

Chemical Analysis Report

NE-DIST-2019-08-28-02

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

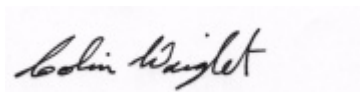
Event Description: **Nassau North Boat**
Request ID: **RQ-2019-08-26-21**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Colin Wright, Program Administrator

Date Certified: 24-SEP-2019 12:30

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light gray rectangular background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Metals and Nutrients.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited 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: LITTLE ST.MARYS RIVER AT THE MOUTH

Collection Date/Time: 08/27/2019 11:45

Field ID: G4NE0291

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2115321	EPA 180.1 Rev. 2.0	Turbidity	4.9		NTU	P369860	
	EPA 300.0 Rev. 2.1	Chloride	96		mg Cl/L	P370213	
		Sulfate	13		mg SO4/L	P370216	
	SM 2120 B	Color (true)	510		PCU	P369851	
	SM 2320 B-97	Total Alkalinity	8.3		mg CaCO3/L	P370197	
	SM 2540 C-97	TDS	283		mg/L	P370382	
	SM 2540 D-97	TSS	8	I	mg/L	P370248	
	SM 4500 F-C-97	Fluoride	0.059	I	mg F/L	P370202	
2115322	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P370239	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P370145	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.026		mg N/L	P370180	
	EPA 365.1 Rev. 2.0	Total-P	0.051		mg P/L	P370288	
	SM 5310 B-00	Organic Carbon	39		mg C/L	P370277	
2115323	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.020		mg P/L	P369845	

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: ST MARYS R AT GA LINE US 17

Collection Date/Time: 08/27/2019 11:20

Field ID: 19010001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2115312	EPA 180.1 Rev. 2.0	Turbidity	4.3		NTU	P369860	
	EPA 300.0	Bromide	1.4		mg Br/L	P369921	
	SM 2320 B-97	Total Alkalinity	11		mg CaCO3/L	P370197	
	SM 2540 D-97	TSS	5	I	mg/L	P370249	
	SM 4500 F-C-97	Fluoride	0.077	I	mg F/L	P370202	
2115315	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P370321	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P370145	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.054		mg N/L	P369999	
	EPA 365.1 Rev. 2.0	Total-P	0.052		mg P/L	P370255	
	SM 5310 B-00	Organic Carbon	37		mg C/L	P370115	
2115318	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.021		mg P/L	P369846	
2115332	EPA 200.7 Rev. 4.4	Iron	1.11E+03		ug/L	P369935	
		Manganese	26.9		ug/L	P369935	
		Zinc	5.0	U	ug/L	P369935	
	EPA 200.8 Rev. 5.4	Aluminum	553		ug/L	P369935	
		Antimony	0.053	I	ug/L	P369935	
		Arsenic	0.98		ug/L	P369935	
		Cadmium	0.020	U	ug/L	P369935	
		Chromium	0.68	I	ug/L	P369935	
		Copper	0.59	I	ug/L	P369935	
		Lead	0.73		ug/L	P369935	
		Nickel	0.72	I	ug/L	P369935	
		Selenium	0.24	I	ug/L	P369935	
		Silver	0.010	U	ug/L	P369935	
		Thallium	0.10	U	ug/L	P369935	

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: ST MARYS R AT GA LINE US 17

Collection Date/Time: 08/27/2019 11:25

Field ID: 19010001 dup

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2115313	EPA 180.1 Rev. 2.0	Turbidity	5.2		NTU	P369860	
	EPA 300.0	Bromide	1.4		mg Br/L	P369921	
	SM 2320 B-97	Total Alkalinity	11		mg CaCO3/L	P370197	
	SM 2540 D-97	TSS	5	I	mg/L	P370249	
	SM 4500 F-C-97	Fluoride	0.078	I	mg F/L	P370202	
2115316	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P370239	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P370145	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.048		mg N/L	P370180	
	EPA 365.1 Rev. 2.0	Total-P	0.051		mg P/L	P370255	
	SM 5310 B-00	Organic Carbon	38		mg C/L	P370115	
2115319	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.022		mg P/L	P369846	
2115333	EPA 200.7 Rev. 4.4	Iron	1.19E+03		ug/L	P369935	
		Manganese	26.9		ug/L	P369935	
		Zinc	5.0	U	ug/L	P369935	
	EPA 200.8 Rev. 5.4	Aluminum	618		ug/L	P369935	
		Antimony	0.057	I	ug/L	P369935	
		Arsenic	1.04		ug/L	P369935	
		Cadmium	0.020	U	ug/L	P369935	
		Chromium	0.83	I	ug/L	P369935	
		Copper	0.61	I	ug/L	P369935	
		Lead	0.76		ug/L	P369935	
		Nickel	0.76	I	ug/L	P369935	
		Selenium	0.20	U	ug/L	P369935	
		Silver	0.010	U	ug/L	P369935	
		Thallium	0.10	U	ug/L	P369935	

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: ST MARYS R AT GA LINE US 17

Collection Date/Time: 08/27/2019 11:30

Field ID: FB 08272019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2115324	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P369860	
	EPA 300.0	Bromide	0.013	U	mg Br/L	P369921	
	SM 2120 B	Color (true)	2.5	U	PCU	P369852	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P370197	
	SM 2540 D-97	TSS	2	U	mg/L	P370249	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P370202	
2115325	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P370239	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P370145	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P370180	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P370288	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P370115	
2115326	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P369846	
2115335	EPA 200.7 Rev. 4.4	Iron	30	U	ug/L	P369935	
		Manganese	1.0	U	ug/L	P369935	
		Zinc	5.0	U	ug/L	P369935	
	EPA 200.8 Rev. 5.4	Aluminum	5.0	U	ug/L	P369935	
		Antimony	0.050	U	ug/L	P369935	
		Arsenic	0.050	U	ug/L	P369935	
		Cadmium	0.020	U	ug/L	P369935	
		Chromium	0.40	U	ug/L	P369935	
		Copper	0.40	U	ug/L	P369935	
		Lead	0.20	U	ug/L	P369935	
		Nickel	0.50	U	ug/L	P369935	
		Selenium	0.20	U	ug/L	P369935	
		Silver	0.010	U	ug/L	P369935	
		Thallium	0.10	U	ug/L	P369935	

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: ST MARYS RIVER AT CRANDALL RD

Collection Date/Time: 08/27/2019 10:05

Field ID: G4NE0293

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2115314	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P369860	
	EPA 300.0	Bromide	32		mg Br/L	P369921	
	SM 2320 B-97	Total Alkalinity	60		mg CaCO3/L	P370209	
	SM 2540 D-97	TSS	23		mg/L	P370253	
	SM 4500 F-C-97	Fluoride	0.59		mg F/L	P370211	
2115317	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P370158	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P370087	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.057		mg N/L	P370713	
	EPA 365.1 Rev. 2.0	Total-P	0.053		mg P/L	P370113	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P370041	
2115320	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.019		mg P/L	P369844	
2115334	EPA 200.7 Rev. 4.4	Iron	1.01E+03		ug/L	P369941	
		Manganese	46		ug/L	P369941	
		Zinc	15	U	ug/L	P369941	
	EPA 200.8 Rev. 5.4	Aluminum	830		ug/L	P369941	
		Antimony	0.20	U	ug/L	P369941	
		Arsenic	2.05		ug/L	P369941	
		Cadmium	0.080	U	ug/L	P369941	
		Chromium	4.0	U	ug/L	P369941	
		Copper	1.6	U	ug/L	P369941	
		Lead	0.80	U	ug/L	P369941	
		Nickel	2.0	U	ug/L	P369941	
		Selenium	0.80	U	ug/L	P369941	
		Silver	0.040	U	ug/L	P369941	
		Thallium	0.40	U	ug/L	P369941	

Ref. Method and Comment:

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample contains high density particulates that settle out quickly.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369860

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369935

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: P369941

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

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369935

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
Silver	0.010	U	ug/L
Thallium	0.10	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369941

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	0.20	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

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0
Batch ID: P369921

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370213

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370216

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370158

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370239

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370321

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370087

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370145

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369999

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: P370180

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370713

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370113

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370255

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370288

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369844

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369845

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369846

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

Reference Method: SM 2120 B
Batch ID: P369851

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report

Method Blank Results

Reference Method: SM 2120 B
Batch ID: P369852

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P370197

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

Reference Method: SM 2320 B-97
Batch ID: P370209

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

Reference Method: SM 2540 C-97
Batch ID: P370382

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P370248

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P370249

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P370253

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P370202

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P370211

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: P370041

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

Reference Method: SM 5310 B-00
Batch ID: P370115

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

Reference Method: SM 5310 B-00
Batch ID: P370277

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: P369935

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	104		P	85 - 115
Manganese	102		P	85 - 115
Zinc	98.8		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369941

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	107		P	85 - 115
Manganese	104		P	85 - 115
Zinc	103		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369935

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	102		P	85 - 115
Antimony	101		P	85 - 115
Arsenic	105		P	85 - 115
Cadmium	101		P	85 - 115
Chromium	90.1		P	85 - 115
Copper	102		P	85 - 115
Lead	104		P	85 - 115
Nickel	103		P	85 - 115
Selenium	103		P	85 - 115
Silver	105		P	85 - 115
Thallium	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369941

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	100		P	85 - 115
Antimony	98.4		P	85 - 115
Arsenic	103		P	85 - 115
Cadmium	100		P	85 - 115
Chromium	100		P	80 - 120
Copper	99.5		P	85 - 115
Lead	98.0		P	85 - 115
Nickel	101		P	85 - 115
Selenium	98.3		P	85 - 115
Silver	101		P	85 - 115
Thallium	103		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P369921

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370213

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370216

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370158

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370239

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	98.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370321

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370087

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	97.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370145

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369999

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	104		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370180

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	102		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370713

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370113

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total-P	93.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370255

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370288

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369844

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369845

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369846

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

Reference Method: SM 2120 B
Batch ID: P369851

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

Reference Method: SM 2120 B
Batch ID: P369852

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	98.2		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P370197

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	98 - 106

Reference Method: SM 2320 B-97
Batch ID: P370209

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	105		P	98 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P370202

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.1		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P370211

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.5		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P370041

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	95.7		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P370115

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P370277

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369935

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115585	Iron	104		P	80 - 120
2115585	Manganese	99.9		P	80 - 120
2115585	Zinc	99.5		P	80 - 120
2115701	Iron	107	107	P/P	80 - 120
2115701	Manganese	102	102	P/P	80 - 120
2115701	Zinc	99.9	100	P/P	80 - 120

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369941

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114477	Iron	103	99.9	P/P	70 - 130
2114477	Manganese	98.1	97.3	P/P	70 - 130
2114477	Zinc	106	106	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369935

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115585	Aluminum	101		P	80 - 120
2115585	Antimony	100		P	80 - 120
2115585	Arsenic	103		P	80 - 120
2115585	Cadmium	103		P	80 - 120
2115585	Chromium	91.7		P	80 - 120
2115585	Copper	99.9		P	80 - 120
2115585	Lead	107		P	80 - 120
2115585	Nickel	102		P	80 - 120
2115585	Selenium	98.7		P	80 - 120
2115585	Silver	102		P	80 - 120
2115585	Thallium	106		P	80 - 120
2115701	Aluminum	99.8	101	P/P	80 - 120
2115701	Antimony	99.1	99.7	P/P	80 - 120
2115701	Arsenic	100	102	P/P	80 - 120
2115701	Cadmium	102	100	P/P	80 - 120
2115701	Chromium	91.4	88.6	P/P	80 - 120
2115701	Copper	99.6	101	P/P	80 - 120
2115701	Lead	104	105	P/P	80 - 120
2115701	Nickel	99.1	101	P/P	80 - 120
2115701	Selenium	99.8	97.8	P/P	80 - 120
2115701	Silver	103	103	P/P	80 - 120
2115701	Thallium	101	106	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369941

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114477	Aluminum	107	109	P/P	70 - 130
2114477	Antimony	103	103	P/P	70 - 130
2114477	Arsenic	112	111	P/P	70 - 130
2114477	Cadmium	97.2	98.9	P/P	70 - 130
2114477	Chromium	97.1	96.5	P/P	70 - 130
2114477	Copper	99.3	100	P/P	70 - 130

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369941

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114477	Lead	103	104	P/P	70 - 130
2114477	Nickel	100	100	P/P	70 - 130
2114477	Selenium	108	105	P/P	70 - 130
2114477	Silver	95.4	95.2	P/P	70 - 130
2114477	Thallium	107	108	P/P	70 - 130

Reference Method: EPA 300.0
Batch ID: P369921

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115127	Bromide	92.4	93.2	P/P	90 - 110
2115133	Bromide	94.7		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370213

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115024	Chloride	101		P	90 - 110
2115145	Chloride	99.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370216

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115024	Sulfate	99.9		P	90 - 110
2115145	Sulfate	97.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370158

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115317	Ammonia-N	100	97.2	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370239

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115452	Ammonia-N	98.0	99.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370321

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115191	Ammonia-N	91.9	91.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370087

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115121	Kjeldahl Nitrogen	99.2	105	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370145

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115452	Kjeldahl Nitrogen	101	95.1	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369999

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115191	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370180

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115345	NO2NO3-N	100	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370713

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2118668	NO2NO3-N	99.5	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370113

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2114535	Total-P	96.4	96.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370255

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115316	Total-P	97.6	99.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370288

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115322	Total-P	93.9	95.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369844

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115068	O-Phosphate-P	98.3	98.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369845

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115193	O-Phosphate-P	97.3	98.3	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369846

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115346	O-Phosphate-P	97.9	97.0	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P370202

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115450	Fluoride	94.7	94.7	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P370211

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115531	Fluoride	97.5	96.9	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P370041

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115056	Organic Carbon	92.7	95.3	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P370115

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115476	Organic Carbon	102	102	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P370277

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2115924	Organic Carbon	102	101	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P369860

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115145	Turbidity	0.0	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369935

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115701	Iron	0.0594	Spike	P	0 - 20
2115701	Manganese	0.130	Spike	P	0 - 20
2115701	Zinc	0.342	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P369941

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114477	Iron	2.82	Spike	P	0 - 20
2114477	Manganese	0.750	Spike	P	0 - 20
2114477	Zinc	0.160	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369935

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115701	Aluminum	1.19	Spike	P	0 - 20
2115701	Antimony	0.554	Spike	P	0 - 20
2115701	Arsenic	1.12	Spike	P	0 - 20
2115701	Cadmium	1.12	Spike	P	0 - 20
2115701	Chromium	3.07	Spike	P	0 - 20
2115701	Copper	0.998	Spike	P	0 - 20
2115701	Lead	0.766	Spike	P	0 - 20
2115701	Nickel	1.93	Spike	P	0 - 20
2115701	Selenium	2.01	Spike	P	0 - 20
2115701	Silver	0.253	Spike	P	0 - 20
2115701	Thallium	4.74	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369941

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114477	Aluminum	1.76	Spike	P	0 - 20
2114477	Antimony	0.393	Spike	P	0 - 20
2114477	Arsenic	0.691	Spike	P	0 - 20
2114477	Cadmium	1.79	Spike	P	0 - 20
2114477	Chromium	0.675	Spike	P	0 - 20
2114477	Copper	0.812	Spike	P	0 - 20
2114477	Lead	0.123	Spike	P	0 - 20
2114477	Nickel	0.0686	Spike	P	0 - 20
2114477	Selenium	3.00	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P369941

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114477	Silver	0.128	Spike	P	0 - 20
2114477	Thallium	1.27	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P369921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115127	Bromide	0.648	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370213

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115024	Chloride	0.0963	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P370216

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115024	Sulfate	0.120	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370158

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115317	Ammonia-N	2.01	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370239

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115452	Ammonia-N	0.924	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P370321

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115191	Ammonia-N	0.481	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370087

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115121	Kjeldahl Nitrogen	3.56	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P370145

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115452	Kjeldahl Nitrogen	5.52	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P369999

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115191	NO2NO3-N	0.480	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370180

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115345	NO2NO3-N	0.499	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P370713

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2118668	NO2NO3-N	0.504	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370113

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2114535	Total-P	0.0955	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370255

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115316	Total-P	1.62	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P370288

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115322	Total-P	1.70	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369844

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115068	O-Phosphate-P	0.398	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369845

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115193	O-Phosphate-P	1.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P369846

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115346	O-Phosphate-P	0.844	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P369851

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115115	Color (true)	6.22	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P369852

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115144	Color (true)	0.556	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P370197

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115450	Total Alkalinity	0.287	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P370209

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115918	Total Alkalinity	0.386	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P370382

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115182	TDS	4.62	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P370202

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115450	Fluoride	0.0	Spike	P	0 - 2.5

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P370211

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115531	Fluoride	0.473	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P370041

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115056	Organic Carbon	2.01	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P370115

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115476	Organic Carbon	0.0	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P370277

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2115924	Organic Carbon	0.647	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

Run ID: A93817

Included Lab Sample IDs: 2115312, 2115313, 2115314, 2115324

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Bromide	105	107	P/P	90 - 110
Bromide	107	107	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A93839

Included Lab Sample IDs: 2115318, 2115319, 2115320, 2115323, 2115326

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	99.6	P/P	90 - 110
O-Phosphate-P	98.6	98.3	P/P	90 - 110
O-Phosphate-P	99.3	98.6	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A93842

Included Lab Sample IDs: 2115321, 2115324

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A93844

Included Lab Sample IDs: 2115312, 2115313, 2115314, 2115321, 2115324

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	101	102	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A93923

Included Lab Sample IDs: 2115315

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A93936

Included Lab Sample IDs: 2115332, 2115333, 2115335

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	101	101	P/P	90 - 110
Iron	100	101	P/P	90 - 110
Manganese	101	101	P/P	90 - 110
Manganese	101	101	P/P	90 - 110
Zinc	97.2	97.7	P/P	90 - 110
Zinc	97.8	97.2	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A93938

Included Lab Sample IDs: 2115317

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
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Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A93938
Included Lab Sample IDs: 2115317

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.7	100	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A93961
Included Lab Sample IDs: 2115334

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	102	102	P/P	90 - 110
Manganese	103	102	P/P	90 - 110
Zinc	101	101	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A93968
Included Lab Sample IDs: 2115315, 2115316, 2115325

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	104	105	P/P	90 - 110
Organic Carbon	105	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A93973
Included Lab Sample IDs: 2115317

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	100	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A93985
Included Lab Sample IDs: 2115317

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	103	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A93986
Included Lab Sample IDs: 2115317

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.8	94.9	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A93999
Included Lab Sample IDs: 2115316, 2115322, 2115325

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A94004

Included Lab Sample IDs: 2115312, 2115313, 2115321, 2115324

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	105	P/P	90 - 110
Total Alkalinity	105	102	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A94004

Included Lab Sample IDs: 2115312, 2115313, 2115321, 2115324

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.1	98.1	P/P	90 - 110
Fluoride	98.5	97.1	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A94011

Included Lab Sample IDs: 2115314

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	102	105	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A94011

Included Lab Sample IDs: 2115314

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A94012

Included Lab Sample IDs: 2115321

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

Reference Method: SM 5310 B-00

Run ID: A94014

Included Lab Sample IDs: 2115322

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	109	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A94015

Included Lab Sample IDs: 2115315, 2115316, 2115322, 2115325

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.0	92.6	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A94019

Included Lab Sample IDs: 2115316, 2115322, 2115325

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	95.9	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A94059

Included Lab Sample IDs: 2115315

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	92.8	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A94092

Included Lab Sample IDs: 2115315, 2115316, 2115322

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.3	98.6	P/P	90 - 110
Total-P	98.6	98.3	P/P	90 - 110
Total-P	98.6	97.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A94096

Included Lab Sample IDs: 2115325

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94164

Included Lab Sample IDs: 2115334

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	101	103	P/P	90 - 110
Antimony	98.3	97.8	P/P	90 - 110
Arsenic	100	101	P/P	90 - 110
Cadmium	96.8	95.8	P/P	90 - 110
Copper	97.7	98.2	P/P	90 - 110
Lead	94.9	94.8	P/P	90 - 110
Nickel	98.1	99.5	P/P	90 - 110
Selenium	99.3	98.3	P/P	90 - 110
Silver	97.1	96.6	P/P	90 - 110
Thallium	92.9	92.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A94233

Included Lab Sample IDs: 2115317

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94323

Included Lab Sample IDs: 2115332, 2115333, 2115335

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	103	102	P/P	90 - 110
Antimony	99.1	97.8	P/P	90 - 110
Arsenic	104	102	P/P	90 - 110
Cadmium	102	102	P/P	90 - 110
Copper	104	102	P/P	90 - 110
Lead	105	104	P/P	90 - 110
Nickel	103	102	P/P	90 - 110
Selenium	105	102	P/P	90 - 110
Thallium	96.3	94.8	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94342

Included Lab Sample IDs: 2115332, 2115333, 2115335

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	99.4	90.7	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94372

Included Lab Sample IDs: 2115332, 2115333, 2115335

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	99.3	97.4	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A94383

Included Lab Sample IDs: 2115334

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chromium	102	99.5	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						0.0	
EPA 200.7 Rev. 4.4	Iron	104	104	107	107			0.0594
	Iron	107	103	99.9				2.82
	Manganese	102	99.9	102	102			0.130
	Manganese	104	98.1	97.3				0.750
	Zinc	98.8	99.5	99.9	100			0.342
	Zinc	103	106	106				0.160
EPA 200.8 Rev. 5.4	Aluminum	102	101	99.8	101			1.19
	Aluminum	100	107	109				1.76
	Antimony	101	100	99.1	99.7			0.554
	Antimony	98.4	103	103				0.393
	Arsenic	105	103	100	102			1.12
	Arsenic	103	112	111				0.691
	Cadmium	101	103	102	100			1.12
	Cadmium	100	97.2	98.9				1.79
	Chromium	90.1	91.7	91.4	88.6			3.07
	Chromium	100	97.1	96.5				0.675
	Copper	102	99.9	99.6	101			0.998
	Copper	99.5	99.3	100				0.812
	Lead	104	107	104	105			0.766
	Lead	98.0	103	104				0.123
	Nickel	103	102	99.1	101			1.93
	Nickel	101	100	100				0.0686
	Selenium	103	98.7	99.8	97.8			2.01
	Selenium	98.3	108	105				3.00
	Silver	105	102	103	103			0.253
	Silver	101	95.4	95.2				0.128
	Thallium	101	106	101	106			4.74
	Thallium	103	107	108				1.27
EPA 300.0	Bromide	96.4	92.4	93.2	94.7			0.648
EPA 300.0 Rev. 2.1	Chloride	99.6	101	99.5			0.0963	
	Sulfate	100	99.9	97.2			0.120	
EPA 350.1 Rev. 2.0	Ammonia-N	94.3	100	97.2				2.01
	Ammonia-N	98.2	98.0	99.0				0.924
	Ammonia-N	99.9	91.9	91.3				0.481
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	97.7	99.2	105				3.56
	Kjeldahl Nitrogen	96.4	101	95.1				5.52
EPA 353.2 Rev. 2.0	NO2NO3-N	104	104	104				0.480
	NO2NO3-N	102	100	100				0.499
	NO2NO3-N	100	99.5	99.0				0.504
EPA 365.1 Rev. 2.0	Total-P	93.2	96.4	96.4				0.0955
	Total-P	97.4	97.6	99.4				1.62
	Total-P	96.4	93.9	95.7				1.70
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	98.3	98.8				0.398
	O-Phosphate-P	99.1	97.3	98.3				1.02
	O-Phosphate-P	104	97.9	97.0				0.844
SM 2120 B	Color (true)	101					6.22	
	Color (true)	98.2					0.556	
SM 2320 B-97	Total Alkalinity	104					0.287	
	Total Alkalinity	105					0.386	
SM 2540 C-97	TDS						4.62	
SM 4500 F-C-97	Fluoride	97.1	94.7	94.7				0.0
	Fluoride	96.5	97.5	96.9				0.473
SM 5310 B-00	Organic Carbon	95.7	92.7	95.3				2.01

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		LCS	Precision	MS
						SMP	
SM 5310 B-00	Organic Carbon	102	102	102			0.0
	Organic Carbon	102	102	101			0.647

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2115312, 2115313, 2115314, 2115321, 2115324
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2115332, 2115333, 2115334, 2115335
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2115332, 2115333, 2115334, 2115335
EPA 300.0 / E31780	Bromide in aqueous matrices	2115312, 2115313, 2115314, 2115324
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2115321
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2115321
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2115315, 2115316, 2115317, 2115322, 2115325
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2115315, 2115316, 2115317, 2115322, 2115325
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2115315, 2115316, 2115317, 2115322, 2115325
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2115315, 2115316, 2115317, 2115322, 2115325
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2115318, 2115319, 2115320, 2115323, 2115326
SM 2120 B / E31780	True Color measured at 450 nm	2115321, 2115324
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2115312, 2115313, 2115314, 2115321, 2115324
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2115321
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2115312, 2115313, 2115314, 2115321, 2115324
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2115312, 2115313, 2115314, 2115321, 2115324
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2115315, 2115316, 2115317, 2115322, 2115325

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	08/28/2019			08/28/2019 17:22	Rosalyn Ballman	2115312, 2115313, 2115314, 2115321, 2115324
EPA 200.7 Rev. 4.4	08/28/2019	08/29/2019 16:50	Elliott D. Healy	08/30/2019 16:29	Alexander Thompson	2115335
	08/28/2019	08/29/2019 16:50	Elliott D. Healy	08/30/2019 17:41	Alexander Thompson	2115332
	08/28/2019	08/29/2019 16:50	Elliott D. Healy	08/30/2019 17:47	Alexander Thompson	2115333
	08/28/2019	08/29/2019 16:50	Elliott D. Healy	09/03/2019 12:02	Alexander Thompson	2115334
EPA 200.8 Rev. 5.4	08/28/2019	08/29/2019 16:50	Elliott D. Healy	09/11/2019 23:02	Justin Cutchin	2115334
	08/28/2019	08/29/2019 16:50	Elliott D. Healy	09/17/2019 16:22	Robert K Palmer	2115335
	08/28/2019	08/29/2019 16:50	Elliott D. Healy	09/17/2019 17:21	Robert K Palmer	2115332
	08/28/2019	08/29/2019 16:50	Elliott D. Healy	09/17/2019 17:31	Robert K Palmer	2115333
	08/28/2019	08/29/2019 16:50	Elliott D. Healy	09/18/2019 16:00	Robert K Palmer	2115335
	08/28/2019	08/29/2019 16:50	Elliott D. Healy	09/18/2019 16:29	Robert K Palmer	2115332
	08/28/2019	08/29/2019 16:50	Elliott D. Healy	09/18/2019 16:35	Robert K Palmer	2115333
	08/28/2019	08/29/2019 16:50	Elliott D. Healy	09/19/2019 12:10	Justin Cutchin	2115334
	08/28/2019	08/29/2019 16:50	Elliott D. Healy	09/19/2019 18:46	Robert K Palmer	2115335
	08/28/2019	08/29/2019 16:50	Elliott D. Healy	09/19/2019 19:16	Robert K Palmer	2115332
	08/28/2019	08/29/2019 16:50	Elliott D. Healy	09/19/2019 19:22	Robert K Palmer	2115333
EPA 300.0	08/28/2019			08/29/2019 01:07	Jhamieka S. Greenwood	2115312
	08/28/2019			08/29/2019 01:24	Jhamieka S. Greenwood	2115313
	08/28/2019			08/29/2019 02:15	Jhamieka S. Greenwood	2115314
	08/28/2019			08/29/2019 02:32	Jhamieka S. Greenwood	2115324
EPA 300.0 Rev. 2.1	08/28/2019			09/04/2019 20:24	Jhamieka S. Greenwood	2115321
EPA 350.1 Rev. 2.0	08/28/2019			09/04/2019 15:17	Ping Hua	2115317
	08/28/2019			09/05/2019 14:16	Ping Hua	2115316
	08/28/2019			09/05/2019 14:17	Ping Hua	2115322
	08/28/2019			09/05/2019 14:25	Ping Hua	2115325
	08/28/2019			09/06/2019 11:25	Ping Hua	2115315
EPA 351.2 Rev. 2.0	08/28/2019	09/03/2019 16:50	Jhamieka S. Greenwood	09/04/2019 18:56	Julia Storbeck	2115317
	08/28/2019	09/04/2019 11:58	Sima Feizi	09/05/2019 14:26	Joseph Suarez	2115315
	08/28/2019	09/04/2019 11:58	Sima Feizi	09/05/2019 14:28	Joseph Suarez	2115316
	08/28/2019	09/04/2019 11:58	Sima Feizi	09/05/2019 14:29	Joseph Suarez	2115322
	08/28/2019	09/04/2019 11:58	Sima Feizi	09/05/2019 14:31	Joseph Suarez	2115325
EPA 353.2 Rev. 2.0	08/28/2019			08/30/2019 11:36	Beverly Y. Sanders	2115315
	08/28/2019			09/05/2019 09:23	Beverly Y. Sanders	2115316
	08/28/2019			09/05/2019 09:24	Beverly Y. Sanders	2115322
	08/28/2019			09/05/2019 09:25	Beverly Y. Sanders	2115325
	08/28/2019			09/16/2019 12:30	Beverly Y. Sanders	2115317
EPA 365.1 Rev. 2.0	08/28/2019	09/03/2019 13:30	Lipi Saha	09/04/2019 12:32	Lipi Saha	2115317
	08/28/2019	09/06/2019 13:30	Lipi Saha	09/09/2019 13:31	Rosalyn Ballman	2115316
	08/28/2019	09/06/2019 13:30	Lipi Saha	09/09/2019 13:46	Rosalyn Ballman	2115315

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	08/28/2019	09/06/2019 13:30	Lipi Saha	09/09/2019 13:51	Rosalyn Ballman	2115322
	08/28/2019	09/06/2019 13:30	Lipi Saha	09/09/2019 15:23	Rosalyn Ballman	2115325
EPA 365.1 Rev. 2.0 dissolved	08/28/2019			08/28/2019 15:07	Jhamieka S. Greenwood	2115320
	08/28/2019			08/28/2019 15:28	Jhamieka S. Greenwood	2115318
	08/28/2019			08/28/2019 15:29	Jhamieka S. Greenwood	2115319
	08/28/2019			08/28/2019 15:30	Jhamieka S. Greenwood	2115323
	08/28/2019			08/28/2019 15:38	Jhamieka S. Greenwood	2115326
SM 2120 B	08/28/2019			08/28/2019 16:30	Madeline Funaro	2115324
	08/28/2019			08/28/2019 16:40	Madeline Funaro	2115321
SM 2320 B-97	08/28/2019			09/03/2019 23:48	Dale L. Simmons	2115321
	08/28/2019			09/04/2019 00:02	Dale L. Simmons	2115324
	08/28/2019			09/04/2019 03:13	Dale L. Simmons	2115312
	08/28/2019			09/04/2019 03:24	Dale L. Simmons	2115313
	08/28/2019			09/05/2019 07:02	Dale L. Simmons	2115314
SM 2540 C-97	08/28/2019			08/30/2019 15:41	Yijie Li	2115321
SM 2540 D-97	08/28/2019			08/30/2019 15:41	Yijie Li	2115312, 2115313, 2115314, 2115321, 2115324
SM 4500 F-C-97	08/28/2019			09/03/2019 23:48	Dale L. Simmons	2115321
	08/28/2019			09/04/2019 00:02	Dale L. Simmons	2115324
	08/28/2019			09/04/2019 03:13	Dale L. Simmons	2115312
	08/28/2019			09/04/2019 03:24	Dale L. Simmons	2115313
	08/28/2019			09/05/2019 03:38	Dale L. Simmons	2115314
SM 5310 B-00	08/28/2019			08/31/2019 07:21	Madeline Funaro	2115317
	08/28/2019			09/03/2019 16:40	Madeline Funaro	2115315
	08/28/2019			09/03/2019 16:52	Madeline Funaro	2115316
	08/28/2019			09/03/2019 17:31	Madeline Funaro	2115325
	08/28/2019			09/05/2019 04:56	Madeline Funaro	2115322