

Chemical Analysis Report

SE-DIST-2020-09-23-01

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

Event Description: **SMP- Miami 2020 #2**
Request ID: **RQ-2020-09-21-48**
Customer: **SE-DIST**
Project ID: **SMP**

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

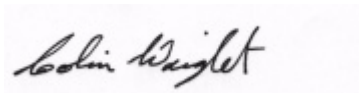
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This Report replaces the previous Report Serial Number: 0125037

Report Comment: Preparation date/time corrected for some analytes. No results modified from the previous report.

Revision certified by: Colin Wright, Program Administrator

Date Certified: 29-OCT-2020 13:30



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 by the Florida Department of Health Environmental Laboratory Certification Program 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: Hazel Street East Key A

Collection Date/Time: 09/22/2020 11:50

Field ID: G4SE0135

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2197623	EPA 200.7 Rev. 4.4	Chromium	12	I	ug/L	P387973	
		Iron	120	U	ug/L	P387800	
		Manganese	67		ug/L	P387800	
		Zinc	20	U	ug/L	P387800	
	EPA 200.8 Rev. 5.4	Aluminum	50	U	ug/L	P387800	
		Antimony	0.63	I	ug/L	P387800	
		Arsenic	4.79		ug/L	P387800	
		Cadmium	0.20	U	ug/L	P387800	
		Copper	12.2		ug/L	P387800	
		Lead	2.0	U	ug/L	P387800	
		Nickel	2.0	U	ug/L	P387800	
		Selenium	0.80	U	ug/L	P387800	
		Silver	0.10	U	ug/L	P387800	
		Thallium	1.0	U	ug/L	P387800	

Ref. Method and Comment:

EPA 200.8 Rev. 5.4: The copper result was confirmed in the undigested sample on 10/01/2020.

Sample Location: Pelican Cay Key A

Collection Date/Time: 09/22/2020 12:00

Field ID: G4SE0134

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2197610	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P387751	
	EPA 300.0 Rev. 2.1	Bromide	60		mg Br/L	P388432	
	SM 2320 B-2011	Total Alkalinity	138		mg CaCO3/L	P387835	
	SM 2540 D-2011	TSS	4	I	mg/L	P388204	
	SM 4500 F-C-2011	Fluoride	1.1		mg F/L	P387833	
2197611	EPA 350.1 Rev. 2.0	Ammonia-N	0.10		mg N/L	P387885	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P387869	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.014		mg N/L	P387945	
	EPA 365.1 Rev. 2.0	Total-P	0.009	I	mg P/L	P387921	
	SM 5310 B-2011	Organic Carbon	7.6		mg C/L	P387838	
2197612	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P387760	
2197622	EPA 200.7 Rev. 4.4	Chromium	11	I	ug/L	P387973	
		Iron	120	U	ug/L	P387800	
		Manganese	4.0	U	ug/L	P387800	
		Zinc	20	U	ug/L	P387800	
	EPA 200.8 Rev. 5.4	Aluminum	50	U	ug/L	P387800	
		Antimony	0.50	U	ug/L	P387800	
		Arsenic	2.11		ug/L	P387800	
		Cadmium	0.20	U	ug/L	P387800	
		Copper	1.6	U	ug/L	P387800	
		Lead	2.0	U	ug/L	P387800	
		Nickel	2.0	U	ug/L	P387800	
		Selenium	0.80	U	ug/L	P387800	
		Silver	0.10	U	ug/L	P387800	
		Thallium	1.0	U	ug/L	P387800	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

Sample Location: Pelican Cay Key A

Collection Date/Time: 09/22/2020 12:10

Field ID: FB_09222020

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2197613	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P387751	
	EPA 300.0 Rev. 2.1	Bromide	0.013	U	mg Br/L	P388432	
	SM 2320 B-2011	Total Alkalinity	0.65	U	mg CaCO3/L	P387828	
	SM 2540 D-2011	TSS	2	U	mg/L	P388201	
	SM 4500 F-C-2011	Fluoride	0.035	U	mg F/L	P387943	
2197614	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P387887	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P387868	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P387911	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P388156	
	SM 5310 B-2011	Organic Carbon	0.67	I	mg C/L	P387981	
2197615	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P387759	
2197624	EPA 200.7 Rev. 4.4	Iron	30	U	ug/L	P387926	
		Manganese	1.0	U	ug/L	P387926	
		Zinc	5.0	U	ug/L	P387926	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U	ug/L	P387926	
		Antimony	0.050	U	ug/L	P387926	
		Arsenic	0.050	U	ug/L	P387926	
		Cadmium	0.020	U	ug/L	P387926	
		Chromium	0.40	U	ug/L	P387926	
		Copper	0.40	U	ug/L	P387926	
		Lead	0.20	U	ug/L	P387926	
		Nickel	0.50	U	ug/L	P387926	
		Selenium	0.20	U	ug/L	P387926	
		Silver	0.010	U	ug/L	P387926	
		Thallium	0.10	U	ug/L	P387926	

Ref. Method and Comment:

SM 2540 D-2011: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.

SM 5310 B-2011: The result was confirmed on 10/02/2020.

Sample Location: C-111 West

Collection Date/Time: 09/22/2020 13:00

Field ID: G4SE0127

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2197607	EPA 180.1 Rev. 2.0	Turbidity	0.90		NTU	P387751	
	EPA 300.0 Rev. 2.1	Chloride	53		mg Cl/L	P388030	
		Sulfate	1.8		mg SO4/L	P388032	
	SM 2120 B-2011	Color (true)	30		PCU	P387763	
	SM 2320 B-2011	Total Alkalinity	193		mg CaCO3/L	P387828	
	SM 2540 C-2011	TDS	291		mg/L	P388196	
	SM 2540 D-2011	TSS	2	I	mg/L	P388199	
	SM 4500 F-C-2011	Fluoride	0.20		mg F/L	P387943	
2197608	EPA 350.1 Rev. 2.0	Ammonia-N	0.22		mg N/L	P387887	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.91		mg N/L	P387868	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.006	I	mg N/L	P387787	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P388156	
	SM 5310 B-2011	Organic Carbon	10		mg C/L	P387981	
2197609	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P387759	

Ref. Method and Comment:

SM 2540 D-2011: 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: P387751

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P387800

Component	Result	Code	Units
Iron	30	U	ug/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P387926

Component	Result	Code	Units
Iron	30	U	ug/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P387973

Component	Result	Code	Units
Chromium	1.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P387800

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	U	ug/L
Cadmium	0.020	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: P387926

Component	Result	Code	Units
Aluminum	5.0	U	ug/L
Antimony	0.050	U	ug/L
Arsenic	0.050	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

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P387926

Component	Result	Code	Units
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388030

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388032

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388432

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387885

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387887

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387868

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387869

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387787

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387911

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387945

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P387921

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388156

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387759

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387760

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

Reference Method: SM 2120 B-2011
Batch ID: P387763

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-2011
Batch ID: P387828

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

Reference Method: SM 2320 B-2011
Batch ID: P387835

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

Quality Assurance Report

Method Blank Results

Reference Method: SM 2540 C-2011
Batch ID: P388196

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P388199

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P388201

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-2011
Batch ID: P388204

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-2011
Batch ID: P387833

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-2011
Batch ID: P387943

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-2011
Batch ID: P387838

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

Reference Method: SM 5310 B-2011
Batch ID: P387981

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: P387800

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	112		P	85 - 115
Manganese	108		P	85 - 115
Zinc	101		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P387926

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	106		P	85 - 115
Manganese	101		P	85 - 115
Zinc	94.7		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P387973

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chromium	96.0		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P387800

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	105		P	85 - 115
Antimony	108		P	85 - 115
Arsenic	102		P	85 - 115
Cadmium	103		P	85 - 115
Copper	99.4		P	85 - 115
Lead	104		P	85 - 115
Nickel	101		P	85 - 115
Selenium	100		P	85 - 115
Silver	104		P	85 - 115
Thallium	105		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P387926

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	98.4		P	80 - 120
Antimony	102		P	80 - 120
Arsenic	100		P	80 - 120
Cadmium	96.8		P	80 - 120
Chromium	99.7		P	80 - 120
Copper	99.0		P	80 - 120
Lead	97.4		P	80 - 120
Nickel	99.2		P	80 - 120
Selenium	99.6		P	80 - 120
Silver	96.7		P	80 - 120
Thallium	97.9		P	80 - 120

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388030

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388032

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388432

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387885

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387887

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	94.6		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387868

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387869

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: P387787

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	98.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387911

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	98.0		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387945

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: P387921

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388156

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387759

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387760

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

Reference Method: SM 2120 B-2011
Batch ID: P387763

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

Reference Method: SM 2320 B-2011
Batch ID: P387828

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	93 - 104

Reference Method: SM 2320 B-2011
Batch ID: P387835

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	93 - 104

Reference Method: SM 4500 F-C-2011
Batch ID: P387833

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.2		P	90 - 106

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P387943

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	100		P	90 - 106

Reference Method: SM 5310 B-2011
Batch ID: P387838

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.8		P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P387981

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.5		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P387800

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2197649	Iron	108	110	P/P	70 - 130
2197649	Manganese	105	103	P/P	70 - 130
2197649	Zinc	99.7	98.0	P/P	70 - 130

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P387926

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2197555	Iron	111	108	P/P	80 - 120
2197555	Manganese	104	104	P/P	80 - 120
2197555	Zinc	96.0	95.9	P/P	80 - 120
2197741	Iron	113		P	80 - 120
2197741	Manganese	105		P	80 - 120
2197741	Zinc	94.2		P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P387973

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2197292	Chromium	97.0	94.8	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P387800

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2197649	Aluminum	117	118	P/P	70 - 130
2197649	Antimony	117	117	P/P	70 - 130
2197649	Arsenic	117	118	P/P	70 - 130
2197649	Cadmium	110	106	P/P	70 - 130
2197649	Copper	116	115	P/P	70 - 130
2197649	Lead	108	109	P/P	70 - 130
2197649	Nickel	111	110	P/P	70 - 130
2197649	Selenium	120	118	P/P	70 - 130
2197649	Silver	102	103	P/P	70 - 130
2197649	Thallium	107	110	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P387926

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2197555	Aluminum	98.1	97.4	P/P	80 - 120
2197555	Antimony	101	101	P/P	80 - 120
2197555	Arsenic	99.3	98.9	P/P	80 - 120
2197555	Cadmium	96.9	96.6	P/P	80 - 120
2197555	Chromium	99.1	98.9	P/P	80 - 120
2197555	Copper	98.3	98.1	P/P	80 - 120
2197555	Lead	97.8	96.9	P/P	80 - 120
2197555	Nickel	97.8	97.7	P/P	80 - 120
2197555	Selenium	99.4	97.9	P/P	80 - 120
2197555	Silver	97.3	97.0	P/P	80 - 120
2197555	Thallium	98.5	99.4	P/P	80 - 120
2197741	Aluminum	93.9		P	80 - 120

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P387926

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2197741	Antimony	101		P	80 - 120
2197741	Arsenic	96.7		P	80 - 120
2197741	Cadmium	96.2		P	80 - 120
2197741	Chromium	96.3		P	80 - 120
2197741	Copper	95.4		P	80 - 120
2197741	Lead	94.1		P	80 - 120
2197741	Nickel	95.0		P	80 - 120
2197741	Selenium	95.8		P	80 - 120
2197741	Silver	94.8		P	80 - 120
2197741	Thallium	95.2		P	80 - 120

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388030

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2197327	Chloride	103		P	90 - 110
2197587	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388032

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2197327	Sulfate	100		P	90 - 110
2197587	Sulfate	98.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388432

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2196936	Bromide	99.0	101	P/P	90 - 110
2197633	Bromide	95.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387885

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2197248	Ammonia-N	97.9	94.3	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387887

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2197593	Ammonia-N	102	99.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387868

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2197600	Kjeldahl Nitrogen	96.5	101	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387869

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2197611	Kjeldahl Nitrogen	96.7	97.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387787

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2197561	NO2NO3-N	94.8		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387911

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2197552	NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387945

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2198140	NO2NO3-N	99.5	99.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P387921

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2197282	Total-P	107	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388156

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2197552	Total-P	104	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387759

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2197562	O-Phosphate-P	98.7	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387760

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2197571	O-Phosphate-P	99.0	97.9	P/P	90 - 110

Reference Method: SM 4500 F-C-2011
Batch ID: P387833

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2197635	Fluoride	99.0	101	P/P	94 - 107

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 4500 F-C-2011
Batch ID: P387943

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2197717	Fluoride	100	100	P/P	94 - 107

Reference Method: SM 5310 B-2011
Batch ID: P387838

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2197570	Organic Carbon	96.3	97.0	P/P	85 - 115

Reference Method: SM 5310 B-2011
Batch ID: P387981

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2197588	Organic Carbon	94.9	98.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P387751

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197566	Turbidity	0.367	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P387800

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197649	Iron	1.73	Spike	P	0 - 20
2197649	Manganese	2.05	Spike	P	0 - 20
2197649	Zinc	1.73	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P387926

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197555	Iron	1.97	Spike	P	0 - 20
2197555	Manganese	0.369	Spike	P	0 - 20
2197555	Zinc	0.132	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P387973

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197292	Chromium	2.21	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P387800

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197649	Aluminum	0.673	Spike	P	0 - 20
2197649	Antimony	0.196	Spike	P	0 - 20
2197649	Arsenic	0.770	Spike	P	0 - 20
2197649	Cadmium	3.85	Spike	P	0 - 20
2197649	Copper	0.942	Spike	P	0 - 20
2197649	Lead	0.566	Spike	P	0 - 20
2197649	Nickel	0.326	Spike	P	0 - 20
2197649	Selenium	1.44	Spike	P	0 - 20
2197649	Silver	0.915	Spike	P	0 - 20
2197649	Thallium	3.35	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P387926

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197555	Aluminum	0.688	Spike	P	0 - 20
2197555	Antimony	0.0840	Spike	P	0 - 20
2197555	Arsenic	0.402	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P387926

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197555	Cadmium	0.379	Spike	P	0 - 20
2197555	Chromium	0.187	Spike	P	0 - 20
2197555	Copper	0.189	Spike	P	0 - 20
2197555	Lead	0.953	Spike	P	0 - 20
2197555	Nickel	0.111	Spike	P	0 - 20
2197555	Selenium	1.57	Spike	P	0 - 20
2197555	Silver	0.312	Spike	P	0 - 20
2197555	Thallium	0.952	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388030

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197327	Chloride	0.509	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388032

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197327	Sulfate	0.774	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P388432

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2196936	Bromide	1.83	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387885

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197248	Ammonia-N	2.57	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P387887

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197593	Ammonia-N	1.86	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387868

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197600	Kjeldahl Nitrogen	2.62	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P387869

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197611	Kjeldahl Nitrogen	0.497	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387787

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197561	NO2NO3-N	0.400	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387911

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197552	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P387945

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2198140	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P387921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197282	Total-P	2.37	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P388156

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197552	Total-P	3.37	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387759

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197562	O-Phosphate-P	0.485	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P387760

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197571	O-Phosphate-P	1.06	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B-2011
Batch ID: P387763

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197592	Color (true)	0.446	Sample	P	0 - 20

Reference Method: SM 2320 B-2011
Batch ID: P387828

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197717	Total Alkalinity	0.488	Sample	P	0 - 8.1

Reference Method: SM 2320 B-2011
Batch ID: P387835

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197635	Total Alkalinity	2.15	Sample	P	0 - 8.1

Reference Method: SM 2540 C-2011
Batch ID: P388196

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197560	TDS	4.18	Sample	P	0 - 10

Reference Method: SM 4500 F-C-2011
Batch ID: P387833

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197635	Fluoride	1.44	Spike	P	0 - 2.8

Reference Method: SM 4500 F-C-2011
Batch ID: P387943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197717	Fluoride	0.0	Spike	P	0 - 2.8

Reference Method: SM 5310 B-2011
Batch ID: P387838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197570	Organic Carbon	0.655	Spike	P	0 - 20

Reference Method: SM 5310 B-2011
Batch ID: P387981

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2197588	Organic Carbon	2.99	Spike	P	0 - 20

Quality Assurance Report Precision

* Sample, spike and/or laboratory control sample precision (LCS) is reported.

Quality Assurance Report Calibration Verification

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A101160

Included Lab Sample IDs: 2197607, 2197610, 2197613

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.5	101	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A101162

Included Lab Sample IDs: 2197609, 2197612, 2197615

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

Reference Method: SM 2120 B-2011

Run ID: A101163

Included Lab Sample IDs: 2197607

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.1	99.4	P/P	90 - 115

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A101175

Included Lab Sample IDs: 2197608

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	97.5	P/P	90 - 110

Reference Method: SM 2320 B-2011

Run ID: A101193

Included Lab Sample IDs: 2197607, 2197610, 2197613

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.3	99.4	P/P	90 - 110
Total Alkalinity	99.7	100	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A101193

Included Lab Sample IDs: 2197610

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

Reference Method: SM 5310 B-2011

Run ID: A101194

Included Lab Sample IDs: 2197611

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.3	98.9	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A101210

Included Lab Sample IDs: 2197608, 2197611, 2197614

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	102	100	P/P	90 - 110
Ammonia-N	95.9	98.6	P/P	90 - 110
Ammonia-N	96.4	98.6	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A101217

Included Lab Sample IDs: 2197622, 2197623

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	106	106	P/P	90 - 110
Manganese	105	105	P/P	90 - 110
Zinc	100	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A101223

Included Lab Sample IDs: 2197614

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.0	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A101228

Included Lab Sample IDs: 2197608, 2197611, 2197614

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	100	99.9	P/P	90 - 110
Kjeldahl Nitrogen	94.9	100	P/P	90 - 110

Reference Method: SM 4500 F-C-2011

Run ID: A101239

Included Lab Sample IDs: 2197607, 2197613

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A101241

Included Lab Sample IDs: 2197611

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	100	102	P/P	90 - 110

Reference Method: SM 5310 B-2011

Run ID: A101262

Included Lab Sample IDs: 2197608, 2197614

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.0	96.2	P/P	90 - 110
Organic Carbon	96.2	98.4	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A101267

Included Lab Sample IDs: 2197624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	102	102	P/P	95 - 105
Manganese	99.7	101	P/P	95 - 105
Zinc	96.6	96.2	P/P	95 - 105

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A101281

Included Lab Sample IDs: 2197607

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A101291

Included Lab Sample IDs: 2197622, 2197623

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A101296

Included Lab Sample IDs: 2197622, 2197623

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	105	105	P/P	90 - 110
Antimony	108	108	P/P	90 - 110
Arsenic	99.7	100	P/P	90 - 110
Cadmium	101	100	P/P	90 - 110
Copper	99.6	110	P/P	90 - 110
Lead	102	101	P/P	90 - 110
Nickel	97.4	107	P/P	90 - 110
Selenium	101	105	P/P	90 - 110
Silver	102	102	P/P	90 - 110
Thallium	96.6	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A101310

Included Lab Sample IDs: 2197611

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	93.8	94.2	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A101347

Included Lab Sample IDs: 2197624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.4	98.5	P/P	90 - 110
Antimony	105	105	P/P	90 - 110
Arsenic	98.6	98.1	P/P	90 - 110
Cadmium	97.6	98.3	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A101347

Included Lab Sample IDs: 2197624

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	98.1	97.8	P/P	90 - 110
Copper	96.3	96.5	P/P	90 - 110
Lead	99.0	98.0	P/P	90 - 110
Nickel	97.1	96.4	P/P	90 - 110
Selenium	99.0	97.3	P/P	90 - 110
Silver	99.1	99.4	P/P	90 - 110
Thallium	95.8	94.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A101384

Included Lab Sample IDs: 2197608, 2197614

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A101391

Included Lab Sample IDs: 2197610, 2197613

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	102	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			LCS	Precision SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						0.367	
EPA 200.7 Rev. 4.4	Chromium	96.0	97.0	94.8				2.21
	Iron	112	108	110				1.73
	Iron	106	111	108	113			1.97
	Manganese	108	105	103				2.05
	Manganese	101	104	104	105			0.369
	Zinc	101	99.7	98.0				1.73
	Zinc	94.7	96.0	95.9	94.2			0.132
EPA 200.8 Rev. 5.4	Aluminum	105	117	118				0.673
	Aluminum	98.4	98.1	97.4	93.9			0.688
	Antimony	108	117	117				0.196
	Antimony	102	101	101	101			0.0840
	Arsenic	102	117	118				0.770
	Arsenic	100	99.3	98.9	96.7			0.402
	Cadmium	103	110	106				3.85
	Cadmium	96.8	96.9	96.6	96.2			0.379
	Chromium	99.7	99.1	98.9	96.3			0.187
	Copper	99.4	116	115				0.942
	Copper	99.0	98.3	98.1	95.4			0.189
	Lead	104	108	109				0.566
	Lead	97.4	97.8	96.9	94.1			0.953
	Nickel	101	111	110				0.326
	Nickel	99.2	97.8	97.7	95.0			0.111
	Selenium	100	120	118				1.44
	Selenium	99.6	99.4	97.9	95.8			1.57
	Silver	104	102	103				0.915
	Silver	96.7	97.3	97.0	94.8			0.312
	Thallium	105	107	110				3.35
	Thallium	97.9	98.5	99.4	95.2			0.952
EPA 300.0 Rev. 2.1	Bromide	106	99.0	101	95.7			1.83
	Chloride	101	103	104			0.509	
	Sulfate	98.8	100	98.4			0.774	
EPA 350.1 Rev. 2.0	Ammonia-N	101	97.9	94.3				2.57
	Ammonia-N	94.6	102	99.6				1.86
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.0	96.5	101				2.62
	Kjeldahl Nitrogen	98.7	96.7	97.3				0.497
EPA 353.2 Rev. 2.0	NO2NO3-N	98.5	94.8					0.400
	NO2NO3-N	98.0	99.5	99.5				0.0
	NO2NO3-N	99.5	99.5	99.5				0.0
EPA 365.1 Rev. 2.0	Total-P	105	107	104				2.37
	Total-P	106	104	107				3.37
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.5	98.7	99.3				0.485
	O-Phosphate-P	102	99.0	97.9				1.06
SM 2120 B-2011	Color (true)	98.4					0.446	
SM 2320 B-2011	Total Alkalinity	101					0.488	
	Total Alkalinity	102					2.15	
SM 2540 C-2011	TDS						4.18	
SM 4500 F-C-2011	Fluoride	97.2	99.0	101				1.44
	Fluoride	100	100	100				0.0
SM 5310 B-2011	Organic Carbon	97.8	96.3	97.0				0.655
	Organic Carbon	97.5	94.9	98.6				2.99

Reference Method Descriptions

Method	Description	Associated Samples
EPA 180.1 Rev. 2.0	Turbidity in aqueous matrices	2197607, 2197610, 2197613
EPA 200.7 Rev. 4.4	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2197622, 2197623, 2197624
EPA 200.8 Rev. 5.4	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2197622, 2197623, 2197624
EPA 300.0 Rev. 2.1	Bromide in aqueous matrices	2197610, 2197613
EPA 300.0 Rev. 2.1	Chloride in aqueous matrices	2197607
EPA 300.0 Rev. 2.1	Sulfate in aqueous matrices	2197607
EPA 350.1 Rev. 2.0	Ammonia in aqueous matrices as mg N/L	2197608, 2197611, 2197614
EPA 351.2 Rev. 2.0	Total Kjeldahl Nitrogen in aqueous matrices	2197608, 2197611, 2197614
EPA 353.2 Rev. 2.0	Nitrite/Nitrate in aqueous matrices as mg N/L	2197608, 2197611, 2197614
EPA 365.1 Rev. 2.0	Total Phosphorus in aqueous matrices as mg P/L	2197608, 2197611, 2197614
EPA 365.1 Rev. 2.0 dissolved	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2197609, 2197612, 2197615
SM 2120 B-2011	True Color measured at 450 nm (not valid for NPDES monitoring)	2197607
SM 2320 B-2011	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2197607, 2197610, 2197613
SM 2540 C-2011	Total Dissolved Solids in aqueous matrices	2197607
SM 2540 D-2011	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2197607, 2197610, 2197613
SM 4500 F-C-2011	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2197607, 2197610, 2197613
SM 5310 B-2011	Nonpurgeable Organic Carbon in aqueous matrices	2197608, 2197611, 2197614

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	09/23/2020			09/23/2020 15:04	Yen Ta	2197607, 2197610, 2197613
EPA 200.7 Rev. 4.4	09/23/2020	09/24/2020 13:15	Elliott D. Healy	09/25/2020 23:11	Betina Topolski	2197622
	09/23/2020	09/24/2020 13:15	Elliott D. Healy	09/25/2020 23:19	Betina Topolski	2197623
	09/23/2020	09/28/2020 14:35	Elliott D. Healy	09/29/2020 12:59	Betina Topolski	2197624
	09/23/2020	09/29/2020 15:30	Elliott D. Healy	09/30/2020 14:25	Betina Topolski	2197622
	09/23/2020	09/29/2020 15:30	Elliott D. Healy	09/30/2020 15:02	Betina Topolski	2197623
EPA 200.8 Rev. 5.4	09/23/2020	09/24/2020 13:15	Elliott D. Healy	09/30/2020 19:02	Alexander Thompson	2197622
	09/23/2020	09/24/2020 13:15	Elliott D. Healy	09/30/2020 19:10	Alexander Thompson	2197623
	09/23/2020	09/24/2020 13:15	Elliott D. Healy	09/30/2020 20:41	Alexander Thompson	2197622
	09/23/2020	09/24/2020 13:15	Elliott D. Healy	09/30/2020 20:49	Alexander Thompson	2197623
	09/23/2020	09/28/2020 14:35	Elliott D. Healy	10/03/2020 14:56	Alexander Thompson	2197624
EPA 300.0 Rev. 2.1	09/23/2020			09/30/2020 02:26	Elliott Rodriguez	2197607
	09/23/2020			10/08/2020 16:51	Lipi Saha	2197610
	09/23/2020			10/08/2020 17:08	Lipi Saha	2197613
EPA 350.1 Rev. 2.0	09/23/2020			09/26/2020 12:45	Ping Hua	2197611
	09/23/2020			09/26/2020 14:06	Ping Hua	2197614
	09/23/2020			09/26/2020 15:32	Ping Hua	2197608
EPA 351.2 Rev. 2.0	09/23/2020	09/25/2020 11:45	David Boose	09/28/2020 11:50	Elliott Rodriguez	2197608
	09/23/2020	09/25/2020 11:45	David Boose	09/28/2020 11:52	Elliott Rodriguez	2197614
	09/23/2020	09/25/2020 11:45	David Boose	09/28/2020 12:03	Elliott Rodriguez	2197611
EPA 353.2 Rev. 2.0	09/23/2020			09/24/2020 10:23	Beverly Y. Sanders	2197608
	09/23/2020			09/28/2020 09:14	Beverly Y. Sanders	2197614
	09/23/2020			09/29/2020 08:39	Beverly Y. Sanders	2197611
EPA 365.1 Rev. 2.0	09/23/2020	09/28/2020 12:44	Yen Ta	10/01/2020 13:15	Lipi Saha	2197611
	09/23/2020	10/02/2020 14:22	Yen Ta	10/06/2020 13:34	Lipi Saha	2197608
	09/23/2020	10/02/2020 14:22	Yen Ta	10/06/2020 13:35	Lipi Saha	2197614
EPA 365.1 Rev. 2.0 dissolved	09/23/2020			09/23/2020 15:33	Virginia P. Brown	2197609
	09/23/2020			09/23/2020 15:39	Virginia P. Brown	2197615
	09/23/2020			09/23/2020 15:52	Virginia P. Brown	2197612
SM 2120 B-2011	09/23/2020			09/23/2020 16:44	Benjamin T. Nordmann	2197607
SM 2320 B-2011	09/23/2020			09/24/2020 17:42	Dale L. Simmons	2197607
	09/23/2020			09/24/2020 17:51	Dale L. Simmons	2197613
	09/23/2020			09/25/2020 02:18	Dale L. Simmons	2197610
SM 2540 C-2011	09/23/2020			09/28/2020 15:25	Yijie Li	2197607
SM 2540 D-2011	09/23/2020			09/28/2020 15:25	Yijie Li	2197607, 2197610, 2197613
SM 4500 F-C-2011	09/23/2020			09/25/2020 00:24	Dale L. Simmons	2197610
	09/23/2020			09/25/2020 20:24	Dale L. Simmons	2197613
	09/23/2020			09/25/2020 20:53	Dale L. Simmons	2197607
SM 5310 B-2011	09/23/2020			09/25/2020 08:02	Madeline Gruver	2197611
	09/23/2020			09/28/2020 07:11	David Boose	2197608

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-2011	09/23/2020			09/28/2020 09:55	David Boose	2197614