

Chemical Analysis Report

SE-DIST-2019-05-29-01

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

Event Description: **SMP-Greasy**
Request ID: **RQ-2019-04-29-65**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
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2199 South Rock Road
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Certified by: Colin Wright, Program Administrator

Date Certified: 12-JUN-2019 13:45

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: CYPRESS @ 441 MARGATE

Collection Date/Time: 05/28/2019 11:10

Field ID: G4SE0038

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089589	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P364700	
	EPA 300.0 Rev. 2.1	Chloride	140		mg Cl/L	P364935	
		Sulfate	23		mg SO4/L	P364937	
	SM 2120 B	Color (true)	93		PCU	P364664	
	SM 2320 B-97	Total Alkalinity	189		mg CaCO3/L	P365079	
	SM 2540 C-97	TDS	468		mg/L	P365259	
	SM 2540 D-97	TSS	2	U	mg/L	P365057	
	SM 4500 F-C-97	Fluoride	0.43		mg F/L	P365084	
2089590	EPA 350.1 Rev. 2.0	Ammonia-N	0.029		mg N/L	P365203	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.7		mg N/L	P364962	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.020		mg N/L	P364728	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P364902	
	SM 5310 B-00	Organic Carbon	30		mg C/L	P364799	
2089591	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364679	

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: C-42 @ BROWARD

Collection Date/Time: 05/28/2019 12:00

Field ID: G4SE0057

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089592	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P364700	
	EPA 300.0 Rev. 2.1	Chloride	100		mg Cl/L	P364936	
		Sulfate	11		mg SO4/L	P364938	
	SM 2120 B	Color (true)	52		PCU	P364664	
	SM 2320 B-97	Total Alkalinity	212		mg CaCO3/L	P365079	
	SM 2540 C-97	TDS	410		mg/L	P365259	
	SM 2540 D-97	TSS	2	I	mg/L	P365057	
	SM 4500 F-C-97	Fluoride	0.41		mg F/L	P365084	
2089593	EPA 350.1 Rev. 2.0	Ammonia-N	0.17		mg N/L	P365203	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P364962	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.040		mg N/L	P364728	
	EPA 365.1 Rev. 2.0	Total-P	0.013		mg P/L	P364902	
	SM 5310 B-00	Organic Carbon	22		mg C/L	P364799	
2089594	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364679	

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.

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

Sample Location: SNAKE CREEK CANAL (NORTH FORK) @ STIRLING

Collection Date/Time: 05/28/2019 13:20

Field ID: G4SE0049

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089601	EPA 180.1 Rev. 2.0	Turbidity	0.85		NTU	P364700	
	EPA 300.0 Rev. 2.1	Chloride	64		mg Cl/L	P364936	
		Sulfate	3.7		mg SO4/L	P364938	
	SM 2120 B	Color (true)	31		PCU	P364664	
	SM 2320 B-97	Total Alkalinity	228		mg CaCO3/L	P365079	
	SM 2540 C-97	TDS	342		mg/L	P365259	
	SM 2540 D-97	TSS	2	U	mg/L	P365057	
	SM 4500 F-C-97	Fluoride	0.28		mg F/L	P365084	
2089603	EPA 350.1 Rev. 2.0	Ammonia-N	0.015		mg N/L	P365203	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.99		mg N/L	P364963	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.20		mg N/L	P364728	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P364902	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P364799	
2089605	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364679	

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.

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

Sample Location: NORTH FORK SNAKE CREEK @ SUNSHINE REACH

Collection Date/Time: 05/28/2019 13:40

Field ID: G4SE0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089602	EPA 180.1 Rev. 2.0	Turbidity	0.55		NTU	P364700	
	EPA 300.0 Rev. 2.1	Chloride	66		mg Cl/L	P364936	
		Sulfate	2.8		mg SO4/L	P364938	
	SM 2120 B	Color (true)	31		PCU	P364664	
	SM 2320 B-97	Total Alkalinity	200		mg CaCO3/L	P365081	
	SM 2540 C-97	TDS	326		mg/L	P365259	
	SM 2540 D-97	TSS	2	U	mg/L	P365057	
	SM 4500 F-C-97	Fluoride	0.25		mg F/L	P365085	
2089604	EPA 350.1 Rev. 2.0	Ammonia-N	0.009		mg N/L	P365203	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.93		mg N/L	P364963	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P364729	
	EPA 365.1 Rev. 2.0	Total-P	0.007		mg P/L	P364902	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P364799	
2089606	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364679	

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.

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

Sample Location: HOLLOWAY @ PETERS

Collection Date/Time: 05/28/2019 14:30

Field ID: G4SE0107

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089595	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P364700	
	EPA 300.0 Rev. 2.1	Chloride	86		mg Cl/L	P364936	
		Sulfate	8.9		mg SO4/L	P364938	
	SM 2120 B	Color (true)	39		PCU	P364664	
	SM 2320 B-97	Total Alkalinity	170		mg CaCO3/L	P365079	
	SM 2540 C-97	TDS	344		mg/L	P365259	
	SM 2540 D-97	TSS	2	U	mg/L	P365057	
	SM 4500 F-C-97	Fluoride	0.34		mg F/L	P365084	
2089596	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P365203	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P364962	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.008	I	mg N/L	P364728	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P364902	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P364799	
2089597	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364679	

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.

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

Sample Location: DANIA CUTOFF @ OLD GRIFFIN

Collection Date/Time: 05/28/2019 15:00

Field ID: G4SE0106

Matrix: W-SURF-SLT

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2089598	EPA 180.1 Rev. 2.0	Turbidity	2.1	A	NTU	P364700	
	EPA 300.0	Bromide	43		mg Br/L	P364877	
	SM 2320 B-97	Total Alkalinity	170		mg CaCO3/L	P364930	
	SM 2540 D-97	TSS	3	UA	mg/L	P365065	
	SM 4500 F-C-97	Fluoride	0.84		mg F/L	P364932	
2089599	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P365206	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.53		mg N/L	P365181	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.036		mg N/L	P364807	
	EPA 365.1 Rev. 2.0	Total-P	0.021		mg P/L	P364904	
	SM 5310 B-00	Organic Carbon	6.0		mg C/L	P364906	
2089600	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P364678	
2089625	EPA 200.7 Rev. 4.4	Iron	90	U	ug/L	P364772	
		Magnesium	789		mg/L	P364772	
		Manganese	5.1	I	ug/L	P364772	
		Zinc	15	U	ug/L	P364772	
	EPA 200.8 Rev. 5.4	Aluminum	50	U	ug/L	P364772	
		Antimony	0.20	U	ug/L	P364772	
		Arsenic	2.1		ug/L	P364772	
		Cadmium	0.080	U	ug/L	P364772	
		Chromium	4.0	U	ug/L	P364772	
		Copper	6.2		ug/L	P364772	
		Lead	2.0	U	ug/L	P364772	
		Nickel	5.0	U	ug/L	P364772	
		Selenium	2.0	U	ug/L	P364772	
		Silver	0.040	U	ug/L	P364772	
		Thallium	1.0	U	ug/L	P364772	

Ref. Method and Comment:

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

SM 4500 F-C-97: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for magnesium are unavailable because of high analyte concentration in the QC sample.

EPA 200.8 Rev. 5.4: The copper result was confirmed in the undigested sample on 06/06/2019.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P364700

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P364772

Component	Result	Code	Units
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Manganese	1.0	U	ug/L
Zinc	5.0	U	ug/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364772

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 300.0
Batch ID: P364877

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364935

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364936

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364937

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364938

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365203

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365206

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364962

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364963

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365181

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364728

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364729

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364807

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364902

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364904

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364678

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364679

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

Reference Method: SM 2120 B
Batch ID: P364664

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P364930

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

Reference Method: SM 2320 B-97
Batch ID: P365079

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

Reference Method: SM 2320 B-97
Batch ID: P365081

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

Reference Method: SM 2540 C-97
Batch ID: P365259

Component	Result	Code	Units
TDS	15	U	mg/L

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Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P365057

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P365065

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P364932

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P365084

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P365085

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P364799

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

Reference Method: SM 5310 B-00
Batch ID: P364906

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: P364772

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	103		P	85 - 115
Magnesium	101		P	85 - 115
Manganese	98.9		P	85 - 115
Zinc	98.9		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364772

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	98.4		P	85 - 115
Antimony	99.6		P	85 - 115
Arsenic	101		P	85 - 115
Cadmium	102		P	85 - 115
Chromium	102		P	85 - 115
Copper	98.7		P	85 - 115
Lead	92.1		P	85 - 115
Nickel	98.6		P	85 - 115
Selenium	100		P	85 - 115
Silver	99.4		P	85 - 115
Thallium	103		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P364877

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364935

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364936

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364937

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364938

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

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365203

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365206

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: P364962

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364963

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365181

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364728

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364729

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364807

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364902

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364904

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364678

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364679

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

Reference Method: SM 2120 B
Batch ID: P364664

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

Reference Method: SM 2320 B-97
Batch ID: P364930

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

Reference Method: SM 2320 B-97
Batch ID: P365079

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

Reference Method: SM 2320 B-97
Batch ID: P365081

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

Reference Method: SM 4500 F-C-97
Batch ID: P364932

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.7		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P365084

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.4		P	92 - 103

Quality Assurance Report

Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P365085

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	96.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P364799

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

Reference Method: SM 5310 B-00
Batch ID: P364906

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P364772

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089140	Iron	100	100	P/P	70 - 130
2089140	Manganese	92.6	92.3	P/P	70 - 130
2089140	Zinc	96.8	97.5	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P364772

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089140	Aluminum	110	106	P/P	70 - 130
2089140	Antimony	102	100	P/P	70 - 130
2089140	Arsenic	108	106	P/P	70 - 130
2089140	Cadmium	97.7	95.5	P/P	70 - 130
2089140	Chromium	103	97.1	P/P	70 - 130
2089140	Copper	99.6	99.3	P/P	70 - 130
2089140	Lead	95.4	93.5	P/P	70 - 130
2089140	Nickel	95.8	94.0	P/P	70 - 130
2089140	Selenium	109	104	P/P	70 - 130
2089140	Silver	94.3	92.5	P/P	70 - 130
2089140	Thallium	103	103	P/P	70 - 130

Reference Method: EPA 300.0
Batch ID: P364877

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089522	Bromide	94.5	95.6	P/P	90 - 110
2089528	Bromide	95.8		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364935

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089211	Chloride	99.6		P	90 - 110
2089534	Chloride	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364936

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089638	Chloride	105		P	90 - 110
2089698	Chloride	104		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364937

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089211	Sulfate	101		P	90 - 110
2089534	Sulfate	103		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364938

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
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Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364938

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089698	Sulfate	105		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365203

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089576	Ammonia-N	98.3	98.1	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365206

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089815	Ammonia-N	104	104	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364962

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089569	Kjeldahl Nitrogen	105	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364963

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089603	Kjeldahl Nitrogen	106	97.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365181

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089599	Kjeldahl Nitrogen	102	102	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364728

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089505	NO2NO3-N	98.0		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364729

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089604	NO2NO3-N	98.9	98.4	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364807

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089450	NO2NO3-N	100	99.5	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364902

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089604	Total-P	102	98.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364904

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089486	Total-P	94.0	91.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364678

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089501	O-Phosphate-P	95.6	98.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364679

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089577	O-Phosphate-P	97.5	98.1	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P365084

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089430	Fluoride	105	104	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P365085

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089700	Fluoride	99.0	97.4	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P364799

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089526	Organic Carbon	104	104	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P364906

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2089599	Organic Carbon	99.7	101	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P364700

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089598	Turbidity	2.43	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
 Batch ID: P364772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089140	Iron	0.358	Spike	P	0 - 20
2089140	Magnesium	0.499	Spike	P	0 - 20
2089140	Manganese	0.283	Spike	P	0 - 20
2089140	Zinc	0.672	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
 Batch ID: P364772

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089140	Aluminum	3.56	Spike	P	0 - 20
2089140	Antimony	1.37	Spike	P	0 - 20
2089140	Arsenic	1.82	Spike	P	0 - 20
2089140	Cadmium	2.35	Spike	P	0 - 20
2089140	Chromium	5.76	Spike	P	0 - 20
2089140	Copper	0.256	Spike	P	0 - 20
2089140	Lead	1.95	Spike	P	0 - 20
2089140	Nickel	1.83	Spike	P	0 - 20
2089140	Selenium	4.62	Spike	P	0 - 20
2089140	Silver	1.95	Spike	P	0 - 20
2089140	Thallium	0.323	Spike	P	0 - 20

Reference Method: EPA 300.0
 Batch ID: P364877

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089522	Bromide	0.625	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P364935

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089534	Chloride	6.03	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P364936

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089638	Chloride	12.5	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364937

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089534	Sulfate	6.30	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P364938

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089638	Sulfate	12.6	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365203

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089576	Ammonia-N	0.198	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365206

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089815	Ammonia-N	0.484	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364962

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089569	Kjeldahl Nitrogen	1.41	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P364963

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089603	Kjeldahl Nitrogen	4.51	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365181

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089599	Kjeldahl Nitrogen	0.0469	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364728

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089505	NO2NO3-N	0.199	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364729

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089604	NO2NO3-N	0.471	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P364807

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089450	NO2NO3-N	1.00	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364902

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089604	Total-P	3.23	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P364904

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089486	Total-P	2.40	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364678

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089501	O-Phosphate-P	2.78	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P364679

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089577	O-Phosphate-P	0.613	Spike	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P364664

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089575	Color (true)	2.27	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P364930

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089083	Total Alkalinity	1.42	Sample	P	0 - 2.8

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P365079

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089430	Total Alkalinity	0.863	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P365081

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089700	Total Alkalinity	0.253	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P365259

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089633	TDS	3.44	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P364932

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089083	Fluoride	0.473	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
Batch ID: P365084

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089430	Fluoride	1.48	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
Batch ID: P365085

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089700	Fluoride	1.48	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P364799

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089526	Organic Carbon	0.0899	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P364906

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2089599	Organic Carbon	0.954	Spike	P	0 - 20

Quality Assurance Report

Precision

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A91724

Included Lab Sample IDs: 2089589, 2089592, 2089595, 2089601, 2089602

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A91728

Included Lab Sample IDs: 2089591, 2089594, 2089597, 2089600, 2089605, 2089606

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	94.6	94.6	P/P	90 - 110
O-Phosphate-P	95.8	96.1	P/P	90 - 110
O-Phosphate-P	96.1	94.6	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A91733

Included Lab Sample IDs: 2089589, 2089592, 2089595, 2089598, 2089601, 2089602

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.0	P/P	95 - 105

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91740

Included Lab Sample IDs: 2089590, 2089593, 2089596, 2089603, 2089604

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	98.5	98.5	P/P	90 - 110
NO2NO3-N	98.5	99.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A91779

Included Lab Sample IDs: 2089590, 2089593, 2089596, 2089603, 2089604

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	108	109	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A91781

Included Lab Sample IDs: 2089599

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	99.5	98.0	P/P	90 - 110

Reference Method: EPA 300.0

Run ID: A91804

Included Lab Sample IDs: 2089598

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

Quality Assurance Report Calibration Verification

Reference Method: SM 5310 B-00
Run ID: A91812
Included Lab Sample IDs: 2089599

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

Reference Method: SM 2320 B-97
Run ID: A91818
Included Lab Sample IDs: 2089598

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

Reference Method: SM 4500 F-C-97
Run ID: A91818
Included Lab Sample IDs: 2089598

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: A91823
Included Lab Sample IDs: 2089589, 2089592, 2089595, 2089601, 2089602

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	102	102	P/P	90 - 110
Chloride	103	103	P/P	90 - 110
Sulfate	103	103	P/P	90 - 110
Sulfate	104	104	P/P	90 - 110

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A91824
Included Lab Sample IDs: 2089625

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	99.9	99.1	P/P	90 - 110
Magnesium	100	99.0	P/P	90 - 110
Manganese	98.4	97.7	P/P	90 - 110
Zinc	99.3	97.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A91839
Included Lab Sample IDs: 2089590, 2089593, 2089596, 2089599, 2089603, 2089604

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.2	101	P/P	90 - 110
Total-P	99.5	99.2	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A91856
Included Lab Sample IDs: 2089625

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	98.8	102	P/P	90 - 110
Antimony	95.8	96.3	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91856

Included Lab Sample IDs: 2089625

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	100	101	P/P	90 - 110
Cadmium	99.3	99.6	P/P	90 - 110
Copper	99.7	100	P/P	90 - 110
Lead	92.4	92.8	P/P	90 - 110
Nickel	99.2	98.1	P/P	90 - 110
Selenium	101	101	P/P	90 - 110
Silver	97.8	98.3	P/P	90 - 110
Thallium	97.4	96.2	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A91867

Included Lab Sample IDs: 2089589, 2089592, 2089595, 2089601, 2089602

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

Reference Method: SM 4500 F-C-97

Run ID: A91867

Included Lab Sample IDs: 2089589, 2089592, 2089595, 2089601, 2089602

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	100	98.5	P/P	90 - 110
Fluoride	98.1	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91898

Included Lab Sample IDs: 2089590, 2089593, 2089596

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

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A91899

Included Lab Sample IDs: 2089625

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A91914

Included Lab Sample IDs: 2089590, 2089593, 2089596, 2089599, 2089603, 2089604

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	101	103	P/P	90 - 110
Ammonia-N	99.9	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91922

Included Lab Sample IDs: 2089603, 2089604

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A91946

Included Lab Sample IDs: 2089599

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	102	104	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						2.43	
EPA 200.7 Rev. 4.4	Iron	103		100	100			0.358
	Magnesium	101						0.499
	Manganese	98.9		92.6	92.3			0.283
	Zinc	98.9		96.8	97.5			0.672
EPA 200.8 Rev. 5.4	Aluminum	98.4		110	106			3.56
	Antimony	99.6		102	100			1.37
	Arsenic	101		108	106			1.82
	Cadmium	102		97.7	95.5			2.35
	Chromium	102		103	97.1			5.76
	Copper	98.7		99.6	99.3			0.256
	Lead	92.1		95.4	93.5			1.95
	Nickel	98.6		95.8	94.0			1.83
	Selenium	100		109	104			4.62
	Silver	99.4		94.3	92.5			1.95
	Thallium	103		103	103			0.323
EPA 300.0	Bromide	101		94.5	95.6	95.8		0.625
EPA 300.0 Rev. 2.1	Chloride	102		103	99.6		6.03	
	Chloride	100		105	104		12.5	
	Sulfate	103		103	101		6.30	
	Sulfate	103		105			12.6	
EPA 350.1 Rev. 2.0	Ammonia-N	101		98.3	98.1			0.198
	Ammonia-N	101		104	104			0.484
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106		105	103			1.41
	Kjeldahl Nitrogen	105		106	97.9			4.51
	Kjeldahl Nitrogen	104		102	102			0.0469
EPA 353.2 Rev. 2.0	NO2NO3-N	99.5		98.0				0.199
	NO2NO3-N	98.5		98.9	98.4			0.471
	NO2NO3-N	99.0		100	99.5			1.00
EPA 365.1 Rev. 2.0	Total-P	101		102	98.6			3.23
	Total-P	99.7		94.0	91.7			2.40
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.1		95.6	98.3			2.78
	O-Phosphate-P	97.3		97.5	98.1			0.613
SM 2120 B	Color (true)	100					2.27	
SM 2320 B-97	Total Alkalinity	103					1.42	
	Total Alkalinity	103					0.863	
	Total Alkalinity	104					0.253	
SM 2540 C-97	TDS						3.44	
SM 4500 F-C-97	Fluoride	97.7						0.473
	Fluoride	96.4		105	104			1.48
	Fluoride	96.9		99.0	97.4			1.48
SM 5310 B-00	Organic Carbon	105		104	104			0.0899
	Organic Carbon	100		99.7	101			0.954

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2089589, 2089592, 2089595, 2089598, 2089601, 2089602
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2089625
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2089625

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 / E31780	Bromide in aqueous matrices	2089598
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2089589, 2089592, 2089595, 2089601, 2089602
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2089589, 2089592, 2089595, 2089601, 2089602
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2089590, 2089593, 2089596, 2089599, 2089603, 2089604
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2089590, 2089593, 2089596, 2089599, 2089603, 2089604
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2089590, 2089593, 2089596, 2089599, 2089603, 2089604
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2089590, 2089593, 2089596, 2089599, 2089603, 2089604
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2089591, 2089594, 2089597, 2089600, 2089605, 2089606
SM 2120 B / E31780	True Color measured at 450 nm	2089589, 2089592, 2089595, 2089601, 2089602
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2089589, 2089592, 2089595, 2089598, 2089601, 2089602
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2089589, 2089592, 2089595, 2089601, 2089602
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2089589, 2089592, 2089595, 2089598, 2089601, 2089602
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2089589, 2089592, 2089595, 2089598, 2089601, 2089602
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2089590, 2089593, 2089596, 2089599, 2089603, 2089604

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	05/29/2019			05/29/2019 16:48	Adrian Shelby	2089589, 2089592, 2089595, 2089598, 2089601, 2089602
EPA 200.7 Rev. 4.4	05/29/2019	05/30/2019 17:15	Elliott D. Healy	06/03/2019 16:02	Betina Topolski	2089625
	05/29/2019	05/30/2019 17:15	Elliott D. Healy	06/03/2019 16:14	Betina Topolski	2089625
EPA 200.8 Rev. 5.4	05/29/2019	05/30/2019 17:15	Elliott D. Healy	06/05/2019 01:01	Robert K Palmer	2089625
	05/29/2019	05/30/2019 17:15	Elliott D. Healy	06/05/2019 03:09	Robert K Palmer	2089625
	05/29/2019	05/30/2019 17:15	Elliott D. Healy	06/06/2019 04:02	Robert K Palmer	2089625
EPA 300.0	05/29/2019			05/30/2019 16:04	Lipi Saha	2089598
EPA 300.0 Rev. 2.1	05/29/2019			06/03/2019 20:36	Lipi Saha	2089589
	05/29/2019			06/04/2019 00:27	Lipi Saha	2089592
	05/29/2019			06/04/2019 00:39	Lipi Saha	2089595
	05/29/2019			06/04/2019 00:51	Lipi Saha	2089601
	05/29/2019			06/04/2019 01:04	Lipi Saha	2089602
EPA 350.1 Rev. 2.0	05/29/2019			06/05/2019 09:56	Ping Hua	2089590
	05/29/2019			06/05/2019 09:57	Ping Hua	2089593
	05/29/2019			06/05/2019 09:59	Ping Hua	2089596
	05/29/2019			06/05/2019 10:00	Ping Hua	2089603
	05/29/2019			06/05/2019 10:02	Ping Hua	2089604
	05/29/2019			06/05/2019 11:22	Ping Hua	2089599
EPA 351.2 Rev. 2.0	05/29/2019	06/04/2019 11:15	Adrian Shelby	06/05/2019 16:59	Joseph Suarez	2089603
	05/29/2019	06/04/2019 11:15	Adrian Shelby	06/05/2019 17:04	Joseph Suarez	2089604
	05/29/2019	06/04/2019 11:15	Adrian Shelby	06/06/2019 09:25	Joseph Suarez	2089590
	05/29/2019	06/04/2019 11:15	Adrian Shelby	06/06/2019 09:27	Joseph Suarez	2089593
	05/29/2019	06/04/2019 11:15	Adrian Shelby	06/06/2019 09:28	Joseph Suarez	2089596
	05/29/2019	06/06/2019 12:15	Adrian Shelby	06/07/2019 10:27	Joseph Suarez	2089599
EPA 353.2 Rev. 2.0	05/29/2019			05/30/2019 10:07	Beverly Y. Sanders	2089590
	05/29/2019			05/30/2019 10:08	Beverly Y. Sanders	2089593
	05/29/2019			05/30/2019 10:10	Beverly Y. Sanders	2089596
	05/29/2019			05/30/2019 10:11	Beverly Y. Sanders	2089603
	05/29/2019			05/30/2019 10:18	Beverly Y. Sanders	2089604
	05/29/2019			05/31/2019 11:21	Beverly Y. Sanders	2089599
EPA 365.1 Rev. 2.0	05/29/2019	06/03/2019 11:05	Sima Feizi	06/04/2019 12:52	Rosalyn Ballman	2089590
	05/29/2019	06/03/2019 11:05	Sima Feizi	06/04/2019 12:53	Rosalyn Ballman	2089593
	05/29/2019	06/03/2019 11:05	Sima Feizi	06/04/2019 12:54	Rosalyn Ballman	2089596, 2089603
	05/29/2019	06/03/2019 11:05	Sima Feizi	06/04/2019 12:55	Rosalyn Ballman	2089604
	05/29/2019	06/03/2019 11:05	Sima Feizi	06/04/2019 13:15	Rosalyn Ballman	2089599
EPA 365.1 Rev. 2.0 dissolved	05/29/2019			05/29/2019 16:49	Jhamieka S. Greenwood	2089591
	05/29/2019			05/29/2019 16:50	Jhamieka S. Greenwood	2089594
	05/29/2019			05/29/2019 16:51	Jhamieka S. Greenwood	2089597
	05/29/2019			05/29/2019 16:56	Jhamieka S. Greenwood	2089605

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 dissolved	05/29/2019			05/29/2019 16:57	Jhamieka S. Greenwood	2089606
	05/29/2019			05/29/2019 17:09	Jhamieka S. Greenwood	2089600
SM 2120 B	05/29/2019			05/29/2019 15:23	Madeline Funaro	2089589, 2089592
	05/29/2019			05/29/2019 15:24	Madeline Funaro	2089595
	05/29/2019			05/29/2019 15:25	Madeline Funaro	2089601
	05/29/2019			05/29/2019 15:26	Madeline Funaro	2089602
SM 2320 B-97	05/29/2019			06/03/2019 10:46	Dale L. Simmons	2089598
	05/29/2019			06/04/2019 20:41	Samantha Davila	2089589
	05/29/2019			06/04/2019 20:55	Samantha Davila	2089592
	05/29/2019			06/04/2019 21:54	Samantha Davila	2089595
	05/29/2019			06/04/2019 22:08	Samantha Davila	2089601
SM 2540 C-97	05/29/2019			06/04/2019 23:32	Samantha Davila	2089602
	05/29/2019			05/31/2019 15:11	Yijie Li	2089589, 2089592, 2089595, 2089601, 2089602
SM 2540 D-97	05/29/2019			05/31/2019 15:11	Yijie Li	2089589, 2089592, 2089595, 2089601, 2089602
	05/29/2019			06/04/2019 13:10	Mariam Hanna	2089598
SM 4500 F-C-97	05/29/2019			06/03/2019 07:26	Dale L. Simmons	2089598
	05/29/2019			06/04/2019 20:41	Samantha Davila	2089589
	05/29/2019			06/04/2019 20:55	Samantha Davila	2089592
	05/29/2019			06/04/2019 21:54	Samantha Davila	2089595
	05/29/2019			06/04/2019 22:08	Samantha Davila	2089601
SM 5310 B-00	05/29/2019			06/04/2019 23:32	Samantha Davila	2089602
	05/29/2019			05/31/2019 08:04	Julia Storbeck	2089590
	05/29/2019			05/31/2019 08:16	Julia Storbeck	2089593
	05/29/2019			05/31/2019 08:28	Julia Storbeck	2089596
	05/29/2019			05/31/2019 08:43	Julia Storbeck	2089603
	05/29/2019			05/31/2019 08:59	Julia Storbeck	2089604
	05/29/2019			05/31/2019 22:33	Julia Storbeck	2089599