Chemical Analysis Report

SE-DIST-2016-12-01-01

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

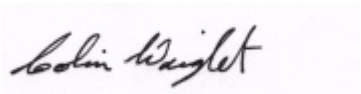
Event Description: **Reference SCI-**
Request ID: **RQ-2016-05-23-24**
Customer: **SE-DIST**
Project ID: **SCIREF**

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

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, PhD, QA Officer
Phone (850) 245-8085

Certified by: Colin Wright, Environmental Administrator

Date Certified: 23-DEC-2016 12:58



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, Nutrients and Pesticides.

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 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: FORT DRUM CREEK @ US 441 **Collection Date/Time: 11/30/2016 12:30**

Field ID: 26010430 Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1853794	EPA 180.1 Rev. 2.0	Turbidity	7.0		NTU	P316042	
	EPA 300.0	Bromide**	0.072		mg Br/L	P316407	
	EPA 300.0 Rev. 2.1	Chloride	13		mg Cl/L	P316416	
		Sulfate	4.7		mg SO4/L	P316415	
	SM 2120 B	Color (true)	54		PCU	P316036	
	SM 2320 B-97	Total Alkalinity	34		mg CaCO3/L	P316124	
	SM 2540 C-97	TDS	99		mg/L	P316704	
	SM 2540 D-97	TSS	15		mg/L	P316482	
1853795	EPA 350.1 Rev. 2.0	Ammonia-N	0.055		mg N/L	P316425	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.80		mg N/L	P316478	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.085		mg N/L	P316179	
	EPA 365.1 Rev. 2.0	Total-P	0.23		mg P/L	P316338	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P316150	
1853796	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P316046	
1853802	EPA 200.7 Rev. 4.4	Calcium	14.0		mg/L	P316193	
		Iron	640		ug/L	P316193	
		Magnesium	2.23		mg/L	P316193	
		Potassium	1.8		mg/L	P316193	
		Sodium	7.5		mg/L	P316193	
	EPA 200.8 Rev. 5.4	Silver	0.0050	U	ug/L	P316193	
1853803	EPA 8321B	Sucralose**	0.010	U	ug/L	P315920	
		Acetaminophen**	0.0040	U	ug/L	P315920	

Ref. Method and Comment:
EPA 200.7 Rev. 4.4: Batch matrix spike recoveries for calcium are unavailble for one of two spiked samples because of high analyte concentration in the QC sample.

Quality Assurance Report
Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P316042

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P316193

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Iron	30	U	ug/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L
Sodium	0.50	U	mg/L

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P316193

Component	Result	Code	Units

Quality Assurance Report
Method Blank Results

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P316193

Component	Result	Code	Units
Silver	0.0061	I	ug/L

Reference Method: EPA 300.0
Batch ID: P316407

Component	Result	Code	Units
Bromide	0.016	U	mg Br/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316415

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316416

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316425

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316478

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316179

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316338

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316046

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

Quality Assurance Report
Method Blank Results

Reference Method: EPA 8321B
Batch ID: P315920

Component	Result	Code	Units
Acetaminophen	0.0040	U	ug/L
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P316036

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P316124

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

Reference Method: SM 2540 C-97
Batch ID: P316704

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P316482

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 5310 B-00
Batch ID: P316150

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: P316193

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	105		P	85 - 115
Iron	108		P	85 - 115
Magnesium	108		P	85 - 115
Potassium	101		P	85 - 115
Sodium	100		P	85 - 115

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P316193

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Silver	98.3		P	85 - 115

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: EPA 300.0
Batch ID: P316407

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Bromide	109		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316415

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316416

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	98.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316425

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316478

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316179

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316338

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316046

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

Reference Method: EPA 8321B
Batch ID: P315920

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetaminophen	56.8		P	40 - 140
Sucralose	69.8		P	40 - 140

Quality Assurance Report
Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P316124

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.6		P	95 - 108

Reference Method: SM 5310 B-00
Batch ID: P316150

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.4		P	85 - 115

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P316193

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853362	Iron	103		P	80 - 120
1853362	Magnesium	102		P	80 - 120
1853362	Potassium	98.9		P	80 - 120
1853362	Sodium	102		P	80 - 120
1854134	Calcium	102		P	80 - 120
1854134	Iron	102	108	P/P	80 - 120
1854134	Magnesium	99.4	109	P/P	80 - 120
1854134	Potassium	93.7	101	P/P	80 - 120
1854134	Sodium	98.7		P	80 - 120

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P316193

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853362	Silver	101		P	80 - 120
1854134	Silver	97.9	98.4	P/P	80 - 120

Reference Method: EPA 300.0
Batch ID: P316407

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853085	Bromide	98.9		P	90 - 110
1853794	Bromide	105	105	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316415

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853794	Sulfate	94.6	94.6	P/P	90 - 110
1853956	Sulfate	94.5		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316416

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853085	Chloride	98.6		P	90 - 110

Quality Assurance Report
Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316416

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853794	Chloride	96.4	99.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316425

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853795	Ammonia-N	103	105	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316478

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853612	Kjeldahl Nitrogen	105	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316179

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853072	NO2NO3-N	101		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316338

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853848	Total-P	103	104	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316046

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853665	O-Phosphate-P	101	103	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P315920

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853803	Acetaminophen	69.6	68.0	P/P	40 - 140
1853803	Sucralose	62.8	77.1	P/P	40 - 140

Reference Method: SM 5310 B-00
Batch ID: P316150

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853847	Organic Carbon	94.6	92.7	P/P	85 - 115

Quality Assurance Report
Precision

Quality Assurance Report
Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P316042

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853769	Turbidity	0.357	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P316193

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1854134	Calcium	3.59	Spike	P	0 - 20
1854134	Iron	5.32	Spike	P	0 - 20
1854134	Magnesium	5.90	Spike	P	0 - 20
1854134	Potassium	4.34	Spike	P	0 - 20
1854134	Sodium	2.84	Spike	P	0 - 20

Reference Method: EPA 200.8 Rev. 5.4
Batch ID: P316193

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1854134	Silver	0.505	Spike	P	0 - 20

Reference Method: EPA 300.0
Batch ID: P316407

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853794	Bromide	0.615	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316415

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853794	Sulfate	0.0496	Spike	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P316416

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853794	Chloride	2.29	Spike	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316425

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853795	Ammonia-N	0.774	Spike	P	0 - 20

Quality Assurance Report
Precision

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316478

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853612	Kjeldahl Nitrogen	4.30	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316179

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853072	NO2NO3-N	1.42	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316338

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853848	Total-P	1.52	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P316046

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853665	O-Phosphate-P	1.67	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P315920

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853803	Acetaminophen	2.33	Spike	P	0 - 30
1853803	Sucralose	20.4	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P316036

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853769	Color (true)	1.14	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P316124

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853724	Total Alkalinity	0.230	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P316704

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853772	TDS	1.72	Sample	P	0 - 10

Quality Assurance Report
Precision

Reference Method: SM 2540 D-97
Batch ID: P316482

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853772	TSS	0.0	Sample	P	0 - 10

Reference Method: SM 5310 B-00
Batch ID: P316150

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853847	Organic Carbon	1.64	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
Surrogates

Lab Sample ID: 1853803
Field Sample ID: 26010430

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	97.2	P	30 - 150
EPA 8321B	Acetaminophen-d4	97.2	P	30 - 150
EPA 8321B	Sucralose-d6	57.0	P	40 - 150
EPA 8321B	Sucralose-d6	57.0	P	40 - 150

Quality Assurance Report
Calibration Verification

Reference Method: SM 2120 B
Run ID: A73120
Included Lab Sample IDs: 1853794

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	101	103	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A73121
Included Lab Sample IDs: 1853794

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	100	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Run ID: A73122
Included Lab Sample IDs: 1853796

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	99.6	98.2	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: SM 2320 B-97
Run ID: A73150
Included Lab Sample IDs: 1853794

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.5	99.1	P/P	90 - 110

Reference Method: SM 5310 B-00
Run ID: A73154
Included Lab Sample IDs: 1853795

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.8	96.0	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A73155
Included Lab Sample IDs: 1853803

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	101	95.1	P/P	60 - 150

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A73166
Included Lab Sample IDs: 1853795

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

Reference Method: EPA 8321B
Run ID: A73184
Included Lab Sample IDs: 1853803

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	87.6	92.0	P/P	60 - 150

Reference Method: EPA 300.0
Run ID: A73219
Included Lab Sample IDs: 1853794

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

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A73219
Included Lab Sample IDs: 1853794

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Sulfate	97.8	97.5	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Run ID: A73238
Included Lab Sample IDs: 1853795

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	97.3	99.7	P/P	90 - 110

Quality Assurance Report
Calibration Verification

Reference Method: EPA 200.7 Rev. 4.4
Run ID: A73246
Included Lab Sample IDs: 1853802

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	100	103	P/P	90 - 110
Iron	102	100	P/P	90 - 110
Magnesium	102	100	P/P	90 - 110
Potassium	99.9	98.8	P/P	90 - 110
Sodium	98.6	98.4	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Run ID: A73254
Included Lab Sample IDs: 1853795

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

Reference Method: EPA 200.8 Rev. 5.4
Run ID: A73276
Included Lab Sample IDs: 1853802

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Silver	99.5	98.9	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Run ID: A73317
Included Lab Sample IDs: 1853795

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.3	99.4	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		
						LCS	SMP	MS
EPA 180.1 Rev. 2.0	Turbidity						0.357	
EPA 200.7 Rev. 4.4	Calcium	105	102					3.59
	Iron	108	103	102	108			5.32
	Magnesium	108	102	99.4	109			5.90
	Potassium	101	98.9	93.7	101			4.34
	Sodium	100	102	98.7				2.84
EPA 200.8 Rev. 5.4	Silver	98.3	101	97.9	98.4			0.505
EPA 300.0	Bromide	109	105	105	98.9			0.615
EPA 300.0 Rev. 2.1	Chloride	98.7	96.4	99.6	98.6			2.29
	Sulfate	94.3	94.6	94.6	94.5			0.0496
EPA 350.1 Rev. 2.0	Ammonia-N	102	103	105				0.774
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	105	100				4.30
EPA 353.2 Rev. 2.0	NO2NO3-N	104	101					1.42
EPA 365.1 Rev. 2.0	Total-P	103	103	104				1.52

Quality Assurance Report
Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision		
					LCS	SMP	MS
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	102	101	103			1.67
EPA 8321B	Acetaminophen	56.8	69.6	68.0			2.33
	Sucralose	69.8	62.8	77.1			20.4
SM 2120 B	Color (true)					1.14	
SM 2320 B-97	Total Alkalinity	98.6				0.230	
SM 2540 C-97	TDS					1.72	
SM 2540 D-97	TSS					0.0	
SM 5310 B-00	Organic Carbon	98.4	94.6	92.7			1.64

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1853794
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1853802
EPA 200.8 Rev. 5.4 / E31780	Total Recoverable Metals analysis using ICP-MS for aqueous samples supporting Clean Water Act Projects	1853802
EPA 300.0 / E31780	Bromide in aqueous matrices	1853794
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1853794
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1853794
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1853795
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1853795
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1853795
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1853795
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1853796
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1853803
EPA 8321B / E31780	Personal Care Products and pesticides in water matrices by HPLC/MS/MS	1853803
SM 2120 B / E31780	True Color measured at 450 nm	1853794
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1853794
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1853794
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1853794
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1853795

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	12/01/2016			12/01/2016 16:32	Sima Feizi	1853794
EPA 200.7 Rev. 4.4	12/01/2016	12/05/2016	Elliott D. Healy	12/07/2016	Joshua Ayres	1853802
EPA 200.8 Rev. 5.4	12/01/2016	12/05/2016	Elliott D. Healy	12/08/2016	Charles J. Peterson	1853802
EPA 300.0	12/01/2016			12/08/2016	Ping Hua	1853794
EPA 300.0 Rev. 2.1	12/01/2016			12/08/2016	Ping Hua	1853794
EPA 350.1 Rev. 2.0	12/01/2016			12/07/2016	Sofia Elnemr	1853795
EPA 351.2 Rev. 2.0	12/01/2016	12/09/2016	Adrian Shelby	12/12/2016	Joseph Suarez	1853795
EPA 353.2 Rev. 2.0	12/01/2016			12/05/2016	Beverly Y. Sanders	1853795
EPA 365.1 Rev. 2.0	12/01/2016	12/07/2016	Vijayalakshmi Reddy	12/08/2016	Lipi Saha	1853795
EPA 365.1 Rev. 2.0 dissolved	12/01/2016			12/01/2016 16:36	Julia Storbeck	1853796
EPA 8321B	12/01/2016	12/02/2016	Hoor Shaik	12/02/2016	Juyoung Kim	1853803
	12/01/2016	12/02/2016	Hoor Shaik	12/04/2016	Mohammad Ghaffari	1853803
SM 2120 B	12/01/2016			12/01/2016 16:02	Jared I. Manley	1853794
SM 2320 B-97	12/01/2016			12/03/2016	Dale L. Simmons	1853794
SM 2540 C-97	12/01/2016			12/05/2016	Sima Feizi	1853794
SM 2540 D-97	12/01/2016			12/05/2016	Sima Feizi	1853794
SM 5310 B-00	12/01/2016			12/02/2016	Julie Michelle Frank	1853795