

Chemical Analysis Report

SW-DIST-2016-11-30-01

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

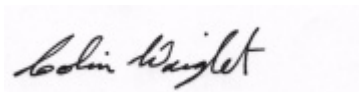
Event Description: **REF SCI**
Request ID: **RQ-2016-11-28-39**
Customer: **SW-DIST**
Project ID: **SCIREF**

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Certified by: Colin Wright, Environmental Administrator

Date Certified: 23-DEC-2016 11:36

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, 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: Little Manatee Ref Stream

Collection Date/Time: 11/29/2016 12:20

Field ID: TP 11

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1853085	EPA 180.1 Rev. 2.0	Turbidity	1.7		NTU	P316184	
	EPA 300.0	Bromide**	0.13		mg Br/L	P316407	
	EPA 300.0 Rev. 2.1	Chloride	17		mg Cl/L	P316416	
		Sulfate	110		mg SO4/L	P316415	
	SM 2120 B	Color (true)	47		PCU	P315982	
	SM 2320 B-97	Total Alkalinity	58		mg CaCO3/L	P316122	
	SM 2540 C-97	TDS	266	A	mg/L	P316606	
	SM 2540 D-97	TSS	3	I	mg/L	P316582	
	SM 4500 F-C-97	Fluoride	0.38		mg F/L	P316125	
1853086	EPA 350.1 Rev. 2.0	Ammonia-N	0.013		mg N/L	P316240	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.44		mg N/L	P316480	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.82		mg N/L	P316089	
	EPA 365.1 Rev. 2.0	Total-P	0.23		mg P/L	P316258	
	SM 5310 B-00	Organic Carbon	9.7		mg C/L	P316050	
1853089	EPA 200.7 Rev. 4.4	Calcium	36.5		mg/L	P316263	
		Magnesium	17.1		mg/L	P316263	
		Potassium	6.0		mg/L	P316263	
		Sodium	18.1		mg/L	P316263	
1853090	EPA 8321B	Sucralose**	0.010	U	ug/L	P315920	
	USGS O-2060-01	Diuron	0.0070	I	ug/L	P315920	
		Fenuron	0.0080	U	ug/L	P315920	
		Imidacloprid	0.095		ug/L	P315920	MS
		Linuron	0.0040	U	ug/L	P315920	
		Acetaminophen**	0.0040	U	ug/L	P315920	
		Carbamazepine**	4.0E-04	U	ug/L	P315920	
		Primidone**	0.0080	U	ug/L	P315920	
		Fluridone**	7.1E-04	I	ug/L	P315920	

Ref. Method and Comment:

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

EPA 8321B: Results confirmed in re-extraction.

USGS O-2060-01: Results confirmed in re-extraction.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P316184

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P316263

Component	Result	Code	Units
Calcium	0.075	U	mg/L
Magnesium	0.040	U	mg/L
Potassium	0.30	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P316263

Component	Result	Code	Units
Sodium	0.50	U	mg/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: P316240

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316480

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316089

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316258

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

Reference Method: EPA 8321B
Batch ID: P315920

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2120 B
Batch ID: P315982

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P316122

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

Reference Method: SM 2540 C-97
Batch ID: P316606

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P316582

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P316125

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P316050

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

Reference Method: USGS O-2060-01
Batch ID: P315920

Component	Result	Code	Units
Acetaminophen	0.0040	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	0.0040	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	0.0040	U	ug/L
Linuron	0.0040	U	ug/L
Primidone	0.0080	U	ug/L

Quality Assurance Report
Laboratory Control Sample Accuracy

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 200.7 Rev. 4.4

Batch ID: P316263

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Calcium	104		P	85 - 115
Magnesium	101		P	85 - 115
Potassium	98.1		P	85 - 115
Sodium	98.3		P	85 - 115

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: P316240

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P316480

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: P316089

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: P316258

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

Reference Method: EPA 8321B

Batch ID: P315920

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 2320 B-97
Batch ID: P316122

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	98.5		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P316125

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.6		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P316050

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	98.5		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P315920

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Acetaminophen	56.8		P	40 - 140
Carbamazepine	100		P	40 - 140
Diuron	84.0		P	40 - 140
Fenuron	94.0		P	40 - 140
Fluridone	90.8		P	40 - 140
Imidacloprid	91.2		P	40 - 160
Linuron	79.6		P	40 - 140
Primidone	101		P	40 - 140

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P316263

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852945	Calcium	104		P	80 - 120
1852945	Magnesium	103		P	80 - 120
1852945	Potassium	102		P	80 - 120
1852945	Sodium	100		P	80 - 120
1853966	Calcium	105	105	P/P	80 - 120
1853966	Magnesium	104	102	P/P	80 - 120
1853966	Potassium	98.4	99.6	P/P	80 - 120
1853966	Sodium	99.0	99.7	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

Quality Assurance Report Matrix Spike Accuracy

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
1853794	Chloride	96.4	99.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316240

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853086	Ammonia-N	99.2	102	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316480

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1852816	Kjeldahl Nitrogen	100	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316089

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853006	NO2NO3-N	102		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316258

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853360	Total-P	105	105	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P315920

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

Reference Method: SM 4500 F-C-97
Batch ID: P316125

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853751	Fluoride	98.2	98.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P316050

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1853036	Organic Carbon	101		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
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	Carbamazepine	81.6	82.4	P/P	40 - 140
1853803	Diuron	66.4	65.2	P/P	40 - 140
1853803	Fenuron	70.8	69.6	P/P	40 - 140
1853803	Fluridone	77.2	78.8	P/P	40 - 140
1853803	Imidacloprid	154	166	P/F	40 - 160
1853803	Linuron	88.4	82.8	P/P	40 - 140
1853803	Primidone	106	95.6	P/P	40 - 140

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P316184

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853035	Turbidity	4.72	Sample	P	0 - 20

Reference Method: EPA 200.7 Rev. 4.4
Batch ID: P316263

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853966	Calcium	0.0369	Spike	P	0 - 20
1853966	Magnesium	1.25	Spike	P	0 - 20
1853966	Potassium	1.14	Spike	P	0 - 20
1853966	Sodium	0.639	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

Quality Assurance Report Precision

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P316240

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853086	Ammonia-N	1.91	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P316480

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1852816	Kjeldahl Nitrogen	0.696	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P316089

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853006	NO2NO3-N	0.907	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P316258

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853360	Total-P	0.0215	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	Sucralose	20.4	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P315982

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853050	Color (true)	2.57	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P316122

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853751	Total Alkalinity	0.0771	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P316606

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853085	TDS	7.16	Sample	P	0 - 10

Quality Assurance Report Precision

Reference Method: SM 4500 F-C-97
Batch ID: P316125

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853751	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P316050

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1853036	Organic Carbon	0.386	Spike	P	0 - 20

Reference Method: USGS O-2060-01
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	Carbamazepine	0.976	Spike	P	0 - 30
1853803	Diuron	1.82	Spike	P	0 - 30
1853803	Fenuron	1.71	Spike	P	0 - 30
1853803	Fluridone	2.05	Spike	P	0 - 30
1853803	Imidacloprid	7.76	Spike	P	0 - 30
1853803	Linuron	6.54	Spike	P	0 - 30
1853803	Primidone	10.3	Spike	P	0 - 30

* 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: 1853090
Field Sample ID: TP 11

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	113	P	30 - 150
EPA 8321B	Carbamazepine-d10	126	P	40 - 160
EPA 8321B	Diuron-d6	71.8	P	40 - 150
EPA 8321B	Primidone-d5	122	P	40 - 150
EPA 8321B	Sucralose-d6	74.5	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	113	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	126	P	40 - 160
USGS O-2060-01	Diuron-d6	71.8	P	40 - 150
USGS O-2060-01	Primidone-d5	122	P	40 - 150
USGS O-2060-01	Sucralose-d6	74.5	P	40 - 150

Quality Assurance Report Calibration Verification

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B
Run ID: A73102
Included Lab Sample IDs: 1853085

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	98.2	100	P/P	85 - 115

Reference Method: SM 5310 B-00
Run ID: A73126
Included Lab Sample IDs: 1853086

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	99.4	98.8	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Run ID: A73139
Included Lab Sample IDs: 1853086

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

Reference Method: SM 2320 B-97
Run ID: A73150
Included Lab Sample IDs: 1853085

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	97.0	98.2	P/P	90 - 110

Reference Method: SM 4500 F-C-97
Run ID: A73150
Included Lab Sample IDs: 1853085

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	98.0	P/P	90 - 110

Reference Method: EPA 8321B
Run ID: A73155
Included Lab Sample IDs: 1853090

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	88.6	102	P/P	60 - 150

Reference Method: EPA 180.1 Rev. 2.0
Run ID: A73167
Included Lab Sample IDs: 1853085

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	98.0	P/P	95 - 105

Reference Method: USGS O-2060-01
Run ID: A73184
Included Lab Sample IDs: 1853090

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	92.0	92.0	P/P	60 - 150
Carbamazepine	107	108	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A73184

Included Lab Sample IDs: 1853090

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Diuron	102	116	P/P	60 - 150
Fenuron	107	112	P/P	60 - 150
Fluridone	110	108	P/P	60 - 150
Imidacloprid	92.4	98.8	P/P	60 - 150
Linuron	115	111	P/P	60 - 150
Primidone	102	110	P/P	60 - 150

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A73197

Included Lab Sample IDs: 1853086

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

Reference Method: EPA 300.0

Run ID: A73219

Included Lab Sample IDs: 1853085

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: 1853085

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	101	P/P	90 - 110
Sulfate	97.7	96.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A73224

Included Lab Sample IDs: 1853086

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

Reference Method: EPA 200.7 Rev. 4.4

Run ID: A73246

Included Lab Sample IDs: 1853089

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Calcium	103	101	P/P	90 - 110
Magnesium	99.6	99.7	P/P	90 - 110
Potassium	99.6	99.2	P/P	90 - 110
Sodium	98.6	97.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A73285

Included Lab Sample IDs: 1853086

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A73285

Included Lab Sample IDs: 1853086

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.0	95.6	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				4.72	
EPA 200.7 Rev. 4.4	Calcium	104	104	105		0.0369
	Magnesium	101	103	104		1.25
	Potassium	98.1	102	98.4		1.14
	Sodium	98.3	100	99.0		0.639
EPA 300.0	Bromide	109	105	105		0.615
EPA 300.0 Rev. 2.1	Chloride	98.7	96.4	99.6		2.29
	Sulfate	94.3	94.6	94.6		0.0496
EPA 350.1 Rev. 2.0	Ammonia-N	107	99.2	102		1.91
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	101	100	101		0.696
EPA 353.2 Rev. 2.0	NO2NO3-N	104	102			0.907
EPA 365.1 Rev. 2.0	Total-P	100	105	105		0.0215
EPA 8321B	Sucralose	69.8	62.8	77.1		20.4
SM 2120 B	Color (true)				2.57	
SM 2320 B-97	Total Alkalinity	98.5			0.0771	
SM 2540 C-97	TDS				7.16	
SM 4500 F-C-97	Fluoride	98.6	98.2	98.2		0.0
SM 5310 B-00	Organic Carbon	98.5	101			0.386
USGS O-2060-01	Acetaminophen	56.8	69.6	68.0		2.33
	Carbamazepine	100	81.6	82.4		0.976
	Diuron	84.0	66.4	65.2		1.82
	Fenuron	94.0	70.8	69.6		1.71
	Fluridone	90.8	77.2	78.8		2.05
	Imidacloprid	91.2	154	166		7.76
	Linuron	79.6	88.4	82.8		6.54
	Primidone	101	106	95.6		10.3

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1853085
EPA 200.7 Rev. 4.4 / E31780	Total Recoverable Metals analysis using ICP emission spectroscopy for aqueous samples supporting Clean Water Act Projects	1853089
EPA 300.0 / E31780	Bromide in aqueous matrices	1853085
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1853085
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1853085

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1853086
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1853086
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1853086
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1853086
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1853090
SM 2120 B / E31780	True Color measured at 450 nm	1853085
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1853085
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1853085
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1853085
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1853085
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1853086
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1853090

Preparation and Analysis Log

Ref. Method	Received Date	Prep Date/Time	Prepared By	Analysis Date/Time	Analyzed By	Associated Samples
EPA 180.1 Rev. 2.0	11/30/2016			11/30/2016 16:14	Julie Michelle Frank	1853085
EPA 200.7 Rev. 4.4	11/30/2016	12/06/2016	Elliott D. Healy	12/07/2016	Joshua Ayres	1853089
EPA 300.0	11/30/2016			12/08/2016	Ping Hua	1853085
EPA 300.0 Rev. 2.1	11/30/2016			12/08/2016	Ping Hua	1853085
EPA 350.1 Rev. 2.0	11/30/2016			12/05/2016	Sofia Elnemr	1853086
EPA 351.2 Rev. 2.0	11/30/2016	12/09/2016	Adrian Shelby	12/09/2016	Joseph Suarez	1853086
EPA 353.2 Rev. 2.0	11/30/2016			12/02/2016	Beverly Y. Sanders	1853086
EPA 365.1 Rev. 2.0	11/30/2016	12/06/2016	Vijayalakshmi Reddy	12/07/2016	Lipi Saha	1853086
EPA 8321B	11/30/2016	12/02/2016	Hoor Shaik	12/04/2016	Mohammad Ghaffari	1853090
SM 2120 B	11/30/2016			11/30/2016 16:33	Jared I. Manley	1853085
SM 2320 B-97	11/30/2016			12/02/2016	Dale L. Simmons	1853085
SM 2540 C-97	11/30/2016			12/01/2016	Yijie Li	1853085
SM 2540 D-97	11/30/2016			12/01/2016	Yijie Li	1853085
SM 4500 F-C-97	11/30/2016			12/02/2016	Dale L. Simmons	1853085
SM 5310 B-00	11/30/2016			12/01/2016	Julie Michelle Frank	1853086
USGS O-2060-01	11/30/2016	12/02/2016	Hoor Shaik	12/03/2016	Juyoung Kim	1853090