor	2054468
	01/15/2019	01/16/2019 16:40	Elliott D. Healy	01/18/2019 03:40	Allison Taylor	2054469
	01/15/2019	01/16/2019 16:40	Elliott D. Healy	01/18/2019 03:50	Allison Taylor	2054470
	01/15/2019	01/16/2019 16:40	Elliott D. Healy	01/18/2019 03:59	Allison Taylor	2054472
	01/15/2019	01/16/2019 16:40	Elliott D. Healy	01/22/2019 22:07	Allison Taylor	2054467
	01/15/2019	01/16/2019 16:40	Elliott D. Healy	01/22/2019 22:16	Allison Taylor	2054468
	01/15/2019	01/16/2019 16:40	Elliott D. Healy	01/22/2019 22:26	Allison Taylor	2054469
	01/15/2019	01/16/2019 16:40	Elliott D. Healy	01/22/2019 23:04	Allison Taylor	2054470
	01/15/2019	01/16/2019 16:40	Elliott D. Healy	01/22/2019 23:14	Allison Taylor	2054472
	01/15/2019	01/24/2019 15:20	Elliott D. Healy	01/25/2019 16:07	Allison Taylor	2054467
	01/15/2019	01/24/2019 15:20	Elliott D. Healy	01/25/2019 16:14	Allison Taylor	2054469
	01/15/2019	01/31/2019 11:50	Elliott D. Healy	02/01/2019 06:53	Allison Taylor	2054469
	01/15/2019			01/17/2019 00:13	Lipi Saha	2054438
	01/15/2019			01/17/2019 00:25	Lipi Saha	2054441
EPA 300.0 Rev. 2.1	01/15/2019			01/17/2019 18:39	Lipi Saha	2054442
	01/15/2019			01/17/2019 18:52	Lipi Saha	2054443
	01/15/2019			01/17/2019 19:04	Lipi Saha	2054445
	01/15/2019			01/17/2019 11:00	Ping Hua	2054439
	01/15/2019			01/17/2019 11:02	Ping Hua	2054446
EPA 350.1 Rev. 2.0	01/15/2019			01/17/2019 11:03	Ping Hua	2054447
	01/15/2019			01/17/2019 11:05	Ping Hua	2054448
	01/15/2019			01/17/2019 11:06	Ping Hua	2054450
	01/15/2019	01/17/2019 11:30	Adrian Shelby	01/18/2019 10:07	Joseph Suarez	2054439
	01/15/2019	01/17/2019 11:30	Adrian Shelby	01/18/2019 10:08	Joseph Suarez	2054446
EPA 351.2 Rev. 2.0	01/15/2019	01/17/2019 11:30	Adrian Shelby	01/18/2019 10:10	Joseph Suarez	2054447
	01/15/2019	01/17/2019 11:30	Adrian Shelby	01/18/2019 10:11	Joseph Suarez	2054448
	01/15/2019	01/17/2019 11:30	Adrian Shelby	01/18/2019 10:32	Joseph Suarez	2054450
	01/15/2019			01/18/2019 10:42	Beverly Y. Sanders	2054446
	01/15/2019			01/18/2019 10:43	Beverly Y. Sanders	2054447
EPA 353.2 Rev. 2.0	01/15/2019			01/18/2019 10:44	Beverly Y. Sanders	2054448
	01/15/2019			01/18/2019 10:46	Beverly Y. Sanders	2054450
	01/15/2019			01/18/2019 12:46	Beverly Y. Sanders	2054439
	01/15/2019					

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	01/15/2019	01/16/2019 12:15	Sima Feizi	01/17/2019 15:27	Rosalyn Ballman	2054450
	01/15/2019	01/16/2019 12:15	Sima Feizi	01/17/2019 17:07	Rosalyn Ballman	2054439
	01/15/2019	01/16/2019 12:15	Sima Feizi	01/17/2019 17:08	Rosalyn Ballman	2054447
	01/15/2019	01/16/2019 12:15	Sima Feizi	01/17/2019 17:09	Rosalyn Ballman	2054448
	01/15/2019	01/16/2019 12:15	Sima Feizi	01/18/2019 14:58	Rosalyn Ballman	2054446
EPA 365.1 Rev. 2.0 dissolved	01/15/2019			01/15/2019 14:53	Jhamieka S. Greenwood	2054440
	01/15/2019			01/15/2019 14:54	Jhamieka S. Greenwood	2054451
	01/15/2019			01/15/2019 14:55	Jhamieka S. Greenwood	2054452, 2054453
	01/15/2019			01/15/2019 14:56	Jhamieka S. Greenwood	2054455
SM 2120 B	01/15/2019			01/15/2019 16:02	Chelsea Hernandez	2054441, 2054442
	01/15/2019			01/15/2019 16:03	Chelsea Hernandez	2054443
	01/15/2019			01/15/2019 16:08	Chelsea Hernandez	2054445
	01/15/2019			01/15/2019 16:20	Chelsea Hernandez	2054438
SM 2320 B-97	01/15/2019			01/21/2019 20:37	Dale L. Simmons	2054438
	01/15/2019			01/21/2019 20:49	Dale L. Simmons	2054441
	01/15/2019			01/21/2019 21:00	Dale L. Simmons	2054442
	01/15/2019			01/21/2019 23:07	Dale L. Simmons	2054443
	01/15/2019			01/21/2019 23:18	Dale L. Simmons	2054445
SM 2540 C-97	01/15/2019			01/17/2019 13:55	Yijie Li	2054438, 2054441, 2054442, 2054443, 2054445
SM 2540 D-97	01/15/2019			01/17/2019 13:55	Yijie Li	2054438, 2054441, 2054442, 2054443, 2054445
SM 4500 F-C-97	01/15/2019			01/21/2019 20:37	Dale L. Simmons	2054438
	01/15/2019			01/21/2019 20:49	Dale L. Simmons	2054441
	01/15/2019			01/21/2019 21:00	Dale L. Simmons	2054442
	01/15/2019			01/21/2019 23:07	Dale L. Simmons	2054443
	01/15/2019			01/21/2019 23:18	Dale L. Simmons	2054445
SM 5310 B-00	01/15/2019			01/16/2019 22:08	Megan Treadwell	2054439
	01/15/2019			01/16/2019 22:45	Megan Treadwell	2054446
	01/15/2019			01/16/2019 22:57	Megan Treadwell	2054447
	01/15/2019			01/16/2019 23:09	Megan Treadwell	2054448
	01/15/2019			01/16/2019 23:21	Megan Treadwell	2054450