

Chemical Analysis Report

SE-DIST-2019-06-06-01

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-2019-06-03-62**
Customer: **SE-DIST**
Project ID: **SMP**

Send Reports to:
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Certified by: Kerry Tate, Ph.D., Environmental Administrator

Date Certified: 27-JUN-2019 09:06

A handwritten signature in black ink that reads "Kerry Tate". The signature is written in a cursive, flowing style with a horizontal line above the "T" and a long horizontal stroke at the end.

Case Narrative

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

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

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

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

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited 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: 06/05/2019 10:50

Field ID: G4SE0038

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2092214	EPA 180.1 Rev. 2.0	Turbidity	0.75		NTU	P365228	
	EPA 300.0 Rev. 2.1	Chloride	110		mg Cl/L	P365525	
		Sulfate	22		mg SO4/L	P365527	
		Color (true)	93		PCU	P365222	
	SM 2320 B-97	Total Alkalinity	170		mg CaCO3/L	P365561	
	SM 2540 C-97	TDS	452		mg/L	P365533	
	SM 2540 D-97	TSS	2	U	mg/L	P365371	
	SM 4500 F-C-97	Fluoride	0.33		mg F/L	P365567	
2092215	EPA 350.1 Rev. 2.0	Ammonia-N	0.033		mg N/L	P365729	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P365475	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.015		mg N/L	P365579	
	EPA 365.1 Rev. 2.0	Total-P	0.011		mg P/L	P365487	
	SM 5310 B-00	Organic Carbon	27		mg C/L	P365430	
2092216	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P365245	

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: Field Blank

Collection Date/Time: 06/05/2019 11:00

Field ID: FB_05062019

Matrix: W-FIELD-BK

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2092232	EPA 180.1 Rev. 2.0	Turbidity	0.10	U	NTU	P365229	
	EPA 300.0 Rev. 2.1	Chloride	0.20	U	mg Cl/L	P365525	
		Sulfate	0.20	U	mg SO4/L	P365527	
	SM 2120 B	Color (true)	2.5	U	PCU	P365222	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P365561	
	SM 2540 C-97	TDS	15	U	mg/L	P365533	
	SM 2540 D-97	TSS	2	U	mg/L	P365371	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P365567	
2092233	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	U	mg N/L	P365729	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.080	U	mg N/L	P365522	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P365579	
	EPA 365.1 Rev. 2.0	Total-P	0.002	U	mg P/L	P365489	
	SM 5310 B-00	Organic Carbon	0.50	U	mg C/L	P365734	
2092234	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P365247	

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: 06/05/2019 11:45

Field ID: G4SE0057

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2092217	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P365228	
	EPA 300.0 Rev. 2.1	Chloride	130		mg Cl/L	P365525	
		Sulfate	18		mg SO4/L	P365527	
	SM 2120 B	Color (true)	72		PCU	P365222	
	SM 2320 B-97	Total Alkalinity	201		mg CaCO3/L	P365561	
	SM 2540 C-97	TDS	506	A	mg/L	P365533	
	SM 2540 D-97	TSS	2	UA	mg/L	P365371	
	SM 4500 F-C-97	Fluoride	0.44		mg F/L	P365567	
2092218	EPA 350.1 Rev. 2.0	Ammonia-N	0.14		mg N/L	P365729	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	2.0		mg N/L	P365475	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.023		mg N/L	P365579	
	EPA 365.1 Rev. 2.0	Total-P	0.009		mg P/L	P365487	
	SM 5310 B-00	Organic Carbon	29		mg C/L	P365430	
2092219	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P365245	

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: Snake Creek Canal (North Fork) @ Stirling

Collection Date/Time: 06/05/2019 12:50

Field ID: G4SE0049

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2092226	EPA 180.1 Rev. 2.0	Turbidity	1.3		NTU	P365228	
	EPA 300.0 Rev. 2.1	Chloride	76		mg Cl/L	P365525	
		Sulfate	2.1		mg SO4/L	P365527	
		Color (true)	34		PCU	P365222	
	SM 2320 B-97	Total Alkalinity	224		mg CaCO3/L	P365561	
	SM 2540 C-97	TDS	381		mg/L	P365533	
	SM 2540 D-97	TSS	2	U	mg/L	P365371	
	SM 4500 F-C-97	Fluoride	0.29		mg F/L	P365567	
2092228	EPA 350.1 Rev. 2.0	Ammonia-N	0.020		mg N/L	P365729	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.1		mg N/L	P365475	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.085		mg N/L	P365579	
	EPA 365.1 Rev. 2.0	Total-P	0.008		mg P/L	P365487	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P365734	
2092230	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P365247	

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: North Fork Snake Creek @ Sunshine Reach

Collection Date/Time: 06/05/2019 13:05

Field ID: G4SE0116

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2092227	EPA 180.1 Rev. 2.0	Turbidity	0.65		NTU	P365228	
	EPA 300.0 Rev. 2.1	Chloride	71		mg Cl/L	P365525	
		Sulfate	2.7		mg SO4/L	P365527	
	SM 2120 B	Color (true)	31		PCU	P365222	
	SM 2320 B-97	Total Alkalinity	220		mg CaCO3/L	P365561	
	SM 2540 C-97	TDS	365		mg/L	P365533	
	SM 2540 D-97	TSS	2	U	mg/L	P365371	
	SM 4500 F-C-97	Fluoride	0.28		mg F/L	P365567	
2092229	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P365729	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.98	J	mg N/L	P365522	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.079		mg N/L	P365579	
	EPA 365.1 Rev. 2.0	Total-P	0.006		mg P/L	P365487	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P365734	
2092231	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P365247	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Refer to the narrative for an explanation of QC Codes.

Sample Location: Holloway @ Peters

Collection Date/Time: 06/05/2019 13:50

Field ID: G4SE0107

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2092220	EPA 180.1 Rev. 2.0	Turbidity	0.55		NTU	P365228	
	EPA 300.0 Rev. 2.1	Chloride	94		mg Cl/L	P365525	
		Sulfate	10		mg SO4/L	P365527	
	SM 2120 B	Color (true)	44		PCU	P365222	
	SM 2320 B-97	Total Alkalinity	188		mg CaCO3/L	P365561	
	SM 2540 C-97	TDS	397		mg/L	P365533	
	SM 2540 D-97	TSS	2	U	mg/L	P365371	
	SM 4500 F-C-97	Fluoride	0.37		mg F/L	P365567	
2092221	EPA 350.1 Rev. 2.0	Ammonia-N	0.019		mg N/L	P365729	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.2		mg N/L	P365475	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.022		mg N/L	P365579	
	EPA 365.1 Rev. 2.0	Total-P	0.01		mg P/L	P365487	
	SM 5310 B-00	Organic Carbon	19		mg C/L	P365430	
2092222	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P365247	

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: Dania Cutoff @ Old Griffin

Collection Date/Time: 06/05/2019 14:20

Field ID: G4SE0106

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
2092223	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P365227	
	EPA 300.0	Bromide	57		mg Br/L	P365616	
	SM 2320 B-97	Total Alkalinity	155		mg CaCO3/L	P365562	
	SM 2540 D-97	TSS	2	I	mg/L	P365395	
	SM 4500 F-C-97	Fluoride	1.0		mg F/L	P365568	
2092224	EPA 350.1 Rev. 2.0	Ammonia-N	0.026		mg N/L	P365725	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.33	I	mg N/L	P365550	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.049		mg N/L	P365478	
	EPA 365.1 Rev. 2.0	Total-P	0.029		mg P/L	P365492	
	SM 5310 B-00	Organic Carbon	4.8		mg C/L	P365612	
2092225	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.014		mg P/L	P365250	
2092244	EPA 200.7 Rev. 4.4	Iron	120	U	ug/L	P365498	
		Magnesium	1.06E+03		mg/L	P365498	
		Manganese	5.3	I	ug/L	P365498	
		Zinc	20	U	ug/L	P365498	
	EPA 200.8 Rev. 5.4	Aluminum	22	I	ug/L	P365498	
		Antimony	0.20	U	ug/L	P365498	
		Arsenic	2.95		ug/L	P365498	
		Cadmium	0.080	U	ug/L	P365498	
		Chromium	1.6	U	ug/L	P365498	
		Copper	6.7		ug/L	P366019	
		Lead	0.80	U	ug/L	P365498	
		Nickel	2.0	U	ug/L	P365498	
		Selenium	0.80	U	ug/L	P365498	
		Silver	0.040	U	ug/L	P365498	
		Thallium	0.40	U	ug/L	P365498	

Ref. Method and Comment:

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

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

EPA 200.8 Rev. 5.4: Elevated concentration of copper confirmed on 06/18/2019.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P365227

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P365228

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P365229

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P365498

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: P365498

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
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: P366019

Component	Result	Code	Units
Copper	0.40	U	ug/L

Reference Method: EPA 300.0
Batch ID: P365616

Component	Result	Code	Units
Bromide	0.013	U	mg Br/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365525

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365527

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365725

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365729

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365475

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365522

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365550

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365478

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365579

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: P365487

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365489

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365492

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365245

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365247

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365250

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

Reference Method: SM 2120 B
Batch ID: P365222

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P365561

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

Reference Method: SM 2320 B-97
Batch ID: P365562

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

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 C-97
Batch ID: P365533

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P365371

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P365395

Component	Result	Code	Units
TSS	3	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P365567

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P365568

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P365430

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

Reference Method: SM 5310 B-00
Batch ID: P365612

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

Reference Method: SM 5310 B-00
Batch ID: P365734

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: P365498

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Iron	103		P	85 - 115
Magnesium	104		P	85 - 115
Manganese	97.6		P	85 - 115
Zinc	97.5		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P365498

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Aluminum	97.4		P	85 - 115
Antimony	96.9		P	85 - 115
Arsenic	100		P	85 - 115
Cadmium	98.2		P	85 - 115
Chromium	98.0		P	85 - 115
Lead	99.1		P	85 - 115
Nickel	100		P	85 - 115
Selenium	97.9		P	85 - 115
Silver	98.4		P	85 - 115
Thallium	101		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P366019

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Copper	99.2		P	85 - 115

Reference Method: EPA 300.0
Batch ID: P365616

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365525

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365527

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365725

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365729

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: P365475

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	95.9		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365522

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365550

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365478

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365579

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365487

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: P365489

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365492

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365245

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365247

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365250

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

Reference Method: SM 2120 B
Batch ID: P365222

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Color (true)	99.7		P	85 - 115

Reference Method: SM 2320 B-97
Batch ID: P365561

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

Reference Method: SM 2320 B-97
Batch ID: P365562

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

Reference Method: SM 4500 F-C-97
Batch ID: P365567

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

Reference Method: SM 4500 F-C-97
Batch ID: P365568

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	97.4		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P365430

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.1		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P365612

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.6		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P365734

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

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P365498

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090382	Iron	101		P	70 - 130
2090382	Zinc	101		P	70 - 130
2093165	Iron	101	98.4	P/P	70 - 130
2093165	Manganese	92.6	91.1	P/P	70 - 130
2093165	Zinc	97.8	96.4	P/P	70 - 130

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P365498

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090382	Aluminum	98.7		P	80 - 120
2090382	Antimony	102		P	80 - 120
2090382	Arsenic	101		P	80 - 120
2090382	Cadmium	100		P	80 - 120
2090382	Chromium	93.8		P	80 - 120
2090382	Lead	99.2		P	80 - 120
2090382	Nickel	100		P	80 - 120
2090382	Selenium	99.7		P	80 - 120
2090382	Silver	97.2		P	80 - 120
2090382	Thallium	99.9		P	80 - 120
2093165	Aluminum	114	113	P/P	80 - 120
2093165	Antimony	117	118	P/P	80 - 120
2093165	Arsenic	109	109	P/P	80 - 120
2093165	Cadmium	114	112	P/P	80 - 120
2093165	Chromium	98.8	99.3	P/P	80 - 120
2093165	Lead	120	117	P/P	80 - 120
2093165	Nickel	115	115	P/P	80 - 120
2093165	Selenium	116	117	P/P	80 - 120
2093165	Silver	108	109	P/P	80 - 120
2093165	Thallium	116	117	P/P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P366019

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092244	Copper	102	84.3	P/P	70 - 130
2093164	Copper	103		P	70 - 130

Reference Method: EPA 300.0
Batch ID: P365616

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094394	Bromide	97.3	96.4	P/P	90 - 110
2094396	Bromide	97.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365525

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092134	Chloride	100		P	90 - 110
2092252	Chloride	100		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365527

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092134	Sulfate	102		P	90 - 110
2092252	Sulfate	102		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365725

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092224	Ammonia-N	105	105	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365729

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092255	Ammonia-N	108	107	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365475

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092170	Kjeldahl Nitrogen	109	109	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365522

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092229	Kjeldahl Nitrogen	111	102	F/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365550

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091981	Kjeldahl Nitrogen	109	110	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365478

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2091980	NO2NO3-N	104	103	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365579

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092205	NO2NO3-N	95.8		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365487

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092189	Total-P	101	102	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365489

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092255	Total-P	105	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365492

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092382	Total-P	95.6	93.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365245

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092190	O-Phosphate-P	96.3	96.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365247

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092231	O-Phosphate-P	97.0	97.5	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365250

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092225	O-Phosphate-P	96.4	94.9	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Batch ID: P365567

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092187	Fluoride	97.2	96.7	P/P	89 - 106

Reference Method: SM 4500 F-C-97
Batch ID: P365568

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2090850	Fluoride	98.1	98.1	P/P	89 - 106

Reference Method: SM 5310 B-00
Batch ID: P365430

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092084	Organic Carbon	97.0	94.3	P/P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P365612

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2092224	Organic Carbon	94.2	95.0	P/P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: SM 5310 B-00
Batch ID: P365734

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2094599	Organic Carbon	99.2	99.6	P/P	85 - 115

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P365227

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092082	Turbidity	3.63	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P365228

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092203	Turbidity	10.7	Sample	P	0 - 20

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P365229

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092252	Turbidity	2.48	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P365498

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2093165	Iron	2.38	Spike	P	0 - 20
2093165	Magnesium	1.91	Spike	P	0 - 20
2093165	Manganese	1.50	Spike	P	0 - 20
2093165	Zinc	1.42	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P365498

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2093165	Aluminum	0.462	Spike	P	0 - 20
2093165	Antimony	0.531	Spike	P	0 - 20
2093165	Arsenic	0.0880	Spike	P	0 - 20
2093165	Cadmium	1.95	Spike	P	0 - 20
2093165	Chromium	0.516	Spike	P	0 - 20
2093165	Lead	2.72	Spike	P	0 - 20
2093165	Nickel	0.0785	Spike	P	0 - 20
2093165	Selenium	1.31	Spike	P	0 - 20
2093165	Silver	0.830	Spike	P	0 - 20
2093165	Thallium	1.12	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P366019

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092244	Copper	16.3	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0
Batch ID: P365616

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094394	Bromide	0.921	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365525

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092134	Chloride	0.119	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P365527

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092134	Sulfate	0.312	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365725

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092224	Ammonia-N	0.0786	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P365729

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092255	Ammonia-N	0.403	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365475

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092170	Kjeldahl Nitrogen	0.0794	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365522

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092229	Kjeldahl Nitrogen	4.75	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P365550

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091981	Kjeldahl Nitrogen	0.811	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365478

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2091980	NO2NO3-N	0.484	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P365579

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092205	NO2NO3-N	0.171	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365487

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092189	Total-P	1.02	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365489

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092255	Total-P	0.500	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P365492

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092382	Total-P	2.54	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365245

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092190	O-Phosphate-P	0.207	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365247

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092231	O-Phosphate-P	0.514	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P365250

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092225	O-Phosphate-P	1.37	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2120 B
Batch ID: P365222

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092203	Color (true)	0.791	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P365561

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092187	Total Alkalinity	0.616	Sample	P	0 - 2.8

Reference Method: SM 2320 B-97
Batch ID: P365562

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090850	Total Alkalinity	0.741	Sample	P	0 - 2.8

Reference Method: SM 2540 C-97
Batch ID: P365533

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092217	TDS	0.989	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P365567

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092187	Fluoride	0.482	Spike	P	0 - 2.5

Reference Method: SM 4500 F-C-97
Batch ID: P365568

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2090850	Fluoride	0.0	Spike	P	0 - 2.5

Reference Method: SM 5310 B-00
Batch ID: P365430

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092084	Organic Carbon	2.50	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P365612

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2092224	Organic Carbon	0.750	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P365734

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
2094599	Organic Carbon	0.319	Spike	P	0 - 20

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A91919

Included Lab Sample IDs: 2092214, 2092217, 2092220, 2092226, 2092227, 2092232

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	99.7	99.7	P/P	90 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A91921

Included Lab Sample IDs: 2092214, 2092217, 2092220, 2092223, 2092226, 2092227, 2092232

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A91928

Included Lab Sample IDs: 2092216, 2092219, 2092222, 2092225, 2092230, 2092231, 2092234

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.5	98.8	P/P	90 - 110
O-Phosphate-P	98.8	98.8	P/P	90 - 110
O-Phosphate-P	98.8	98.9	P/P	90 - 110
O-Phosphate-P	98.9	99.2	P/P	90 - 110
O-Phosphate-P	99.2	98.1	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A92015

Included Lab Sample IDs: 2092215, 2092218, 2092221

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	95.3	96.6	P/P	90 - 110
Organic Carbon	96.6	90.6	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A92026

Included Lab Sample IDs: 2092214, 2092217, 2092220, 2092226, 2092227, 2092232

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A92038

Included Lab Sample IDs: 2092224

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

Reference Method: SM 2320 B-97

Run ID: A92072

Included Lab Sample IDs: 2092214, 2092217, 2092220, 2092223, 2092226, 2092227, 2092232

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A92072

Included Lab Sample IDs: 2092214, 2092217, 2092220, 2092223, 2092226, 2092227, 2092232

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

Reference Method: SM 4500 F-C-97

Run ID: A92072

Included Lab Sample IDs: 2092214, 2092217, 2092220, 2092223, 2092226, 2092227, 2092232

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.6	99.5	P/P	90 - 110
Fluoride	99.5	100	P/P	90 - 110
Fluoride	99.5	99.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A92073

Included Lab Sample IDs: 2092215, 2092218, 2092221, 2092228, 2092229, 2092233

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

Reference Method: SM 5310 B-00

Run ID: A92085

Included Lab Sample IDs: 2092224

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.8	95.6	P/P	90 - 110

Reference Method: EPA 300.0

Run ID: A92088

Included Lab Sample IDs: 2092223

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A92093

Included Lab Sample IDs: 2092215, 2092218, 2092221, 2092228

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.8	100	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A92118

Included Lab Sample IDs: 2092215, 2092218, 2092221, 2092224, 2092228, 2092229, 2092233

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A92128

Included Lab Sample IDs: 2092244

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Iron	103	103	P/P	90 - 110
Magnesium	103	103	P/P	90 - 110
Manganese	99.8	99.5	P/P	90 - 110
Zinc	99.9	99.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A92132

Included Lab Sample IDs: 2092215, 2092218, 2092221, 2092224, 2092228, 2092229, 2092233

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	103	104	P/P	90 - 110
Ammonia-N	99.5	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A92133

Included Lab Sample IDs: 2092229, 2092233

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	104	100	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A92134

Included Lab Sample IDs: 2092228, 2092229, 2092233

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.7	100	P/P	90 - 110
Organic Carbon	100	101	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A92152

Included Lab Sample IDs: 2092224

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	105	100	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A92169

Included Lab Sample IDs: 2092244

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Aluminum	97.8	97.9	P/P	90 - 110
Antimony	97.4	99.5	P/P	90 - 110
Cadmium	96.2	97.9	P/P	90 - 110
Chromium	94.5	94.6	P/P	90 - 110
Lead	99.2	98.9	P/P	90 - 110
Nickel	99.6	97.4	P/P	90 - 110
Selenium	96.7	97.6	P/P	90 - 110
Silver	95.7	96.3	P/P	90 - 110
Thallium	95.5	94.7	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A92282

Included Lab Sample IDs: 2092244

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Copper	98.8	100	P/P	90 - 110

Reference Method: EPA 200.8 Rev. 5.4

Run ID: A92329

Included Lab Sample IDs: 2092244

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Arsenic	99.8	100	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					3.63	
	Turbidity					10.7	
	Turbidity					2.48	
EPA 200.7 Rev. 4.4	Iron	103	101	101	98.4		2.38
	Magnesium	104					1.91
	Manganese	97.6	92.6	91.1			1.50
	Zinc	97.5	101	97.8	96.4		1.42
EPA 200.8 Rev. 5.4	Aluminum	97.4	98.7	114	113		0.462
	Antimony	96.9	102	117	118		0.531
	Arsenic	100	101	109	109		0.0880
	Cadmium	98.2	100	114	112		1.95
	Chromium	98.0	93.8	98.8	99.3		0.516
	Copper	99.2	102	84.3	103		16.3
	Lead	99.1	99.2	120	117		2.72
	Nickel	100	100	115	115		0.0785
	Selenium	97.9	99.7	116	117		1.31
	Silver	98.4	97.2	108	109		0.830
	Thallium	101	99.9	116	117		1.12
	Bromide	100	97.3	96.4	97.6		0.921
	Chloride	100	100	100		0.119	
EPA 300.0 Rev. 2.1	Sulfate	101	102	102		0.312	
	Ammonia-N	97.9	105	105			0.0786
EPA 350.1 Rev. 2.0	Ammonia-N	101	108	107			0.403
	Kjeldahl Nitrogen	95.9	109	109			0.0794
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	104	111	102			4.75
	Kjeldahl Nitrogen	103	109	110			0.811
	Kjeldahl Nitrogen	102	104	103			0.484
EPA 353.2 Rev. 2.0	NO2NO3-N	102	104	103			0.171
	NO2NO3-N	98.5	95.8				0.171
EPA 365.1 Rev. 2.0	Total-P	101	101	102			1.02
	Total-P	106	105	104			0.500
	Total-P	103	95.6	93.2			2.54
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.0	96.3	96.5			0.207
	O-Phosphate-P	97.9	97.0	97.5			0.514
	O-Phosphate-P	98.8	96.4	94.9			1.37
SM 2120 B	Color (true)	99.7				0.791	
SM 2320 B-97	Total Alkalinity	104				0.616	
	Total Alkalinity	105				0.741	
SM 2540 C-97	TDS					0.989	
SM 4500 F-C-97	Fluoride	96.9	97.2	96.7			0.482
	Fluoride	97.4	98.1	98.1			0.0
SM 5310 B-00	Organic Carbon	98.1	97.0	94.3			2.50
	Organic Carbon	97.6	94.2	95.0			0.750
	Organic Carbon	99.6	99.2	99.6			0.319

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	2092214, 2092217, 2092220, 2092223, 2092226, 2092227, 2092232
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	2092244
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	2092244

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 300.0 / E31780	Bromide in aqueous matrices	2092223
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	2092214, 2092217, 2092220, 2092226, 2092227, 2092232
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	2092214, 2092217, 2092220, 2092226, 2092227, 2092232
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	2092215, 2092218, 2092221, 2092224, 2092228, 2092229, 2092233
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	2092215, 2092218, 2092221, 2092224, 2092228, 2092229, 2092233
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	2092215, 2092218, 2092221, 2092224, 2092228, 2092229, 2092233
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	2092215, 2092218, 2092221, 2092224, 2092228, 2092229, 2092233
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	2092216, 2092219, 2092222, 2092225, 2092230, 2092231, 2092234
SM 2120 B / E31780	True Color measured at 450 nm	2092214, 2092217, 2092220, 2092226, 2092227, 2092232
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	2092214, 2092217, 2092220, 2092223, 2092226, 2092227, 2092232
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	2092214, 2092217, 2092220, 2092226, 2092227, 2092232
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices using a maximum of 250 mL of sample	2092214, 2092217, 2092220, 2092223, 2092226, 2092227, 2092232
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	2092214, 2092217, 2092220, 2092223, 2092226, 2092227, 2092232
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	2092215, 2092218, 2092221, 2092224, 2092228, 2092229, 2092233

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	06/06/2019			06/06/2019 18:53	Julia Storbeck	2092214, 2092217, 2092220, 2092223, 2092226, 2092227, 2092232
EPA 200.7 Rev. 4.4	06/06/2019	06/12/2019 15:30	Elliott D. Healy	06/14/2019 17:38	Betina Topolski	2092244
	06/06/2019	06/12/2019 15:30	Elliott D. Healy	06/14/2019 17:46	Betina Topolski	2092244
EPA 200.8 Rev. 5.4	06/06/2019	06/12/2019 15:30	Elliott D. Healy	06/17/2019 20:50	Martin Acosta	2092244
	06/06/2019	06/12/2019 15:30	Elliott D. Healy	06/24/2019 21:29	Robert K Palmer	2092244
	06/06/2019	06/20/2019 13:45	Elliott D. Healy	06/21/2019 17:41	Robert K Palmer	2092244
EPA 300.0	06/06/2019			06/13/2019 17:27	Lipi Saha	2092223
EPA 300.0 Rev. 2.1	06/06/2019			06/13/2019 00:45	Lipi Saha	2092214
	06/06/2019			06/13/2019 00:57	Lipi Saha	2092217
	06/06/2019			06/13/2019 01:09	Lipi Saha	2092220
	06/06/2019			06/13/2019 01:21	Lipi Saha	2092226
	06/06/2019			06/13/2019 01:33	Lipi Saha	2092227
	06/06/2019			06/13/2019 01:46	Lipi Saha	2092232
EPA 350.1 Rev. 2.0	06/06/2019			06/13/2019 11:02	Ping Hua	2092224
	06/06/2019			06/13/2019 13:12	Ping Hua	2092215
	06/06/2019			06/13/2019 13:14	Ping Hua	2092218
	06/06/2019			06/13/2019 13:15	Ping Hua	2092221
	06/06/2019			06/13/2019 13:17	Ping Hua	2092228
	06/06/2019			06/13/2019 13:18	Ping Hua	2092229
	06/06/2019			06/13/2019 13:23	Ping Hua	2092233
EPA 351.2 Rev. 2.0	06/06/2019	06/12/2019 10:45	Adrian Shelby	06/13/2019 16:25	Joseph Suarez	2092215
	06/06/2019	06/12/2019 10:45	Adrian Shelby	06/13/2019 16:27	Joseph Suarez	2092218
	06/06/2019	06/12/2019 10:45	Adrian Shelby	06/13/2019 16:28	Joseph Suarez	2092221
	06/06/2019	06/12/2019 10:45	Adrian Shelby	06/13/2019 16:30	Joseph Suarez	2092228
	06/06/2019	06/13/2019 10:15	Adrian Shelby	06/17/2019 13:16	Joseph Suarez	2092224
	06/06/2019	06/13/2019 11:45	Sima Feizi	06/17/2019 10:03	Joseph Suarez	2092229
	06/06/2019	06/13/2019 11:45	Sima Feizi	06/17/2019 10:07	Joseph Suarez	2092233
EPA 353.2 Rev. 2.0	06/06/2019			06/12/2019 10:21	Beverly Y. Sanders	2092224
	06/06/2019			06/13/2019 10:33	Beverly Y. Sanders	2092215
	06/06/2019			06/13/2019 10:34	Beverly Y. Sanders	2092218
	06/06/2019			06/13/2019 10:35	Beverly Y. Sanders	2092221
	06/06/2019			06/13/2019 10:36	Beverly Y. Sanders	2092228
	06/06/2019			06/13/2019 10:38	Beverly Y. Sanders	2092229
	06/06/2019			06/13/2019 10:39	Beverly Y. Sanders	2092233
EPA 365.1 Rev. 2.0	06/06/2019	06/12/2019 14:05	Sima Feizi	06/14/2019 17:27	Julia Storbeck	2092215
	06/06/2019	06/12/2019 14:05	Sima Feizi	06/14/2019 17:28	Julia Storbeck	2092218
	06/06/2019	06/12/2019 14:05	Sima Feizi	06/14/2019 17:29	Julia Storbeck	2092221
	06/06/2019	06/12/2019 14:05	Sima Feizi	06/14/2019 17:30	Julia Storbeck	2092228
	06/06/2019	06/12/2019 14:05	Sima Feizi	06/14/2019 17:31	Julia Storbeck	2092229

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	06/06/2019	06/12/2019 14:05	Sima Feizi	06/14/2019 17:33	Julia Storbeck	2092233
	06/06/2019	06/12/2019 14:05	Sima Feizi	06/14/2019 18:03	Julia Storbeck	2092224
EPA 365.1 Rev. 2.0 dissolved	06/06/2019			06/06/2019 14:50	Jhamieka S. Greenwood	2092231
	06/06/2019			06/06/2019 15:03	Jhamieka S. Greenwood	2092225
	06/06/2019			06/06/2019 15:16	Jhamieka S. Greenwood	2092216
	06/06/2019			06/06/2019 15:17	Jhamieka S. Greenwood	2092219
	06/06/2019			06/06/2019 15:30	Jhamieka S. Greenwood	2092222
	06/06/2019			06/06/2019 15:31	Jhamieka S. Greenwood	2092230
	06/06/2019			06/06/2019 15:40	Jhamieka S. Greenwood	2092234
	06/06/2019			06/06/2019 16:02	Madeline Funaro	2092214
SM 2120 B	06/06/2019			06/06/2019 16:03	Madeline Funaro	2092217
	06/06/2019			06/06/2019 16:04	Madeline Funaro	2092220
	06/06/2019			06/06/2019 16:05	Madeline Funaro	2092226, 2092227
	06/06/2019			06/06/2019 16:06	Madeline Funaro	2092232
SM 2320 B-97	06/06/2019			06/13/2019 04:21	Dale L. Simmons	2092214
	06/06/2019			06/13/2019 05:18	Dale L. Simmons	2092217
	06/06/2019			06/13/2019 05:31	Dale L. Simmons	2092220
	06/06/2019			06/13/2019 05:44	Dale L. Simmons	2092226
	06/06/2019			06/13/2019 05:57	Dale L. Simmons	2092227
	06/06/2019			06/13/2019 06:12	Dale L. Simmons	2092232
	06/06/2019			06/13/2019 10:36	Dale L. Simmons	2092223
	06/06/2019			06/07/2019 16:20	Mariam Hanna	2092214, 2092217, 2092220, 2092226, 2092227, 2092232
SM 2540 C-97						
SM 2540 D-97	06/06/2019			06/07/2019 16:27	Mariam Hanna	2092214, 2092217, 2092220, 2092226, 2092227, 2092232
SM 4500 F-C-97	06/06/2019			06/10/2019 13:30	Mariam Hanna	2092223
	06/06/2019			06/13/2019 04:21	Dale L. Simmons	2092214
	06/06/2019			06/13/2019 05:18	Dale L. Simmons	2092217
	06/06/2019			06/13/2019 05:31	Dale L. Simmons	2092220
	06/06/2019			06/13/2019 05:44	Dale L. Simmons	2092226
	06/06/2019			06/13/2019 05:57	Dale L. Simmons	2092227
	06/06/2019			06/13/2019 06:12	Dale L. Simmons	2092232
	06/06/2019			06/13/2019 09:01	Dale L. Simmons	2092223
SM 5310 B-00	06/06/2019			06/11/2019 06:03	Madeline Funaro	2092215
	06/06/2019			06/11/2019 06:17	Madeline Funaro	2092218
	06/06/2019			06/11/2019 06:58	Madeline Funaro	2092221
	06/06/2019			06/13/2019 06:40	Madeline Funaro	2092224
	06/06/2019			06/14/2019 18:05	Madeline Funaro	2092228
	06/06/2019			06/14/2019 18:18	Madeline Funaro	2092229
	06/06/2019			06/14/2019 18:54	Madeline Funaro	2092233