

Chemical Analysis Report

WQAP-2017-06-29-06

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

Event Description: **SMP 2017 Freshwater Kit A with B/T/M**
Request ID: **RQ-2017-06-26-36**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
2600 Blair Stone Rd
MS #3560
Tallahassee, FL 32399-2400
Attn: Michael Eckles

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Certified by: Colin Wright, Program Administrator

Date Certified: 27-JUL-2017 16:38

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: Woods Creek @ Osteen Rd.

Collection Date/Time: 06/29/2017 10:10

Field ID: G1TLHR0067-2017-03

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1910295	EPA 180.1 Rev. 2.0	Turbidity	1.4		NTU	P327752	
	EPA 300.0 Rev. 2.1	Chloride	5.1		mg Cl/L	P328148	
	SM 2120 B	Color (true)	120		PCU	P327746	
	SM 2320 B-97	Total Alkalinity	135		mg CaCO3/L	P328061	
	SM 2540 C-97	TDS	167	Q	mg/L	P328645	
	SM 2540 D-97	TSS	3	IQ	mg/L	P328736	
	SM 4500 F-C-97	Fluoride	0.14		mg F/L	P328068	
1910298	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P327977	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.41		mg N/L	P327887	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.12		mg N/L	P327928	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P327965	
	SM 5310 B-00	Organic Carbon	11		mg C/L	P328071	
1910301	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.12		mg P/L	P327745	
1910313	EPA 8321B	Sucralose**	0.011	I	ug/L	P327721	
	USGS O-2060-01	2,4-D	8.0E-04	U	ug/L	P327782	
		Diuron	8.0E-04	U	ug/L	P327782	
		Fenuron	0.0080	U	ug/L	P327782	
		Imidacloprid	8.0E-04	U	ug/L	P327782	
		Bentazon	8.0E-04	U	ug/L	P327782	
		Linuron	0.0040	U	ug/L	P327782	
		Acetaminophen**	0.047		ug/L	P327782	
		MCP	0.0020	U	ug/L	P327782	
		Carbamazepine**	4.0E-04	U	ug/L	P327782	
		Triclopyr**	0.0040	U	ug/L	P327782	
		Primidone**	0.0040	U	ug/L	P327782	
		Fluridone**	4.0E-04	U	ug/L	P327782	

Ref. Method and Comment:

SM 2540 C-97: Sample analyzed out of holding time due to analytical difficulties.

SM 2540 D-97: Sample analyzed out of holding time due to analytical difficulties.

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

EPA 8321B: Results confirmed in re-extraction.

USGS O-2060-01: MS accuracy for 2,4-D could not be assessed due to high concentration of parameter in the spiked sample.

USGS O-2060-01: MS accuracy for acetaminophen could not be assessed due to high concentration of parameter in the spiked sample. Results confirmed in re-extraction.

Sample Location: Boggy Creek @ SR51

Collection Date/Time: 06/29/2017 11:20

Field ID: G1TLHR0005-2017-02

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1910296	EPA 180.1 Rev. 2.0	Turbidity	3.7		NTU	P327752	
	EPA 300.0 Rev. 2.1	Chloride	12		mg Cl/L	P328148	
	SM 2120 B	Color (true)	220		PCU	P327746	
	SM 2320 B-97	Total Alkalinity	125		mg CaCO3/L	P328061	
	SM 2540 C-97	TDS	204	Q	mg/L	P328645	
	SM 2540 D-97	TSS	6	IQ	mg/L	P328736	
	SM 4500 F-C-97	Fluoride	0.053	I	mg F/L	P328068	

Field ID: G1TLHR0005-2017-02

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1910299	EPA 350.1 Rev. 2.0	Ammonia-N	0.058		mg N/L	P327977	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.6		mg N/L	P327887	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.069		mg N/L	P327928	
	EPA 365.1 Rev. 2.0	Total-P	0.037		mg P/L	P327965	
	SM 5310 B-00	Organic Carbon	34		mg C/L	P328071	
1910302	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P327745	
1910314	EPA 8321B	Sucralose**	0.010	U	ug/L	P327721	
	USGS O-2060-01	2,4-D	8.0E-04	U	ug/L	P327782	
		Diuron	8.0E-04	U	ug/L	P327782	
		Fenuron	0.0080	U	ug/L	P327782	
		Imidacloprid	8.0E-04	U	ug/L	P327782	
		Bentazon	8.0E-04	U	ug/L	P327782	
		Linuron	0.0040	U	ug/L	P327782	
		Acetaminophen**	0.62		ug/L	P327782	
		MCP	0.0020	U	ug/L	P327782	
		Carbamazepine**	4.0E-04	U	ug/L	P327782	
		Triclopyr**	0.0040	U	ug/L	P327782	
		Primidone**	0.0040	U	ug/L	P327782	
		Fluridone**	4.0E-04	U	ug/L	P327782	

Ref. Method and Comment:

SM 2540 C-97: Sample analyzed out of holding time due to analytical difficulties.

SM 2540 D-97: Sample analyzed out of holding time due to analytical difficulties.

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

EPA 8321B: Results confirmed in re-extraction.

USGS O-2060-01: MS accuracy for 2,4-D could not be assessed due to high concentration of parameter in the spiked sample.

USGS O-2060-01: MS accuracy for acetaminophen could not be assessed due to high concentration of parameter in the spiked sample. Results confirmed in re-extraction.

Sample Location: Steinhatchee River S of SE La Bennet Rd.

Collection Date/Time: 06/29/2017 11:45

Field ID: G1TLHR0064-2017-01

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1910297	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P327752	
	EPA 300.0 Rev. 2.1	Chloride	5.9		mg Cl/L	P328148	
	SM 2120 B	Color (true)	480		PCU	P327746	
	SM 2320 B-97	Total Alkalinity	77		mg CaCO3/L	P328172	
	SM 2540 C-97	TDS	161	Q	mg/L	P328645	
	SM 2540 D-97	TSS	4	IQ	mg/L	P328736	
	SM 4500 F-C-97	Fluoride	0.089	I	mg F/L	P328180	
1910300	EPA 350.1 Rev. 2.0	Ammonia-N	0.025		mg N/L	P327977	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P327887	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.016		mg N/L	P327929	
	EPA 365.1 Rev. 2.0	Total-P	0.13		mg P/L	P327965	
	SM 5310 B-00	Organic Carbon	42		mg C/L	P328071	
1910303	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.099		mg P/L	P327745	
1910315	EPA 8321B	Sucralose**	0.010	U	ug/L	P327721	
	USGS O-2060-01	2,4-D	8.0E-04	U	ug/L	P327782	

Field ID: G1TLHR0064-2017-01

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1910315	USGS O-2060-01	Diuron	8.0E-04	U	ug/L	P327782	
		Fenuron	0.0080	U	ug/L	P327782	
		Imidacloprid	8.0E-04	U	ug/L	P327782	
		Bentazon	8.0E-04	U	ug/L	P327782	
		Linuron	0.0040	U	ug/L	P327782	
		Acetaminophen**	0.22	I	ug/L	P327782	
		MCP	0.0020	U	ug/L	P327782	
		Carbamazepine**	4.0E-04	U	ug/L	P327782	
		Triclopyr**	0.0040	U	ug/L	P327782	
		Primidone**	0.0040	U	ug/L	P327782	
		Fluridone**	4.0E-04	U	ug/L	P327782	

Ref. Method and Comment:

SM 2540 C-97: Sample analyzed out of holding time due to analytical difficulties.

SM 2540 D-97: Sample analyzed out of holding time due to analytical difficulties.

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

EPA 8321B: Results confirmed in re-extraction.

USGS O-2060-01: MS accuracy for 2,4-D could not be assessed due to high concentration of parameter in the spiked sample.

USGS O-2060-01: MS accuracy for acetaminophen could not be assessed due to high concentration of parameter in the spiked sample. Results confirmed in re-extraction.

Quality Assurance Report

Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0

Batch ID: P327752

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1

Batch ID: P328148

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0

Batch ID: P327977

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

Reference Method: EPA 351.2 Rev. 2.0

Batch ID: P327887

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

Reference Method: EPA 353.2 Rev. 2.0

Batch ID: P327928

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327929

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327965

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327745

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

Reference Method: EPA 8321B
Batch ID: P327721

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P327746

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P328061

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

Reference Method: SM 2320 B-97
Batch ID: P328172

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

Reference Method: SM 2540 C-97
Batch ID: P328645

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P328736

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P328068

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 4500 F-C-97
Batch ID: P328180

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P328071

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

Reference Method: USGS O-2060-01
Batch ID: P327782

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: P328148

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Chloride	97.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327977

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327887

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327928

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: P327929

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: P327965

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327745

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

Reference Method: EPA 8321B
Batch ID: P327721

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	92.8		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P328061

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	101		P	95 - 108

Reference Method: SM 2320 B-97
Batch ID: P328172

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	103		P	95 - 108

Reference Method: SM 4500 F-C-97
Batch ID: P328068

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	94.6		P	92 - 103

Reference Method: SM 4500 F-C-97
Batch ID: P328180

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.4		P	92 - 103

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 5310 B-00
 Batch ID: P328071

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

Reference Method: USGS O-2060-01
 Batch ID: P327782

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	77.8		P	40 - 150
Acetaminophen	103		P	30 - 150
Bentazon	60.8		P	40 - 150
Carbamazepine	77.3		P	40 - 150
Diuron	65.3		P	40 - 150
Fenuron	87.6		P	40 - 150
Fluridone	78.3		P	40 - 150
Imidacloprid	78.7		P	40 - 160
Linuron	77.0		P	40 - 150
MCP	69.4		P	40 - 150
Primidone	76.0		P	40 - 150
Triclopyr	72.7		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P328148

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910279	Chloride	98.7		P	90 - 110
1910286	Chloride	96.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P327977

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910280	Ammonia-N	97.9	98.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P327887

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910335	Kjeldahl Nitrogen	96.4	97.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P327928

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910280	NO2NO3-N	104	104	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P327929

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327929

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910300	NO2NO3-N	97.6	96.6	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327965

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910299	Total-P	95.6	94.9	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327745

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910289	O-Phosphate-P	97.2	99.0	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P327721

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910178	Sucralose	144	136	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P328068

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910183	Fluoride	97.4	98.6	P/P	91 - 105

Reference Method: SM 4500 F-C-97
Batch ID: P328180

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910687	Fluoride	100	101	P/P	91 - 105

Reference Method: USGS O-2060-01
Batch ID: P327782

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1910586	Bentazon	58.8	51.2	P/P	40 - 150
1910586	Carbamazepine	113	99.1	P/P	40 - 150
1910586	Diuron	71.3	58.5	P/P	40 - 150
1910586	Fenuron	91.1	90.6	P/P	40 - 150
1910586	Fluridone	48.1	40.3	P/P	40 - 150
1910586	Imidacloprid	156	151	P/P	40 - 160
1910586	Linuron	85.2	74.0	P/P	40 - 150
1910586	MCP	108	99.4	P/P	40 - 150
1910586	Primidone	85.1	87.0	P/P	40 - 150
1910586	Triclopyr	94.5	86.4	P/P	40 - 150

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P327752

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910182	Turbidity	1.68	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328148

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910286	Chloride	0.101	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P327977

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910280	Ammonia-N	0.436	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P327887

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910335	Kjeldahl Nitrogen	0.666	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327928

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910280	NO2NO3-N	0.291	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P327929

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910300	NO2NO3-N	0.950	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P327965

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910299	Total-P	0.727	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P327745

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910289	O-Phosphate-P	1.83	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P327721

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910178	Sucralose	6.01	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P327746

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910285	Color (true)	1.15	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P328061

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910183	Total Alkalinity	0.359	Sample	P	0 - 4.8

Reference Method: SM 2320 B-97
Batch ID: P328172

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910687	Total Alkalinity	0.0984	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P328645

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1912708	TDS	4.36	Sample	P	0 - 10

Reference Method: SM 2540 D-97
Batch ID: P328736

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1912039	TSS	6.56	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P328068

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910183	Fluoride	0.996	Spike	P	0 - 3.0

Reference Method: SM 4500 F-C-97
Batch ID: P328180

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910687	Fluoride	0.464	Spike	P	0 - 3.0

Quality Assurance Report Precision

Reference Method: SM 5310 B-00
Batch ID: P328071

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910288	Organic Carbon	0.430	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P327782

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1910586	2,4-D	15.2	Spike	P	0 - 30
1910586	Acetaminophen	15.6	Spike	P	0 - 30
1910586	Bentazon	8.08	Spike	P	0 - 30
1910586	Carbamazepine	13.1	Spike	P	0 - 30
1910586	Diuron	17.5	Spike	P	0 - 30
1910586	Fenuron	0.572	Spike	P	0 - 30
1910586	Fluridone	10.9	Spike	P	0 - 30
1910586	Imidacloprid	2.56	Spike	P	0 - 30
1910586	Linuron	14.0	Spike	P	0 - 30
1910586	MCPP	8.57	Spike	P	0 - 30
1910586	Primidone	2.19	Spike	P	0 - 30
1910586	Triclopyr	8.89	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: 1910313
Field Sample ID: G1TLHR0067-2017-03

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	118	P	40 - 160
USGS O-2060-01	2,4-D-d3	133	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	114	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	123	P	30 - 165
USGS O-2060-01	Diuron-d6	85.0	P	30 - 160
USGS O-2060-01	Primidone-d5	80.0	P	30 - 150

Lab Sample ID: 1910314
Field Sample ID: G1TLHR0005-2017-02

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	97.3	P	40 - 160
USGS O-2060-01	2,4-D-d3	118	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	122	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	87.5	P	30 - 165
USGS O-2060-01	Diuron-d6	66.6	P	30 - 160
USGS O-2060-01	Primidone-d5	61.8	P	30 - 150

Quality Assurance Report Surrogates

Lab Sample ID: 1910315

Field Sample ID: G1TLHR0064-2017-01

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	86.4	P	40 - 160
USGS O-2060-01	2,4-D-d3	107	P	40 - 150
USGS O-2060-01	Acetaminophen-d4	124	P	30 - 150
USGS O-2060-01	Carbamazepine-d10	83.7	P	30 - 165
USGS O-2060-01	Diuron-d6	74.4	P	30 - 160
USGS O-2060-01	Primidone-d5	60.0	P	30 - 150

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A77433

Included Lab Sample IDs: 1910301, 1910302, 1910303

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.9	97.7	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A77434

Included Lab Sample IDs: 1910295, 1910296, 1910297

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

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A77435

Included Lab Sample IDs: 1910295, 1910296, 1910297

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

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A77519

Included Lab Sample IDs: 1910298, 1910299, 1910300

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A77531

Included Lab Sample IDs: 1910298, 1910299, 1910300

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

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A77551

Included Lab Sample IDs: 1910295, 1910296, 1910297

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

Quality Assurance Report Calibration Verification

Reference Method: SM 2320 B-97

Run ID: A77557

Included Lab Sample IDs: 1910295, 1910296

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.9	103	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A77557

Included Lab Sample IDs: 1910295, 1910296

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	97.1	97.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A77560

Included Lab Sample IDs: 1910298, 1910299, 1910300

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	91.7	94.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77568

Included Lab Sample IDs: 1910298, 1910300

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77573

Included Lab Sample IDs: 1910299

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	99.8	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A77607

Included Lab Sample IDs: 1910297

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	103	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A77607

Included Lab Sample IDs: 1910297

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.9	98.6	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77618

Included Lab Sample IDs: 1910298, 1910299, 1910300

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	97.9	99.5	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A77714

Included Lab Sample IDs: 1910313, 1910314, 1910315

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	79.4	82.5	P/P	50 - 150
2,4-D	82.5	84.2	P/P	50 - 150
Bentazon	61.6	65.1	P/P	50 - 150
Bentazon	65.1	64.7	P/P	50 - 150
MCP	83.7	75.4	P/P	50 - 150
MCP	83.8	83.7	P/P	50 - 150
Triclopyr	80.0	87.6	P/P	50 - 150
Triclopyr	82.4	80.0	P/P	50 - 150

Reference Method: USGS O-2060-01

Run ID: A77717

Included Lab Sample IDs: 1910313, 1910314, 1910315

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	103	93.8	P/P	60 - 150
Carbamazepine	85.3	92.2	P/P	60 - 150
Carbamazepine	93.3	85.3	P/P	60 - 150
Diuron	82.6	84.2	P/P	60 - 150
Diuron	84.2	80.4	P/P	60 - 150
Fenuron	85.8	90.6	P/P	60 - 150
Fenuron	90.6	98.2	P/P	60 - 150
Fluridone	78.8	86.1	P/P	60 - 160
Fluridone	86.1	90.7	P/P	60 - 160
Imidacloprid	81.7	91.1	P/P	60 - 150
Imidacloprid	94.1	81.7	P/P	60 - 150
Linuron	75.9	92.5	P/P	60 - 150
Linuron	92.5	84.9	P/P	60 - 150
Primidone	90.0	77.1	P/P	60 - 150
Primidone	90.1	90.0	P/P	60 - 150

Reference Method: EPA 8321B

Run ID: A77777

Included Lab Sample IDs: 1910313, 1910314, 1910315

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	135	118	P/P	60 - 160

Reference Method: USGS O-2060-01

Run ID: A77797

Included Lab Sample IDs: 1910314, 1910315

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Acetaminophen	110	102	P/P	60 - 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		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				1.68	
EPA 300.0 Rev. 2.1	Chloride	97.1	96.7	98.7	0.101	
EPA 350.1 Rev. 2.0	Ammonia-N	98.1	97.9	98.5		0.436
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	110	96.4	97.6		0.666
EPA 353.2 Rev. 2.0	NO2NO3-N	102	104	104		0.291
	NO2NO3-N	104	97.6	96.6		0.950
EPA 365.1 Rev. 2.0	Total-P	102	95.6	94.9		0.727
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	100	97.2	99.0		1.83
EPA 8321B	Sucralose	92.8	144	136		6.01
SM 2120 B	Color (true)				1.15	
SM 2320 B-97	Total Alkalinity	101			0.359	
	Total Alkalinity	103			0.0984	
SM 2540 C-97	TDS				4.36	
SM 2540 D-97	TSS				6.56	
SM 4500 F-C-97	Fluoride	94.6	97.4	98.6		0.996
	Fluoride	98.4	100	101		0.464
SM 5310 B-00	Organic Carbon	94.6				0.430
USGS O-2060-01	2,4-D	77.8				15.2
	Acetaminophen	103				15.6
	Bentazon	60.8	58.8	51.2		8.08
	Carbamazepine	77.3	113	99.1		13.1
	Diuron	65.3	71.3	58.5		17.5
	Fenuron	87.6	91.1	90.6		0.572
	Fluridone	78.3	48.1	40.3		10.9
	Imidacloprid	78.7	156	151		2.56
	Linuron	77.0	85.2	74.0		14.0
	MCPP	69.4	108	99.4		8.57
	Primidone	76.0	85.1	87.0		2.19
	Triclopyr	72.7	94.5	86.4		8.89

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1910295, 1910296, 1910297
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1910295, 1910296, 1910297
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1910298, 1910299, 1910300
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1910298, 1910299, 1910300
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1910298, 1910299, 1910300
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1910298, 1910299, 1910300
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1910301, 1910302, 1910303
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1910313, 1910314, 1910315
SM 2120 B / E31780	True Color measured at 450 nm	1910295, 1910296, 1910297
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO3/L	1910295, 1910296, 1910297
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1910295, 1910296, 1910297
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1910295, 1910296, 1910297
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1910295, 1910296, 1910297
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1910298, 1910299, 1910300

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1910313, 1910314, 1910315
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1910313, 1910314, 1910315

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	06/29/2017			06/29/2017 16:54	DeAsia Armster	1910295, 1910296, 1910297
EPA 300.0 Rev. 2.1	06/29/2017			07/07/2017	Ping Hua	1910295, 1910296, 1910297
EPA 350.1 Rev. 2.0	06/29/2017			07/05/2017	Sofia Elnemr	1910298, 1910299, 1910300
EPA 351.2 Rev. 2.0	06/29/2017	07/05/2017	Adrian Shelby	07/10/2017	Joseph Suarez	1910298, 1910299, 1910300
EPA 353.2 Rev. 2.0	06/29/2017			07/05/2017	Beverly Y. Sanders	1910298, 1910299, 1910300
EPA 365.1 Rev. 2.0	06/29/2017	07/06/2017	Adrian Shelby	07/07/2017	Lipi Saha	1910298, 1910299, 1910300
EPA 365.1 Rev. 2.0 dissolved	06/29/2017			06/29/2017 16:32	Ping Hua	1910301, 1910302
	06/29/2017			06/29/2017 16:33	Ping Hua	1910303
EPA 8321B	06/29/2017	07/12/2017	Mohammad Ghaffari	07/14/2017	Mohammad Ghaffari	1910313, 1910314, 1910315
SM 2120 B	06/29/2017			06/29/2017 17:09	Julia Storbeck	1910295
	06/29/2017			06/29/2017 17:13	Julia Storbeck	1910296, 1910297
SM 2320 B-97	06/29/2017			07/06/2017	Dale L. Simmons	1910295
	06/29/2017			07/07/2017	Dale L. Simmons	1910296
	06/29/2017			07/08/2017	Dale L. Simmons	1910297
SM 2540 C-97	06/29/2017			07/13/2017	Yijie Li	1910295, 1910296, 1910297
SM 2540 D-97	06/29/2017			07/13/2017	Yijie Li	1910295, 1910296, 1910297
SM 4500 F-C-97	06/29/2017			07/06/2017	Dale L. Simmons	1910295
	06/29/2017			07/07/2017	Dale L. Simmons	1910296
	06/29/2017			07/08/2017	Dale L. Simmons	1910297
SM 5310 B-00	06/29/2017			07/05/2017	Ping Hua	1910298, 1910299, 1910300
USGS O-2060-01	06/29/2017	07/03/2017	Hoor Shaik	07/13/2017	Juyoung Kim	1910313, 1910314, 1910315
	06/29/2017	07/03/2017	Hoor Shaik	07/19/2017	Juyoung Kim	1910314, 1910315