

Chemical Analysis Report

NE-DIST-2019-11-26-01

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-2019-11-25-09**
Customer: **NE-DIST**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
8800 Baymeadows Way West
Suite 100
Jacksonville, FL 32256
Attn: Jeremy Parrish

For additional information please contact
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Certified by: Thekkekalathil Chandrasekhar, Chemist Administrator

Date Certified: 17-DEC-2019 13:18



NON-CONFORMANCE REPORT INCLUDED

Case Narrative

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

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

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

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

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited 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: St. Marys River at Crandall rd.

Collection Date/Time: 11/25/2019 10:20

Field ID: G4NE0293

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2139378	EPA 180.1 Rev. 2.0	Turbidity	4.9		NTU	P375070	
	EPA 300.0	Bromide	38		mg Br/L	P375479	
	SM 2320 B-97	Total Alkalinity	74	Y	mg CaCO3/L	P375174	
	SM 2540 D-97	TSS	7	IAY	mg/L	P375497	
	SM 4500 F-C-97	Fluoride	0.68		mg F/L	P375181	
2139380	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P375092	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.48		mg N/L	P375114	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.01	I	mg N/L	P375101	
	EPA 365.1 Rev. 2.0	Total-P	0.041		mg P/L	P375270	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P375087	
2139382	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.020		mg P/L	P374908	
2139391	EPA 200.7 Rev. 4.4	Iron	510		ug/L	P374895	
		Manganese	14		ug/L	P374895	
		Zinc	15	U	ug/L	P374895	
	EPA 200.8 Rev. 5.4	Aluminum	390		ug/L	P374895	
		Antimony	0.50	U	ug/L	P374895	
		Arsenic	1.9	I	ug/L	P374895	
		Cadmium	0.20	U	ug/L	P374895	
		Chromium	4.0	U	ug/L	P374895	
		Copper	1.6	U	ug/L	P374895	
		Lead	2.0	U	ug/L	P374895	
		Nickel	5.1	I	ug/L	P374895	
		Selenium	0.80	U	ug/L	P374895	
		Silver	0.10	U	ug/L	P374895	
		Thallium	1.0	U	ug/L	P374895	

Ref. Method and Comment:

SM 2320 B-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample was left out at room temperature overnight, should be stored below 6 degC.

Sample Location: St. Marys R at GA Line US 17

Collection Date/Time: 11/25/2019 13:55

Field ID: 19010001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2139379	EPA 180.1 Rev. 2.0	Turbidity	6.2	A	NTU	P375070	
	EPA 300.0	Bromide	0.76		mg Br/L	P375479	
	SM 2320 B-97	Total Alkalinity	9.5	Y	mg CaCO3/L	P375172	
	SM 2540 D-97	TSS	7	IY	mg/L	P375496	
	SM 4500 F-C-97	Fluoride	0.067	I	mg F/L	P375180	
2139381	EPA 350.1 Rev. 2.0	Ammonia-N	0.010		mg N/L	P375098	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.77		mg N/L	P375136	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.013		mg N/L	P374950	
	EPA 365.1 Rev. 2.0	Total-P	0.035		mg P/L	P375269	
	SM 5310 B-00	Organic Carbon	25		mg C/L	P375085	
2139383	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.009	I	mg P/L	P374909	
2139392	EPA 200.7 Rev. 4.4	Iron	680		ug/L	P375027	
		Manganese	13.2		ug/L	P375027	
		Zinc	5.0	U	ug/L	P375027	
	EPA 200.8 Rev. 5.4	Aluminum	509		ug/L	P375027	
		Antimony	0.050	U	ug/L	P375027	
		Arsenic	0.54		ug/L	P375027	
		Cadmium	0.020	U	ug/L	P375027	
		Chromium	0.74	I	ug/L	P375027	
		Copper	0.40	U	ug/L	P375027	
		Lead	0.52		ug/L	P375027	
		Nickel	0.50	U	ug/L	P375027	
		Selenium	0.20	U	ug/L	P375027	
		Silver	0.010	U	ug/L	P375027	
		Thallium	0.10	U	ug/L	P375027	

Ref. Method and Comment:

SM 2320 B-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample was left out at room temperature overnight, should be stored below 6 degC.

Sample Location: Little St. Marys River at the Mouth

Collection Date/Time: 11/25/2019 13:35

Field ID: G4NE0291

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2139384	EPA 180.1 Rev. 2.0	Turbidity	4.6	A	NTU	P375074	
	EPA 300.0 Rev. 2.1	Chloride	120		mg Cl/L	P375475	
		Sulfate	19	AY	mg SO4/L	P375409	
	SM 2120 B	Color (true)	250		PCU	P374892	
	SM 2320 B-97	Total Alkalinity	7.6	Y	mg CaCO3/L	P375172	
	SM 2540 C-97	TDS	275	Y	mg/L	P375510	
	SM 2540 D-97	TSS	6	IY	mg/L	P375495	
	SM 4500 F-C-97	Fluoride	0.060	I	mg F/L	P375180	
2139385	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P375098	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.79		mg N/L	P375136	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P374951	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P375269	
	SM 5310 B-00	Organic Carbon	27		mg C/L	P375085	
2139386	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.006	I	mg P/L	P374909	
2139393	EPA 200.7 Rev. 4.4	Barium	15.0		ug/L	P375027	
		Calcium	6.97		mg/L	P375027	
		Iron	670		ug/L	P375027	
		Magnesium	8.85		mg/L	P375027	
		Potassium	3.1		mg/L	P375027	
		Sodium	66.8		mg/L	P375027	
		Zinc	5.0	U	ug/L	P375027	
	EPA 200.8 Rev. 5.4	Aluminum	502		ug/L	P375027	
		Antimony	0.050	U	ug/L	P375027	
		Arsenic	0.46		ug/L	P375027	
		Boron**	46.4		ug/L	P375027	
		Cadmium	0.020	U	ug/L	P375027	
		Chromium	0.71	I	ug/L	P375027	
		Copper	0.80		ug/L	P375027	
		Lead	0.49		ug/L	P375027	
		Nickel	0.51	I	ug/L	P375027	
		Selenium	0.20	U	ug/L	P375027	
		Silver	0.010	U	ug/L	P375027	
		Thallium	0.10	U	ug/L	P375027	

Ref. Method and Comment:

EPA 300.0 Rev. 2.1: Sulfate: Batch matrix spike recoveries for one of two spiked samples are unavailable because of high analyte concentration in the QC sample. Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2320 B-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 C-97: Sample was left out at room temperature overnight, should be stored below 6 degC.

SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample. Sample was left out at room temperature overnight, should be stored below 6 degC.

Non-Conformance Report

NCR ID: 8043

<u>Event(s)</u>	<u>Job(s)</u>	<u>Sample(s)</u>	<u>Test(s)</u>
NE-DIST-2019-11-26-01	TLH-2019-11-26-56	2139378	
NE-DIST-2019-11-26-01	TLH-2019-11-26-56	2139379	
NE-DIST-2019-11-26-01	TLH-2019-11-26-56	2139384	

NCR Type: SHIPPING/RECEIVING

NCR Category: Preservation Not Intact

Observation: Samples left out at room temperature overnight on 11/26/2019.

Resolution: Samples analyzed after 11/26/2019, were Y qualified for incorrect preservation.

Authorized by/Date: Peter D. Kaus 12/11/2019

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

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P375070

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P375074

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P374895

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: P375027

Component	Result	Code	Units
Barium	1.0	U	ug/L
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Manganese	1.0	U	ug/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P374895

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: P375027

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P375027

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

Reference Method: EPA 300.0
Batch ID: P375479

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375409

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375475

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375092

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375098

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375114

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375136

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374950

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374951

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P375101

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375269

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375270

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374908

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374909

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

Reference Method: SM 2120 B
Batch ID: P374892

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P375172

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
Batch ID: P375174

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

Reference Method: SM 2540 C-97
Batch ID: P375510

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P375495

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P375496

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P375497

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P375180

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P375181

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P375085

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

Reference Method: SM 5310 B-00
Batch ID: P375087

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: P374895

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	106		P	85 - 115
Manganese	99.0		P	85 - 115
Zinc	98.5		P	85 - 115

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P375027

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Barium	104		P	85 - 115
Calcium	104		P	85 - 115
Iron	103		P	85 - 115
Magnesium	105		P	85 - 115
Manganese	106		P	85 - 115
Potassium	100		P	85 - 115
Sodium	105		P	85 - 115
Zinc	105		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P374895

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	96.5		P	85 - 115
Antimony	99.9		P	85 - 115
Arsenic	97.8		P	85 - 115
Cadmium	96.5		P	85 - 115
Chromium	95.3		P	85 - 115
Copper	95.9		P	85 - 115
Lead	100		P	85 - 115
Nickel	96.1		P	85 - 115
Selenium	95.0		P	85 - 115
Silver	98.4		P	85 - 115
Thallium	104		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P375027

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	100		P	85 - 115
Antimony	101		P	85 - 115
Arsenic	104		P	85 - 115
Boron	105		P	85 - 115
Cadmium	98.9		P	85 - 115
Chromium	104		P	85 - 115
Copper	109		P	85 - 115
Lead	104		P	85 - 115
Nickel	105		P	85 - 115
Selenium	102		P	85 - 115
Silver	106		P	85 - 115
Thallium	109		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0
Batch ID: P375479

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375409

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375475

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375092

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375098

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375114

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	99.7		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375136

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374950

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	99.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374951

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO ₂ NO ₃ -N	99.0		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P375101

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375269

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375270

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374908

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374909

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

Reference Method: SM 2120 B
Batch ID: P374892

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

Reference Method: SM 2320 B-97
Batch ID: P375172

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	98 - 106

Reference Method: SM 2320 B-97
Batch ID: P375174

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

Reference Method: SM 4500 F-C-97
Batch ID: P375180

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.2		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P375181

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

Reference Method: SM 5310 B-00
Batch ID: P375085

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

Reference Method: SM 5310 B-00
Batch ID: P375087

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	105		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P374895

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2138369	Iron	103		P	70 - 130
2138369	Manganese	96.5		P	70 - 130
2138369	Zinc	101		P	70 - 130
2138743	Iron	105	106	P/P	70 - 130
2138743	Manganese	93.8	96.2	P/P	70 - 130
2138743	Zinc	94.2	96.8	P/P	70 - 130

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P375027

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139437	Barium	101	106	P/P	80 - 120
2139437	Calcium	100	106	P/P	80 - 120
2139437	Iron	100	103	P/P	80 - 120
2139437	Magnesium	101	104	P/P	80 - 120
2139437	Manganese	102	107	P/P	80 - 120
2139437	Potassium	96.1	101	P/P	80 - 120
2139437	Sodium	96.1	104	P/P	80 - 120
2139437	Zinc	103	108	P/P	80 - 120
2139462	Barium	102		P	80 - 120
2139462	Calcium	101		P	80 - 120
2139462	Iron	101		P	80 - 120
2139462	Magnesium	100		P	80 - 120
2139462	Manganese	104		P	80 - 120
2139462	Potassium	96.9		P	80 - 120
2139462	Sodium	99.1		P	80 - 120
2139462	Zinc	104		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P374895

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2138369	Aluminum	105		P	70 - 130
2138369	Antimony	105		P	70 - 130
2138369	Arsenic	109		P	70 - 130
2138369	Cadmium	101		P	70 - 130
2138369	Chromium	92.2		P	70 - 130
2138369	Copper	104		P	70 - 130
2138369	Lead	106		P	70 - 130
2138369	Nickel	99.1		P	70 - 130
2138369	Selenium	92.2		P	70 - 130
2138369	Silver	94.8		P	70 - 130
2138369	Thallium	108		P	70 - 130
2138743	Aluminum	103	101	P/P	70 - 130
2138743	Antimony	107	106	P/P	70 - 130
2138743	Arsenic	109	110	P/P	70 - 130
2138743	Cadmium	103	105	P/P	70 - 130
2138743	Chromium	94.2	93.6	P/P	70 - 130
2138743	Copper	101	99.8	P/P	70 - 130
2138743	Lead	106	106	P/P	70 - 130
2138743	Nickel	98.0	98.0	P/P	70 - 130
2138743	Selenium	90.5	93.1	P/P	70 - 130

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P374895

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2138743	Silver	95.4	95.1	P/P	70 - 130
2138743	Thallium	109	110	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P375027

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139437	Aluminum	97.2	96.3	P/P	80 - 120
2139437	Antimony	99.3	98.4	P/P	80 - 120
2139437	Arsenic	102	100	P/P	80 - 120
2139437	Boron	103	102	P/P	80 - 120
2139437	Cadmium	97.2	96.7	P/P	80 - 120
2139437	Chromium	104	102	P/P	80 - 120
2139437	Copper	101	102	P/P	80 - 120
2139437	Lead	102	101	P/P	80 - 120
2139437	Nickel	101	101	P/P	80 - 120
2139437	Selenium	96.9	95.1	P/P	80 - 120
2139437	Silver	104	105	P/P	80 - 120
2139437	Thallium	106	106	P/P	80 - 120
2139462	Aluminum	98.0		P	80 - 120
2139462	Antimony	102		P	80 - 120
2139462	Arsenic	104		P	80 - 120
2139462	Boron	104		P	80 - 120
2139462	Cadmium	97.6		P	80 - 120
2139462	Chromium	105		P	80 - 120
2139462	Copper	102		P	80 - 120
2139462	Lead	103		P	80 - 120
2139462	Nickel	101		P	80 - 120
2139462	Selenium	95.9		P	80 - 120
2139462	Silver	103		P	80 - 120
2139462	Thallium	109		P	80 - 120

Reference Method: EPA 300.0
Batch ID: P375479

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2140215	Bromide	99.6	97.9	P/P	90 - 110
2140307	Bromide	91.4		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375409

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139384	Sulfate	98.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375475

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2140585	Chloride	103		P	90 - 110
2140820	Chloride	103		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375092

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139227	Ammonia-N	102	99.7	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375098

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139358	Ammonia-N	102	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375114

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139283	Kjeldahl Nitrogen	95.5	99.1	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375136

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139416	Kjeldahl Nitrogen	97.8	99.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374950

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139317	NO2NO3-N	100	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374951

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139415	NO2NO3-N	98.5	98.0	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P375101

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139580	NO2NO3-N	102	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375269

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139317	Total-P	103	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375270

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139341	Total-P	94.5	95.3	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374908

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139382	O-Phosphate-P	96.7	97.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374909

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139359	O-Phosphate-P	101	101	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P375180

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139456	Fluoride	97.8	99.0	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P375181

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2136116	Fluoride	97.1	97.8	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P375085

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139444	Organic Carbon	99.6	100	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P375087

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2139380	Organic Carbon	99.5	102	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P375070

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139379	Turbidity	4.99	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P375074

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139384	Turbidity	13.6	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P374895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138743	Iron	1.23	Spike	P	0 - 20
2138743	Manganese	2.36	Spike	P	0 - 20
2138743	Zinc	2.74	Spike	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P375027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139437	Barium	4.65	Spike	P	0 - 20
2139437	Calcium	3.75	Spike	P	0 - 20
2139437	Iron	2.19	Spike	P	0 - 20
2139437	Magnesium	2.01	Spike	P	0 - 20
2139437	Manganese	4.65	Spike	P	0 - 20
2139437	Potassium	3.72	Spike	P	0 - 20
2139437	Sodium	5.10	Spike	P	0 - 20
2139437	Zinc	4.83	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P374895

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138743	Aluminum	1.67	Spike	P	0 - 20
2138743	Antimony	0.523	Spike	P	0 - 20
2138743	Arsenic	0.569	Spike	P	0 - 20
2138743	Cadmium	1.87	Spike	P	0 - 20
2138743	Chromium	0.563	Spike	P	0 - 20
2138743	Copper	1.16	Spike	P	0 - 20
2138743	Lead	0.0293	Spike	P	0 - 20
2138743	Nickel	0.0225	Spike	P	0 - 20
2138743	Selenium	2.83	Spike	P	0 - 20
2138743	Silver	0.357	Spike	P	0 - 20
2138743	Thallium	0.659	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P375027

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139437	Aluminum	0.864	Spike	P	0 - 20
2139437	Antimony	0.938	Spike	P	0 - 20
2139437	Arsenic	1.76	Spike	P	0 - 20
2139437	Boron	0.466	Spike	P	0 - 20
2139437	Cadmium	0.489	Spike	P	0 - 20
2139437	Chromium	1.72	Spike	P	0 - 20
2139437	Copper	0.752	Spike	P	0 - 20
2139437	Lead	0.785	Spike	P	0 - 20
2139437	Nickel	0.316	Spike	P	0 - 20
2139437	Selenium	1.89	Spike	P	0 - 20
2139437	Silver	0.674	Spike	P	0 - 20
2139437	Thallium	0.138	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P375479

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2140215	Bromide	1.63	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375409

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139384	Sulfate	0.450	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P375475

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2140820	Chloride	0.337	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375092

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139227	Ammonia-N	1.62	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P375098

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139358	Ammonia-N	1.68	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375114

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139283	Kjeldahl Nitrogen	3.35	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P375136

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139416	Kjeldahl Nitrogen	1.02	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374950

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139317	NO2NO3-N	0.501	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P374951

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139415	NO2NO3-N	0.509	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P375101

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139580	NO2NO3-N	0.491	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375269

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139317	Total-P	3.89	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P375270

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139341	Total-P	0.843	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374908

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139382	O-Phosphate-P	0.600	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P374909

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139359	O-Phosphate-P	0.296	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P374892

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139233	Color (true)	1.59	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P375172

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139456	Total Alkalinity	0.380	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P375174

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2138659	Total Alkalinity	0.192	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P375510

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139198	TDS	3.68	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P375180

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139456	Fluoride	0.974	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
Batch ID: P375181

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2136116	Fluoride	0.476	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P375085

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139444	Organic Carbon	0.355	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P375087

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2139380	Organic Carbon	2.19	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A95976

Included Lab Sample IDs: 2139384

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	101	P/P	90 - 115

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A95979

Included Lab Sample IDs: 2139382, 2139383, 2139386

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	92.5	91.6	P/P	90 - 110
O-Phosphate-P	93.3	92.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A96002

Included Lab Sample IDs: 2139381, 2139385

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A96024

Included Lab Sample IDs: 2139391

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	103	107	P/P	90 - 110
Manganese	101	101	P/P	90 - 110
Zinc	97.4	95.5	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A96050

Included Lab Sample IDs: 2139378, 2139379, 2139384

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

Reference Method: SM 5310 B-00

Run ID: A96056

Included Lab Sample IDs: 2139380, 2139381, 2139385

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	101	102	P/P	90 - 110
Organic Carbon	102	102	P/P	90 - 110
Organic Carbon	103	98.8	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A96062

Included Lab Sample IDs: 2139380

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	99.9	99.2	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A96065

Included Lab Sample IDs: 2139381, 2139385

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A96069

Included Lab Sample IDs: 2139380

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A96081

Included Lab Sample IDs: 2139392, 2139393

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Barium	99.4	99.9	P/P	90 - 110
Calcium	100	99.8	P/P	90 - 110
Iron	98.4	99.0	P/P	90 - 110
Magnesium	99.1	99.8	P/P	90 - 110
Manganese	104	103	P/P	90 - 110
Potassium	97.7	98.6	P/P	90 - 110
Sodium	98.9	99.0	P/P	90 - 110
Zinc	102	103	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A96084

Included Lab Sample IDs: 2139378, 2139379, 2139384

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

Reference Method: SM 4500 F-C-97

Run ID: A96084

Included Lab Sample IDs: 2139378, 2139379, 2139384

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A96087

Included Lab Sample IDs: 2139384

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A96111

Included Lab Sample IDs: 2139380, 2139381, 2139385

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A96111

Included Lab Sample IDs: 2139380, 2139381, 2139385

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A96171

Included Lab Sample IDs: 2139380, 2139381, 2139385

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A96173

Included Lab Sample IDs: 2139392, 2139393

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.2	99.0	P/P	90 - 110
Antimony	96.8	96.9	P/P	90 - 110
Boron	100	104	P/P	90 - 110
Cadmium	96.3	97.3	P/P	90 - 110
Chromium	105	106	P/P	90 - 110
Copper	101	102	P/P	90 - 110
Lead	99.5	100	P/P	90 - 110
Nickel	104	103	P/P	90 - 110
Selenium	100	101	P/P	90 - 110
Silver	104	105	P/P	90 - 110
Thallium	96.8	96.8	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A96205

Included Lab Sample IDs: 2139384

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

Reference Method: EPA 300.0

Run ID: A96206

Included Lab Sample IDs: 2139378, 2139379

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A96211

Included Lab Sample IDs: 2139392, 2139393

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A96267

Included Lab Sample IDs: 2139391

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	98.0	98.5	P/P	90 - 110
Antimony	97.1	97.4	P/P	90 - 110
Arsenic	99.7	100	P/P	90 - 110
Cadmium	97.6	97.1	P/P	90 - 110
Chromium	96.6	97.5	P/P	90 - 110
Lead	98.4	98.9	P/P	90 - 110
Nickel	98.2	99.3	P/P	90 - 110
Silver	98.3	98.4	P/P	90 - 110
Thallium	93.7	94.5	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A96330

Included Lab Sample IDs: 2139391, 2139393

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	91.6	92.2	P/P	90 - 110
Copper	95.3	92.3	P/P	90 - 110
Selenium	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			Precision SMP	MS
			LCS				
EPA 180.1 Rev. 2.0	Turbidity					4.99	
	Turbidity					13.6	
EPA 200.7 Rev. 4.4	Barium	104	101	106	102		4.65
	Calcium	104	100	106	101		3.75
	Iron	106	103	105	106		1.23
	Iron	103	100	103	101		2.19
	Magnesium	105	101	104	100		2.01
	Manganese	99.0	96.5	93.8	96.2		2.36
	Manganese	106	102	107	104		4.65
	Potassium	100	96.1	101	96.9		3.72
	Sodium	105	96.1	104	99.1		5.10
	Zinc	98.5	101	94.2	96.8		2.74
	Zinc	105	103	108	104		4.83
EPA 200.8 Rev. 5.4	Aluminum	96.5	105	103	101		1.67
	Aluminum	100	97.2	96.3	98.0		0.864
	Antimony	99.9	105	107	106		0.523
	Antimony	101	99.3	98.4	102		0.938
	Arsenic	97.8	109	109	110		0.569
	Arsenic	104	102	100	104		1.76
	Boron	105	103	102	104		0.466
	Cadmium	96.5	101	103	105		1.87
	Cadmium	98.9	97.2	96.7	97.6		0.489
	Chromium	95.3	92.2	94.2	93.6		0.563
	Chromium	104	104	102	105		1.72
	Copper	95.9	104	101	99.8		1.16
	Copper	109	101	102	102		0.752
	Lead	100	106	106	106		0.0293
	Lead	104	102	101	103		0.785
	Nickel	96.1	99.1	98.0	98.0		0.0225
	Nickel	105	101	101	101		0.316
	Selenium	95.0	90.5	93.1	92.2		2.83
	Selenium	102	96.9	95.1	95.9		1.89
	Silver	98.4	94.8	95.4	95.1		0.357
	Silver	106	104	105	103		0.674
	Thallium	104	108	109	110		0.659
	Thallium	109	106	106	109		0.138
EPA 300.0	Bromide	101	99.6	97.9	91.4		1.63
EPA 300.0 Rev. 2.1	Chloride	102	103	103		0.337	
	Sulfate	101	98.8			0.450	
EPA 350.1 Rev. 2.0	Ammonia-N	97.9	102	99.7			1.62
	Ammonia-N	101	102	100			1.68
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.7	95.5	99.1			3.35
	Kjeldahl Nitrogen	106	97.8	99.0			1.02
EPA 353.2 Rev. 2.0	NO2NO3-N	99.0	100	99.5			0.501
	NO2NO3-N	99.0	98.5	98.0			0.509
	NO2NO3-N	101	102	102			0.491
EPA 365.1 Rev. 2.0	Total-P	101	103	98.4			3.89
	Total-P	101	94.5	95.3			0.843
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.7	96.7	97.4			0.600
	O-Phosphate-P	104	101	101			0.296
SM 2120 B	Color (true)	101				1.59	
SM 2320 B-97	Total Alkalinity	103				0.380	
	Total Alkalinity	104				0.192	
SM 2540 C-97	TDS					3.68	

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
SM 4500 F-C-97	Fluoride	96.2	97.8	99.0		0.974
	Fluoride	97.1	97.1	97.8		0.476
SM 5310 B-00	Organic Carbon	101	99.6	100		0.355
	Organic Carbon	105	99.5	102		2.19

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2139378, 2139379, 2139384
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2139391, 2139392, 2139393
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2139391, 2139392, 2139393
EPA 300.0 / E31780	Bromide in aqueous matrices	2139378, 2139379
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2139384
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2139384
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2139380, 2139381, 2139385
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2139380, 2139381, 2139385
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2139380, 2139381, 2139385
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2139380, 2139381, 2139385
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2139382, 2139383, 2139386
SM 2120 B / E31780	True Color measured at 450 nm	2139384
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2139378, 2139379, 2139384
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2139384
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2139378, 2139379, 2139384
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2139378, 2139379, 2139384
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2139380, 2139381, 2139385

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	11/26/2019			11/26/2019 18:00	Yen Ta	2139378, 2139379, 2139384
EPA 200.7 Rev. 4.4	11/26/2019	11/26/2019 17:50	Elliott D. Healy	11/28/2019 01:02	Betina Topolski	2139391
	11/26/2019	12/02/2019 13:30	Elliott D. Healy	12/03/2019 14:50	Betina Topolski	2139392
	11/26/2019	12/02/2019 13:30	Elliott D. Healy	12/03/2019 14:57	Betina Topolski	2139393
EPA 200.8 Rev. 5.4	11/26/2019	11/26/2019 17:50	Elliott D. Healy	12/11/2019 23:05	Martin Acosta	2139391
	11/26/2019	11/26/2019 17:50	Elliott D. Healy	12/14/2019 12:29	Alexander Thompson	2139391
	11/26/2019	12/02/2019 13:30	Elliott D. Healy	12/07/2019 04:54	Alexander Thompson	2139392
	11/26/2019	12/02/2019 13:30	Elliott D. Healy	12/07/2019 05:04	Alexander Thompson	2139393
	11/26/2019	12/02/2019 13:30	Elliott D. Healy	12/10/2019 05:10	Alexander Thompson	2139392
	11/26/2019	12/02/2019 13:30	Elliott D. Healy	12/10/2019 05:16	Alexander Thompson	2139393
	11/26/2019	12/02/2019 13:30	Elliott D. Healy	12/13/2019 20:48	Alexander Thompson	2139393
EPA 300.0	11/26/2019			12/09/2019 22:16	Lipi Saha	2139378
	11/26/2019			12/09/2019 22:33	Lipi Saha	2139379
EPA 300.0 Rev. 2.1	11/26/2019			12/06/2019 22:55	Jhamieka S. Greenwood	2139384
	11/26/2019			12/10/2019 05:49	Lipi Saha	2139384
EPA 350.1 Rev. 2.0	11/26/2019			11/27/2019 11:42	Ping Hua	2139380
	11/26/2019			12/02/2019 14:05	Ping Hua	2139381
	11/26/2019			12/02/2019 14:06	Ping Hua	2139385
EPA 351.2 Rev. 2.0	11/26/2019	12/03/2019 12:50	Sima Feizi	12/04/2019 14:22	Jhamieka S. Greenwood	2139381
	11/26/2019	12/03/2019 12:50	Sima Feizi	12/04/2019 14:24	Jhamieka S. Greenwood	2139385
	11/26/2019	12/03/2019 12:55	Sima Feizi	12/04/2019 15:00	Jhamieka S. Greenwood	2139380
EPA 353.2 Rev. 2.0	11/26/2019			11/27/2019 11:17	Beverly Y. Sanders	2139381
	11/26/2019			11/27/2019 11:30	Beverly Y. Sanders	2139385
	11/26/2019			12/03/2019 09:59	Beverly Y. Sanders	2139380
EPA 365.1 Rev. 2.0	11/26/2019	12/05/2019 17:50	Lipi Saha	12/06/2019 20:11	Julia Storbeck	2139381
	11/26/2019	12/05/2019 17:50	Lipi Saha	12/06/2019 20:19	Julia Storbeck	2139385
	11/26/2019	12/05/2019 17:50	Lipi Saha	12/06/2019 20:27	Julia Storbeck	2139380
EPA 365.1 Rev. 2.0 dissolved	11/26/2019			11/26/2019 15:41	Virginia P. Brown	2139382
	11/26/2019			11/26/2019 16:23	Virginia P. Brown	2139383
	11/26/2019			11/26/2019 16:24	Virginia P. Brown	2139386
SM 2120 B	11/26/2019			11/26/2019 16:46	Julia Storbeck	2139384
SM 2320 B-97	11/26/2019			12/03/2019 06:33	Dale L. Simmons	2139379
	11/26/2019			12/03/2019 06:44	Dale L. Simmons	2139384
	11/26/2019			12/03/2019 13:00	Dale L. Simmons	2139378
SM 2540 C-97	11/26/2019			11/27/2019 15:32	Yijie Li	2139384
SM 2540 D-97	11/26/2019			11/27/2019 15:32	Yijie Li	2139378, 2139379, 2139384
SM 4500 F-C-97	11/26/2019			12/03/2019 06:33	Dale L. Simmons	2139379
	11/26/2019			12/03/2019 06:44	Dale L. Simmons	2139384
	11/26/2019			12/03/2019 10:33	Dale L. Simmons	2139378
SM 5310 B-00	11/26/2019			12/02/2019 16:41	Lauren Lees	2139381

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
SM 5310 B-00	11/26/2019			12/02/2019 17:20	Lauren Lees	2139385
	11/26/2019			12/03/2019 00:12	Lauren Lees	2139380