

Chemical Analysis Report

WQAP-2017-06-26-01

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

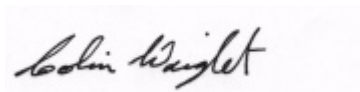
Event Description: **Big, Staffotd, Coon, Stone Mill, Soapstone, Godby**
Request ID: **RQ-2017-06-19-56**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
MS #3525
Tallahassee, FL 32399-2400
Attn: Curtis Musson

For additional information please contact
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Certified by: Colin Wright, Program Administrator

Date Certified: 14-JUL-2017 15:49

A handwritten signature in black ink, appearing to read "Colin Wright", is displayed on a light-colored 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: 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: Big Branch Downstream of Road 5

Collection Date/Time: 06/26/2017 10:30

Field ID: G2WA0010_06262017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1908791	EPA 180.1 Rev. 2.0	Turbidity	2.3	A	NTU	P327590	
	EPA 300.0 Rev. 2.1	Chloride	2.9		mg Cl/L	P327716	
		Sulfate	0.33	I	mg SO4/L	P327718	
	SM 2120 B	Color (true)	260		PCU	P327577	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P327664	
	SM 2540 C-97	TDS	37		mg/L	P327835	
	SM 2540 D-97	TSS	2	I	mg/L	P327877	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P327666	
1908794	EPA 350.1 Rev. 2.0	Ammonia-N	0.012		mg N/L	P327673	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.75		mg N/L	P327534	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327605	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P327597	
	SM 5310 B-00	Organic Carbon	24		mg C/L	P327584	
1908797	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P327568	

Ref. Method and Comment:

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

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

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Godby Drainage Ditch at Progress Dr.

Collection Date/Time: 06/26/2017 08:10

Field ID: G1WA0061_06262017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1908792	EPA 180.1 Rev. 2.0	Turbidity	4.4		NTU	P327590	
	EPA 300.0 Rev. 2.1	Chloride	5.1		mg Cl/L	P327716	
		Sulfate	1.2		mg SO4/L	P327718	
	SM 2120 B	Color (true)	26	A	PCU	P327577	
	SM 2320 B-97	Total Alkalinity	70		mg CaCO3/L	P327664	
	SM 2540 C-97	TDS	89	A	mg/L	P327835	
	SM 2540 D-97	TSS	6	IA	mg/L	P327877	
	SM 4500 F-C-97	Fluoride	0.10		mg F/L	P327666	
1908795	EPA 350.1 Rev. 2.0	Ammonia-N	0.037		mg N/L	P327673	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.32		mg N/L	P327534	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.027		mg N/L	P327605	
	EPA 365.1 Rev. 2.0	Total-P	0.11		mg P/L	P327597	
	SM 5310 B-00	Organic Carbon	3.2		mg C/L	P327584	
1908798	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.072		mg P/L	P327568	

Ref. Method and Comment:

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

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

SM 5310 B-00: Batch matrix spike recoveries are unavailable because of high analyte concentration in the QC sample.

Sample Location: Godby Drainage Ditch at Progress Dr.

Collection Date/Time: 06/26/2017 08:10

Field ID: G1WA0061_06262017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
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Field ID: G1WA0061_06262017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1908808	EPA 8321B	Sucralose**	0.040		ug/L	P327309	
	USGS O-2060-01	2,4-D	0.0034		ug/L	P327564	
		Diuron	0.0018	I	ug/L	P327564	
		Fenuron	0.0080	U	ug/L	P327564	MS, RPD
		Imidacloprid	0.011		ug/L	P327564	
		Bentazon	8.0E-04	I	ug/L	P327564	
		Linuron	0.0040	U	ug/L	P327564	
		Acetaminophen**	0.0080	U	ug/L	P327564	
		MCPD	0.0020	U	ug/L	P327564	
		Carbamazepine**	4.0E-04	U	ug/L	P327564	
		Triclopyr**	0.0040	U	ug/L	P327564	
		Primidone**	0.0040	U	ug/L	P327564	RPD
		Fluridone**	0.0018		ug/L	P327564	

Ref. Method and Comment:

EPA 8321B: Accuracy for sucralose could not be assessed due to high concentration of parameter in the spiked sample.

Sample Location: Soapstone Branch 100 meters Upstream of SR 375 Collection Date/Time: 06/26/2017 09:00

Field ID: G1WA0012_06262017

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1908793	EPA 180.1 Rev. 2.0	Turbidity	1.9		NTU	P327590	
	EPA 300.0 Rev. 2.1	Chloride	3.4		mg Cl/L	P327716	
		Sulfate	0.20	U	mg SO4/L	P327718	
	SM 2120 B	Color (true)	540		PCU	P327577	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P327664	
	SM 2540 C-97	TDS	69		mg/L	P327835	
	SM 2540 D-97	TSS	3	I	mg/L	P327877	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P327666	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.002	I	mg N/L	P327673	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0		mg N/L	P327534	
1908796	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P327605	
	EPA 365.1 Rev. 2.0	Total-P	0.012		mg P/L	P327597	
	SM 5310 B-00	Organic Carbon	44		mg C/L	P327584	
	EPA 365.1 Rev. 2.0	O-Phosphate-P	0.004	U	mg P/L	P327568	
	dissolved						

Ref. Method and Comment:

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

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

SM 5310 B-00: Batch matrix spike recoveries are unavailable 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: P327590

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Quality Assurance Report Method Blank Results

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327716

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327718

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327673

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327534

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327605

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327597

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327568

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

Reference Method: EPA 8321B
Batch ID: P327309

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P327577

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Quality Assurance Report Method Blank Results

Reference Method: SM 2320 B-97
 Batch ID: P327664

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

Reference Method: SM 2540 C-97
 Batch ID: P327835

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
 Batch ID: P327877

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
 Batch ID: P327666

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
 Batch ID: P327584

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

Reference Method: USGS O-2060-01
 Batch ID: P327564

Component	Result	Code	Units
2,4-D	8.0E-04	U	ug/L
Acetaminophen	0.0080	U	ug/L
Bentazon	8.0E-04	U	ug/L
Carbamazepine	4.0E-04	U	ug/L
Diuron	8.0E-04	U	ug/L
Fenuron	0.0080	U	ug/L
Fluridone	4.0E-04	U	ug/L
Imidacloprid	8.0E-04	U	ug/L
Linuron	0.0040	U	ug/L
MCP	0.0020	U	ug/L
Primidone	0.0040	U	ug/L
Triclopyr	0.0040	U	ug/L

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P327716

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327718

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327673

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	97.8		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327534

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327605

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: P327597

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327568

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

Reference Method: EPA 8321B
Batch ID: P327309

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	83.0		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P327664

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	104		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P327666

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.3		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
Batch ID: P327584

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

Reference Method: USGS O-2060-01
Batch ID: P327564

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	78.8		P	40 - 150
Acetaminophen	49.8		P	30 - 150
Bentazon	88.2		P	40 - 150
Carbamazepine	92.4		P	40 - 150
Diuron	95.2		P	40 - 150
Fenuron	82.0		P	40 - 150
Fluridone	96.0		P	40 - 150
Imidacloprid	77.8		P	40 - 160
Linuron	78.4		P	40 - 150
MCP	84.6		P	40 - 150
Primidone	51.8		P	40 - 150
Triclopyr	79.0		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327716

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908525	Chloride	96.7		P	90 - 110
1908634	Chloride	98.6		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327718

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908525	Sulfate	99.2		P	90 - 110
1908634	Sulfate	99.2		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327673

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908528	Ammonia-N	94.8	94.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327534

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908795	Kjeldahl Nitrogen	100	99.4	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P327605

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908786	NO2NO3-N	101	99.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P327597

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908795	Total-P	104	99.2	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Batch ID: P327568

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908798	O-Phosphate-P	95.2	96.6	P/P	90 - 110

Reference Method: USGS O-2060-01
 Batch ID: P327564

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1908555	2,4-D	113	106	P/P	40 - 150
1908555	Acetaminophen	84.8	84.8	P/P	30 - 150
1908555	Bentazon	43.8	48.2	P/P	40 - 150
1908555	Carbamazepine	99.2	103	P/P	40 - 150
1908555	Diuron	60.4	68.4	P/P	40 - 150
1908555	Fenuron	159	87.6	F/P	40 - 150
1908555	Fluridone	50.6	57.4	P/P	40 - 150
1908555	Imidacloprid	68.4	107	P/P	40 - 160
1908555	Linuron	61.4	63.6	P/P	40 - 150
1908555	MCP	79.0	74.6	P/P	40 - 150
1908555	Primidone	58.6	89.8	P/P	40 - 150
1908555	Triclopyr	95.8	79.4	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P327590

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908791	Turbidity	4.35	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P327716

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908525	Chloride	0.168	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P327718

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908525	Sulfate	0.661	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327673

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908528	Ammonia-N	0.416	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327534

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908795	Kjeldahl Nitrogen	0.899	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327605

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908786	NO2NO3-N	1.34	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327597

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908795	Total-P	3.80	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327568

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908798	O-Phosphate-P	0.835	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P327309

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908246	Sucralose	4.67	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P327577

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908792	Color (true)	6.15	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P327664

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908954	Total Alkalinity	0.626	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P327835

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908792	TDS	6.74	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P327666

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908954	Fluoride	0.0	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P327584

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908500	Organic Carbon	0.0915	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P327564

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1908555	2,4-D	5.29	Spike	P	0 - 30
1908555	Acetaminophen	0.0	Spike	P	0 - 30
1908555	Bentazon	2.18	Spike	P	0 - 30
1908555	Carbamazepine	3.76	Spike	P	0 - 30
1908555	Diuron	9.50	Spike	P	0 - 30
1908555	Fenuron	46.9	Spike	F	0 - 30
1908555	Fluridone	8.74	Spike	P	0 - 30
1908555	Imidacloprid	7.29	Spike	P	0 - 30
1908555	Linuron	3.52	Spike	P	0 - 30
1908555	MCPP	5.73	Spike	P	0 - 30
1908555	Primidone	42.0	Spike	F	0 - 30
1908555	Triclopyr	18.7	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

Quality Assurance Report Surrogates

Lab Sample ID: 1908808

Field Sample ID: G1WA0061_06262017

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	90.0	P	40 - 160
USGS O-2060-01	2,4-D-d3	79.5	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	94.2	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	131	P	30 - 160
USGS O-2060-01	Diuron-d6	96.8	P	30 - 160
USGS O-2060-01	Primidone-d5	96.0	P	30 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A77352

Included Lab Sample IDs: 1908791, 1908792, 1908793

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	99.3	99.7	P/P	90 - 110
Sulfate	97.9	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A77374

Included Lab Sample IDs: 1908797, 1908798, 1908799

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	100	100	P/P	90 - 110
O-Phosphate-P	98.8	98.3	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A77377

Included Lab Sample IDs: 1908791, 1908792, 1908793

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	102	P/P	85 - 115
Color (true)	97.9	101	P/P	85 - 115

Reference Method: SM 5310 B-00

Run ID: A77378

Included Lab Sample IDs: 1908794, 1908795, 1908796

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	96.3	95.2	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A77382

Included Lab Sample IDs: 1908791, 1908792, 1908793

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	99.0	99.5	P/P	95 - 105

Quality Assurance Report Calibration Verification

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A77384

Included Lab Sample IDs: 1908794, 1908795, 1908796

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	101	102	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A77409

Included Lab Sample IDs: 1908791, 1908792, 1908793

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

Reference Method: SM 4500 F-C-97

Run ID: A77409

Included Lab Sample IDs: 1908791, 1908792, 1908793

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	96.6	95.6	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A77410

Included Lab Sample IDs: 1908794, 1908795, 1908796

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	96.4	96.0	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A77414

Included Lab Sample IDs: 1908808

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	79.0	105	P/P	60 - 160

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77417

Included Lab Sample IDs: 1908795

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77422

Included Lab Sample IDs: 1908794, 1908796

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	98.8	98.2	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77467

Included Lab Sample IDs: 1908794, 1908795, 1908796

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

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A77687

Included Lab Sample IDs: 1908808

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	96.0	94.0	P/P	50 - 150
Acetaminophen	82.0	72.4	P/P	60 - 150
Bentazon	86.4	102	P/P	50 - 150
Carbamazepine	94.4	94.8	P/P	60 - 150
Diuron	98.0	95.2	P/P	60 - 150
Fenuron	80.8	82.0	P/P	60 - 150
Fluridone	122	107	P/P	60 - 160
Imidacloprid	85.6	76.0	P/P	60 - 150
Linuron	88.0	86.0	P/P	60 - 150
MCP	74.8	78.8	P/P	50 - 150
Primidone	81.2	74.0	P/P	60 - 150
Triclopyr	80.4	74.8	P/P	50 - 150

* 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				4.35	
EPA 300.0 Rev. 2.1	Chloride	98.1	96.7 98.6		0.168	
	Sulfate	97.3	99.2 99.2		0.661	
EPA 350.1 Rev. 2.0	Ammonia-N	97.8	94.8 94.2			0.416
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	102	100 99.4			0.899
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	104	101 99.6			1.34
EPA 365.1 Rev. 2.0	Total-P	98.8	104 99.2			3.80
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	97.9	95.2 96.6			0.835
EPA 8321B	Sucralose	83.0				4.67
SM 2120 B	Color (true)				6.15	
SM 2320 B-97	Total Alkalinity	104			0.626	
SM 2540 C-97	TDS				6.74	
SM 4500 F-C-97	Fluoride	94.3				0.0
SM 5310 B-00	Organic Carbon	94.6				0.0915
USGS O-2060-01	2,4-D	78.8	113 106			5.29
	Acetaminophen	49.8	84.8 84.8			0.0
	Bentazon	88.2	43.8 48.2			2.18
	Carbamazepine	92.4	99.2 103			3.76
	Diuron	95.2	60.4 68.4			9.50
	Fenuron	82.0	159 87.6			46.9
	Fluridone	96.0	50.6 57.4			8.74
	Imidacloprid	77.8	68.4 107			7.29
	Linuron	78.4	61.4 63.6			3.52
	MCP	84.6	79.0 74.6			5.73
	Primidone	51.8	58.6 89.8			42.0
	Triclopyr	79.0	95.8 79.4			18.7

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1908791, 1908792, 1908793
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1908791, 1908792, 1908793
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1908791, 1908792, 1908793
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1908794, 1908795, 1908796
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1908794, 1908795, 1908796
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1908794, 1908795, 1908796
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1908794, 1908795, 1908796
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1908797, 1908798, 1908799
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1908808
SM 2120 B / E31780	True Color measured at 450 nm	1908791, 1908792, 1908793
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1908791, 1908792, 1908793
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1908791, 1908792, 1908793
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1908791, 1908792, 1908793
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1908791, 1908792, 1908793
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1908794, 1908795, 1908796
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1908808
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1908808

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	06/26/2017			06/27/2017 17:22	DeAsia Armster	1908791, 1908792, 1908793
EPA 300.0 Rev. 2.1	06/26/2017			06/28/2017	Ping Hua	1908791, 1908792, 1908793
EPA 350.1 Rev. 2.0	06/26/2017			06/28/2017	Sofia Elnemr	1908794, 1908795, 1908796
EPA 351.2 Rev. 2.0	06/26/2017	06/27/2017	Adrian Shelby	06/30/2017	Joseph Suarez	1908794, 1908795, 1908796
EPA 353.2 Rev. 2.0	06/26/2017			06/28/2017	Beverly Y. Sanders	1908794, 1908795, 1908796
EPA 365.1 Rev. 2.0	06/26/2017	06/28/2017	Vijayalakshmi Reddy	06/29/2017	Lipi Saha	1908794, 1908795, 1908796
EPA 365.1 Rev. 2.0 dissolved	06/26/2017			06/27/2017 14:11	Anthony C. Onicha	1908798
	06/26/2017			06/27/2017 14:35	Anthony C. Onicha	1908797
	06/26/2017			06/27/2017 14:36	Anthony C. Onicha	1908799
EPA 8321B	06/26/2017	06/28/2017	Mohammad Ghaffari	06/28/2017	Mohammad Ghaffari	1908808
SM 2120 B	06/26/2017			06/27/2017 15:15	Tanya Welborn	1908792
	06/26/2017			06/27/2017 15:56	Tanya Welborn	1908791
	06/26/2017			06/27/2017 15:57	Tanya Welborn	1908793
SM 2320 B-97	06/26/2017			06/28/2017	Dale L. Simmons	1908791, 1908792, 1908793
SM 2540 C-97	06/26/2017			06/28/2017	Yijie Li	1908791, 1908792, 1908793
SM 2540 D-97	06/26/2017			06/28/2017	Yijie Li	1908791, 1908792, 1908793
SM 4500 F-C-97	06/26/2017			06/28/2017	Dale L. Simmons	1908791, 1908792, 1908793
SM 5310 B-00	06/26/2017			06/27/2017	Ping Hua	1908794, 1908795, 1908796
USGS O-2060-01	06/26/2017	06/28/2017	Hoor Shaik	07/10/2017	Juyoung Kim	1908808