

Chemical Analysis Report

WQAP-2017-07-19-03

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

Event Description: **SMP 2017 kit A-b/t/m PCR-FILTER & PCR-HF183**
Request ID: **RQ-2017-06-26-37**
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

For additional information please contact
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Certified by: Liang Lin, Environmental Administrator

Date Certified: 10-AUG-2017 14:59

A handwritten signature in black ink, appearing to read "Liang Lin", is written on a light-colored, textured 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: OCKLAWAHA CREEK @ SR 267

Collection Date/Time: 07/19/2017 11:30

Field ID: G1TLHR0053-2017-04

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1914693	EPA 180.1 Rev. 2.0	Turbidity	2.2		NTU	P328799	
	EPA 300.0 Rev. 2.1	Chloride	2.6		mg Cl/L	P328908	
	SM 2120 B	Color (true)	280		PCU	P328804	
	SM 2320 B-97	Total Alkalinity	0.65	U	mg CaCO3/L	P328972	
	SM 2540 C-97	TDS	46		mg/L	P329282	
	SM 2540 D-97	TSS	3	I	mg/L	P329298	
	SM 4500 F-C-97	Fluoride	0.035	U	mg F/L	P329086	
1914695	EPA 350.1 Rev. 2.0	Ammonia-N	0.01		mg N/L	P328957	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.57		mg N/L	P328898	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.091		mg N/L	P329048	
	EPA 365.1 Rev. 2.0	Total-P	0.010		mg P/L	P328929	
	SM 5310 B-00	Organic Carbon	21		mg C/L	P329126	
1914697	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P328790	
1914707	EPA 8321B	Sucralose**	0.010	U	ug/L	P328764	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P328838	
		Diuron	8.0E-04	U	ug/L	P328838	
		Fenuron	0.0080	U	ug/L	P328838	
		Imidacloprid	8.0E-04	U	ug/L	P328838	MS
		Bentazon	8.0E-04	U	ug/L	P328838	
		Linuron	0.0040	U	ug/L	P328838	
		Acetaminophen**	0.0080	U	ug/L	P328838	
		MCP	0.0020	U	ug/L	P328838	
		Carbamazepine**	4.0E-04	U	ug/L	P328838	
		Triclopyr**	0.0040	U	ug/L	P328838	
		Primidone**	0.0040	U	ug/L	P328838	
		Fluridone**	4.0E-04	U	ug/L	P328838	

Ref. Method and Comment:

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

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

Sample Location: BEAR CREEK @ SR 267

Collection Date/Time: 07/19/2017 12:15

Field ID: G1TLHR0052-2017-04

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1914694	EPA 180.1 Rev. 2.0	Turbidity	3.8		NTU	P328799	
	EPA 300.0 Rev. 2.1	Chloride	3.5		mg Cl/L	P328908	
	SM 2120 B	Color (true)	130		PCU	P328804	
	SM 2320 B-97	Total Alkalinity	1.5	I	mg CaCO3/L	P328972	
	SM 2540 C-97	TDS	22	I	mg/L	P329282	
	SM 2540 D-97	TSS	6	I	mg/L	P329298	
	SM 4500 F-C-97	Fluoride	0.051	I	mg F/L	P329086	
1914696	EPA 350.1 Rev. 2.0	Ammonia-N	0.018		mg N/L	P328957	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.40		mg N/L	P328898	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.067		mg N/L	P329048	

Field ID: G1TLHR0052-2017-04

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1914696	EPA 365.1 Rev. 2.0	Total-P	0.090		mg P/L	P328930	
	SM 5310 B-00	Organic Carbon	9.4		mg C/L	P329078	
1914698	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.064		mg P/L	P328790	
1914708	EPA 8321B	Sucralose**	0.019	I	ug/L	P328764	
	USGS O-2060-01	2,4-D	0.0020	U	ug/L	P328838	
		Diuron	8.0E-04	U	ug/L	P328838	
		Fenuron	0.0080	U	ug/L	P328838	
		Imidacloprid	8.0E-04	U	ug/L	P328838	MS
		Bentazon	8.0E-04	U	ug/L	P328838	
		Linuron	0.0040	U	ug/L	P328838	
		Acetaminophen**	0.0080	U	ug/L	P328838	
		MCP	0.0020	U	ug/L	P328838	
		Carbamazepine**	4.0E-04	U	ug/L	P328838	
		Triclopyr**	0.0040	U	ug/L	P328838	
		Primidone**	0.0040	U	ug/L	P328838	
		Fluridone**	4.0E-04	U	ug/L	P328838	

Ref. Method and Comment:
 SM 2540 D-97: Batch relative percent difference is unavailable because of low analyte concentration in the QC sample.
 USGS O-2060-01: MS accuracy for 2,4-D could not be assessed due to high concentration of parameter in the spiked sample.

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P328799

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P328908

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P328957

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P328898

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P329048

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329048

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328929

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328930

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328790

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

Reference Method: EPA 8321B
Batch ID: P328764

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P328804

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P328972

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

Reference Method: SM 2540 C-97
Batch ID: P329282

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P329298

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P329086

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P329078

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

Reference Method: SM 5310 B-00
Batch ID: P329126

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

Reference Method: USGS O-2060-01
Batch ID: P328838

Component	Result	Code	Units
2,4-D	0.0020	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: P328908

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328957

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.0		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328898

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329048

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	106		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328929

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328930

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328790

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
O-Phosphate-P	99.9		P	90 - 110

Reference Method: EPA 8321B
Batch ID: P328764

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	85.0		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P328972

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

Reference Method: SM 4500 F-C-97
Batch ID: P329086

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.3		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P329078

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	102		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P329126

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
Batch ID: P328838

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	107		P	40 - 150
Acetaminophen	99.9		P	30 - 150
Bentazon	103		P	40 - 150
Carbamazepine	120		P	40 - 150
Diuron	122		P	40 - 150
Fenuron	111		P	40 - 150
Fluridone	113		P	40 - 150
Imidacloprid	119		P	40 - 160
Linuron	112		P	40 - 150
MCPP	105		P	40 - 150
Primidone	97.7		P	40 - 150
Triclopyr	94.2		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328908

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914587	Chloride	97.0		P	90 - 110
1914685	Chloride	101		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328957

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914688	Ammonia-N	103	100	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328898

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914740	Kjeldahl Nitrogen	103	101	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329048

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914616	NO2NO3-N	106	106	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328929

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914589	Total-P	99.4	98.1	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328930

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328930

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914775	Total-P	104	99.8	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328790

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914622	O-Phosphate-P	97.9	98.5	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P328764

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914460	Sucralose	98.8	99.2	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P329086

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915059	Fluoride	98.9	100	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P329078

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1915067	Organic Carbon	98.2		P	85 - 115

Reference Method: SM 5310 B-00
Batch ID: P329126

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914491	Organic Carbon	96.6	96.2	P/P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P328838

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914598	Acetaminophen	128	132	P/P	30 - 150
1914598	Bentazon	56.7	61.2	P/P	40 - 150
1914598	Carbamazepine	118	124	P/P	40 - 150
1914598	Diuron	90.3	84.6	P/P	40 - 150
1914598	Fenuron	91.8	92.6	P/P	40 - 150
1914598	Fluridone	52.7	52.7	P/P	40 - 150
1914598	Imidacloprid	178	178	F/F	40 - 160
1914598	Linuron	84.8	84.8	P/P	40 - 150
1914598	MCPP	126	120	P/P	40 - 150
1914598	Primidone	102	115	P/P	40 - 150
1914598	Triclopyr	100	103	P/P	40 - 150

Quality Assurance Report Precision

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P328799

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914582	Turbidity	1.92	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328908

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914587	Chloride	1.89	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328957

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914688	Ammonia-N	1.85	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328898

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914740	Kjeldahl Nitrogen	1.83	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P329048

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914616	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328929

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914589	Total-P	0.897	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328930

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914775	Total-P	3.79	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328790

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914622	O-Phosphate-P	0.611	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P328764

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914460	Sucralose	0.371	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P328804

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914586	Color (true)	1.43	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P328972

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915059	Total Alkalinity	0.209	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P329282

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914587	TDS	7.02	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P329086

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915059	Fluoride	1.05	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P329078

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1915067	Organic Carbon	2.38	Spike	P	0 - 20

Reference Method: SM 5310 B-00
Batch ID: P329126

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914491	Organic Carbon	0.283	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P328838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914598	2,4-D	10.7	Spike	P	0 - 30
1914598	Acetaminophen	2.96	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: USGS O-2060-01
Batch ID: P328838

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914598	Bentazon	7.20	Spike	P	0 - 30
1914598	Carbamazepine	5.31	Spike	P	0 - 30
1914598	Diuron	4.57	Spike	P	0 - 30
1914598	Fenuron	0.846	Spike	P	0 - 30
1914598	Fluridone	0.0320	Spike	P	0 - 30
1914598	Imidacloprid	0.348	Spike	P	0 - 30
1914598	Linuron	0.0707	Spike	P	0 - 30
1914598	MCP	5.08	Spike	P	0 - 30
1914598	Primidone	11.7	Spike	P	0 - 30
1914598	Triclopyr	3.23	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: 1914707
Field Sample ID: G1TLHR0053-2017-04

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	86.5	P	40 - 160
USGS O-2060-01	2,4-D-d3	150	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	149	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	130	P	30 - 160
USGS O-2060-01	Diuron-d6	105	P	30 - 160
USGS O-2060-01	Primidone-d5	143	P	30 - 160

Lab Sample ID: 1914708
Field Sample ID: G1TLHR0052-2017-04

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	87.7	P	40 - 160
USGS O-2060-01	2,4-D-d3	145	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	146	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	135	P	30 - 160
USGS O-2060-01	Diuron-d6	117	P	30 - 160
USGS O-2060-01	Primidone-d5	134	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
Run ID: A77800
Included Lab Sample IDs: 1914693, 1914694

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved

Run ID: A77817

Included Lab Sample IDs: 1914697, 1914698

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	98.8	100	P/P	90 - 110
O-Phosphate-P	99.0	98.8	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A77821

Included Lab Sample IDs: 1914693, 1914694

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

Reference Method: SM 2120 B

Run ID: A77822

Included Lab Sample IDs: 1914693, 1914694

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	104	P/P	85 - 115
Color (true)	104	102	P/P	85 - 115

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A77874

Included Lab Sample IDs: 1914695, 1914696

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

Reference Method: SM 2320 B-97

Run ID: A77884

Included Lab Sample IDs: 1914693, 1914694

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77893

Included Lab Sample IDs: 1914696

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77900

Included Lab Sample IDs: 1914695

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	97.5	96.8	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77920

Included Lab Sample IDs: 1914695, 1914696

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: A77920

Included Lab Sample IDs: 1914695, 1914696

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	98.5	100	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A77923

Included Lab Sample IDs: 1914695, 1914696

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

Reference Method: SM 5310 B-00

Run ID: A77939

Included Lab Sample IDs: 1914696

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

Reference Method: SM 4500 F-C-97

Run ID: A77941

Included Lab Sample IDs: 1914693, 1914694

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

Reference Method: SM 5310 B-00

Run ID: A77952

Included Lab Sample IDs: 1914695

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	98.5	98.3	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A78008

Included Lab Sample IDs: 1914707, 1914708

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	90.3	88.1	P/P	60 - 160

Reference Method: USGS O-2060-01

Run ID: A78113

Included Lab Sample IDs: 1914707, 1914708

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	110	117	P/P	50 - 150
Acetaminophen	111	122	P/P	60 - 150
Bentazon	97.6	110	P/P	50 - 150
Carbamazepine	103	114	P/P	60 - 150
Diuron	119	118	P/P	60 - 150
Fenuron	115	123	P/P	60 - 150
Fluridone	106	114	P/P	60 - 160
Imidacloprid	113	115	P/P	60 - 150

Quality Assurance Report Calibration Verification

Reference Method: USGS O-2060-01

Run ID: A78113

Included Lab Sample IDs: 1914707, 1914708

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Linuron	129	129	P/P	60 - 150
MCP	108	119	P/P	50 - 150
Primidone	102	86.0	P/P	60 - 150
Triclopyr	87.2	104	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				1.92	
EPA 300.0 Rev. 2.1	Chloride	101	97.0 101		1.89	
EPA 350.1 Rev. 2.0	Ammonia-N	99.0	103 100			1.85
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	106	103 101			1.83
EPA 353.2 Rev. 2.0	NO2NO3-N	106	106 106			0.0
EPA 365.1 Rev. 2.0	Total-P	98.1	99.4 98.1			0.897
	Total-P	98.9	104 99.8			3.79
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	99.9	97.9 98.5			0.611
EPA 8321B	Sucralose	85.0	98.8 99.2			0.371
SM 2120 B	Color (true)				1.43	
SM 2320 B-97	Total Alkalinity	103			0.209	
SM 2540 C-97	TDS				7.02	
SM 4500 F-C-97	Fluoride	98.3	98.9 100			1.05
SM 5310 B-00	Organic Carbon	102	98.2			2.38
	Organic Carbon	97.6	96.6 96.2			0.283
USGS O-2060-01	2,4-D	107				10.7
	Acetaminophen	99.9	128 132			2.96
	Bentazon	103	56.7 61.2			7.20
	Carbamazepine	120	124 118			5.31
	Diuron	122	84.6 90.3			4.57
	Fenuron	111	92.6 91.8			0.846
	Fluridone	113	52.7 52.7			0.0320
	Imidacloprid	119	178 178			0.348
	Linuron	112	84.8 84.8			0.0707
	MCP	105	126 120			5.08
	Primidone	97.7	115 102			11.7
	Triclopyr	94.2	100 103			3.23

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1914693, 1914694
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1914693, 1914694

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1914695, 1914696
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1914695, 1914696
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1914695, 1914696
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1914695, 1914696
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1914697, 1914698
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1914707, 1914708
SM 2120 B / E31780	True Color measured at 450 nm	1914693, 1914694
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1914693, 1914694
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1914693, 1914694
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1914693, 1914694
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1914693, 1914694
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1914695, 1914696
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1914707, 1914708
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1914707, 1914708

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	07/19/2017			07/19/2017 16:03	DeAsia Armster	1914693, 1914694
EPA 300.0 Rev. 2.1	07/19/2017			07/20/2017	Julia Storbeck	1914693, 1914694
EPA 350.1 Rev. 2.0	07/19/2017			07/21/2017	Sofia Elnemr	1914695, 1914696
EPA 351.2 Rev. 2.0	07/19/2017	07/21/2017	Adrian Shelby	07/25/2017	Joseph Suarez	1914695, 1914696
EPA 353.2 Rev. 2.0	07/19/2017			07/25/2017	Beverly Y. Sanders	1914695, 1914696
EPA 365.1 Rev. 2.0	07/19/2017	07/21/2017	Vijayalakshmi Reddy	07/24/2017	Lipi Saha	1914695, 1914696
EPA 365.1 Rev. 2.0 dissolved	07/19/2017			07/19/2017 15:23	Lipi Saha	1914697
	07/19/2017			07/19/2017 15:28	Lipi Saha	1914698
EPA 8321B	07/19/2017	07/26/2017	Julie Michelle Frank	07/27/2017	Mohammad Ghaffari	1914707, 1914708
SM 2120 B	07/19/2017			07/19/2017 16:40	Tanya Welborn	1914693
	07/19/2017			07/19/2017 16:52	Tanya Welborn	1914694
SM 2320 B-97	07/19/2017			07/22/2017	Dale L. Simmons	1914693, 1914694
SM 2540 C-97	07/19/2017			07/21/2017	Yijie Li	1914693, 1914694
SM 2540 D-97	07/19/2017			07/21/2017	Yijie Li	1914693, 1914694
SM 4500 F-C-97	07/19/2017			07/26/2017	Dale L. Simmons	1914693, 1914694
SM 5310 B-00	07/19/2017			07/24/2017	Sofia Elnemr	1914696
	07/19/2017			07/25/2017	Ping Hua	1914695
USGS O-2060-01	07/19/2017	07/21/2017	Hoor Shaik	07/30/2017	Juyoung Kim	1914707, 1914708