

Chemical Analysis Report

WQAP-2017-07-14-01

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

Event Description: **RUN 13/14**
Request ID: **RQ-2017-07-10-24**
Customer: **WQAP**
Project ID: **SMP**

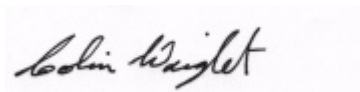
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This Report replaces the previous Report Serial Number: 0097901

Revision certified by: Colin Wright, Program Administrator

Date Certified: 01-SEP-2017 10:00



Report Comments:

Field IDs were corrected for sites G1SW0046 and G1SW0066.

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: NEW RIVER

Collection Date/Time: 07/13/2017 09:05

Field ID: G2SW0011

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1913476	EPA 180.1 Rev. 2.0	Turbidity	1.2		NTU	P328535	
	EPA 300.0 Rev. 2.1	Chloride	22	A	mg Cl/L	P328555	
		Sulfate	5.2	A	mg SO4/L	P328558	
	SM 2120 B	Color (true)	330		PCU	P328534	
	SM 2320 B-97	Total Alkalinity	35		mg CaCO3/L	P328815	
	SM 2540 C-97	TDS	141		mg/L	P328902	
	SM 2540 D-97	TSS	3	I	mg/L	P329005	
	SM 4500 F-C-97	Fluoride	0.15		mg F/L	P328817	
1913478	EPA 350.1 Rev. 2.0	Ammonia-N	0.016		mg N/L	P328721	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.4		mg N/L	P328714	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	I	mg N/L	P328767	
	EPA 365.1 Rev. 2.0	Total-P	0.14		mg P/L	P328752	
	SM 5310 B-00	Organic Carbon	28		mg C/L	P328974	
1913480	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.097		mg P/L	P328540	

Ref. Method and Comment:

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

Sample Location: TROUT CRK

Collection Date/Time: 07/13/2017 09:50

Field ID: G2SW0021

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1913523	EPA 8321B	Sucralose**	0.90		ug/L	P328419	
	USGS O-2060-01	2,4-D	0.079		ug/L	P328403	
		Diuron	0.015		ug/L	P328403	
		Fenuron	0.0080	U	ug/L	P328403	RPD
		Imidacloprid	0.13		ug/L	P328403	MS
		Bentazon	0.028		ug/L	P328403	
		Linuron	0.0040	U	ug/L	P328403	
		Acetaminophen**	0.0080	U	ug/L	P328403	
		MCPD	0.0029	I	ug/L	P328403	
		Carbamazepine**	0.0011	I	ug/L	P328403	
		Triclopyr**	0.0040	U	ug/L	P328403	
		Primidone**	0.0040	U	ug/L	P328403	
		Fluridone**	0.0065		ug/L	P328403	

Sample Location: DELANY CRK

Collection Date/Time: 07/13/2017 13:20

Field ID: G1SW0046

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1913477	EPA 180.1 Rev. 2.0	Turbidity	4.8		NTU	P328535	
	EPA 300.0 Rev. 2.1	Chloride	31		mg Cl/L	P328555	
		Sulfate	18		mg SO4/L	P328558	
	SM 2120 B	Color (true)	95	A	PCU	P328534	
	SM 2320 B-97	Total Alkalinity	87		mg CaCO3/L	P328815	

Field ID: G1SW0046

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1913477	SM 2540 C-97	TDS	210		mg/L	P328902	
	SM 2540 D-97	TSS	5	I	mg/L	P329005	
	SM 4500 F-C-97	Fluoride	0.28		mg F/L	P328817	
1913479	EPA 350.1 Rev. 2.0	Ammonia-N	0.057		mg N/L	P328721	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.0	J	mg N/L	P328714	MS
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.11		mg N/L	P328767	
	EPA 365.1 Rev. 2.0	Total-P	0.33		mg P/L	P328752	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P328974	
1913481	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.22		mg P/L	P328540	

Ref. Method and Comment:

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

EPA 351.2 Rev. 2.0: Refer to the narrative for an explanation of QC Codes.

Sample Location: DELANY CRK

Collection Date/Time: 07/13/2017 13:20

Field ID: G1SW0046

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1913524	EPA 8321B	Sucralose**	0.15		ug/L	P328419	
	USGS O-2060-01	2,4-D	1.6		ug/L	P328403	
		Diuron	0.011		ug/L	P328403	
		Fenuron	0.011	I	ug/L	P328403	RPD
		Imidacloprid	0.027		ug/L	P328403	MS
		Bentazon	0.026		ug/L	P328403	
		Linuron	0.0040	U	ug/L	P328403	
		Acetaminophen**	0.0080	U	ug/L	P328403	
		MCP	0.0038	I	ug/L	P328403	
		Carbamazepine**	7.2E-04	I	ug/L	P328403	
		Triclopyr**	0.0040	U	ug/L	P328403	
		Primidone**	0.0040	U	ug/L	P328403	
		Fluridone**	0.012		ug/L	P328403	

Sample Location: DELANY 2

Collection Date/Time: 07/13/2017 13:40

Field ID: G1SW0066

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1913525	EPA 8321B	Sucralose**	0.10		ug/L	P328419	
	USGS O-2060-01	2,4-D	1.7		ug/L	P328536	
		Diuron	0.013		ug/L	P328536	
		Fenuron	0.0099	I	ug/L	P328536	
		Imidacloprid	0.033	J	ug/L	P328536	MS
		Bentazon	0.030		ug/L	P328536	
		Linuron	0.0040	U	ug/L	P328536	
		Acetaminophen**	0.0080	U	ug/L	P328536	
		MCP	0.0034	I	ug/L	P328536	
		Carbamazepine**	9.2E-04	I	ug/L	P328536	
		Triclopyr**	0.0040	U	ug/L	P328536	

Component	Result	Code	Units
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Quality Assurance Report Method Blank Results

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328721

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328714

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328767

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328752

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328540

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

Reference Method: EPA 8321B
Batch ID: P328419

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P328534

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P328815

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

Reference Method: SM 2540 C-97
Batch ID: P328902

Component	Result	Code	Units
TDS	15	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 2540 D-97
Batch ID: P329005

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 4500 F-C-97
Batch ID: P328817

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P328974

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

Reference Method: USGS O-2060-01
Batch ID: P328403

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

Reference Method: USGS O-2060-01
Batch ID: P328536

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: P328555

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328558

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328721

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Ammonia-N	99.1		P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328714

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328767

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328752

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328540

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

Reference Method: EPA 8321B
Batch ID: P328419

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	88.9		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P328815

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Total Alkalinity	102		P	95 - 108

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: SM 4500 F-C-97
Batch ID: P328817

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.9		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P328974

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	96.9		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P328403

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	91.1		P	40 - 150
Acetaminophen	148		P	30 - 150
Bentazon	87.1		P	40 - 150
Carbamazepine	123		P	40 - 150
Diuron	106		P	40 - 150
Fenuron	109		P	40 - 150
Fluridone	123		P	40 - 150
Imidacloprid	76.0		P	40 - 160
Linuron	111		P	40 - 150
MCP	95.6		P	40 - 150
Primidone	107		P	40 - 150
Triclopyr	96.1		P	40 - 150

Reference Method: USGS O-2060-01
Batch ID: P328536

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	73.7		P	40 - 150
Acetaminophen	40.5		P	30 - 150
Bentazon	57.8		P	40 - 150
Carbamazepine	108		P	40 - 150
Diuron	98.5		P	40 - 150
Fenuron	104		P	40 - 150
Fluridone	120		P	40 - 150
Imidacloprid	85.6		P	40 - 160
Linuron	99.7		P	40 - 150
MCP	79.6		P	40 - 150
Primidone	129		P	40 - 150
Triclopyr	76.5		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328555

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1913476	Chloride	98.0		P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328558

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1913476	Sulfate	98.8		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328721

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1913456	Ammonia-N	97.3	97.0	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328714

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1913479	Kjeldahl Nitrogen	99.4	111	P/F	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328767

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1913415	NO2NO3-N	98.4	99.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328752

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1913415	Total-P	97.9	102	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328540

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1913457	O-Phosphate-P	96.7	98.6	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P328419

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1913119	Sucralose	100	86.0	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P328817

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914004	Fluoride	96.9	98.2	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P328974

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1913398	Organic Carbon	99.2		P	85 - 115

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
Batch ID: P328403

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1912972	2,4-D	120	122	P/P	40 - 150
1912972	Acetaminophen	105	112	P/P	30 - 150
1912972	Bentazon	92.8	85.9	P/P	40 - 150
1912972	Carbamazepine	128	128	P/P	40 - 150
1912972	Diuron	101	98.9	P/P	40 - 150
1912972	Fenuron	71.9	98.7	P/P	40 - 150
1912972	Fluridone	79.8	71.2	P/P	40 - 150
1912972	Imidacloprid	158	202	P/F	40 - 160
1912972	Linuron	109	106	P/P	40 - 150
1912972	MCP	111	104	P/P	40 - 150
1912972	Primidone	104	115	P/P	40 - 150
1912972	Triclopyr	109	102	P/P	40 - 150

Reference Method: USGS O-2060-01
Batch ID: P328536

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1913525	Acetaminophen	91.5	96.1	P/P	30 - 150
1913525	Bentazon	51.7	44.9	P/P	40 - 150
1913525	Carbamazepine	77.0	88.9	P/P	40 - 150
1913525	Diuron	61.8	68.4	P/P	40 - 150
1913525	Fenuron	58.3	60.8	P/P	40 - 150
1913525	Fluridone	36.3	43.4	F/P	40 - 150
1913525	Imidacloprid	169	169	F/F	40 - 160
1913525	Linuron	67.0	67.2	P/P	40 - 150
1913525	MCP	74.9	83.2	P/P	40 - 150
1913525	Primidone	93.3	103	P/P	40 - 150
1913525	Triclopyr	71.0	79.2	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P328535

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913397	Turbidity	2.73	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328555

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913476	Chloride	0.807	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328558

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
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Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328558

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913476	Sulfate	0.694	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328721

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913456	Ammonia-N	0.196	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328714

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913479	Kjeldahl Nitrogen	6.09	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328767

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913415	NO2NO3-N	0.475	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328752

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913415	Total-P	3.26	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328540

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913457	O-Phosphate-P	1.26	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P328419

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913119	Sucralose	15.1	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P328534

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913477	Color (true)	1.30	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: SM 2320 B-97
Batch ID: P328815

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914004	Total Alkalinity	0.118	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P328902

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913446	TDS	1.32	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P328817

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914004	Fluoride	1.04	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P328974

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913398	Organic Carbon	0.125	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P328403

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1912972	2,4-D	1.82	Spike	P	0 - 30
1912972	Acetaminophen	6.81	Spike	P	0 - 30
1912972	Bentazon	7.66	Spike	P	0 - 30
1912972	Carbamazepine	0.298	Spike	P	0 - 30
1912972	Diuron	1.88	Spike	P	0 - 30
1912972	Fenuron	31.4	Spike	F	0 - 30
1912972	Fluridone	11.4	Spike	P	0 - 30
1912972	Imidacloprid	24.4	Spike	P	0 - 30
1912972	Linuron	2.67	Spike	P	0 - 30
1912972	MCPP	6.43	Spike	P	0 - 30
1912972	Primidone	10.3	Spike	P	0 - 30
1912972	Triclopyr	6.65	Spike	P	0 - 30

Reference Method: USGS O-2060-01
Batch ID: P328536

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913525	2,4-D	3.38	Spike	P	0 - 30
1913525	Acetaminophen	4.92	Spike	P	0 - 30
1913525	Bentazon	5.53	Spike	P	0 - 30
1913525	Carbamazepine	14.1	Spike	P	0 - 30
1913525	Diuron	6.88	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: USGS O-2060-01
Batch ID: P328536

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913525	Fenuron	3.04	Spike	P	0 - 30
1913525	Fluridone	10.1	Spike	P	0 - 30
1913525	Imidacloprid	0.158	Spike	P	0 - 30
1913525	Linuron	0.179	Spike	P	0 - 30
1913525	MCPP	9.58	Spike	P	0 - 30
1913525	Primidone	9.90	Spike	P	0 - 30
1913525	Triclopyr	10.9	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: 1913523
Field Sample ID: G2SW0021

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	80.6	P	40 - 160
USGS O-2060-01	2,4-D-d3	94.8	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	108	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	91.8	P	30 - 160
USGS O-2060-01	Diuron-d6	73.5	P	30 - 160
USGS O-2060-01	Primidone-d5	78.8	P	30 - 160

Lab Sample ID: 1913524
Field Sample ID: G1SW0046

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	104	P	40 - 160
USGS O-2060-01	2,4-D-d3	131	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	98.9	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	77.2	P	30 - 160
USGS O-2060-01	Diuron-d6	55.2	P	30 - 160
USGS O-2060-01	Primidone-d5	87.4	P	30 - 160

Lab Sample ID: 1913525
Field Sample ID: G1SW0066

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	83.5	P	40 - 160
USGS O-2060-01	2,4-D-d3	136	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	89.0	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	88.9	P	30 - 160
USGS O-2060-01	Diuron-d6	60.6	P	30 - 160
USGS O-2060-01	Primidone-d5	92.8	P	30 - 160

Quality Assurance Report Surrogates

Lab Sample ID: 1913526
 Field Sample ID: G2SW0022

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	92.1	P	40 - 160
USGS O-2060-01	2,4-D-d3	147	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	102	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	79.5	P	30 - 160
USGS O-2060-01	Diuron-d6	57.8	P	30 - 160
USGS O-2060-01	Primidone-d5	55.9	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1
 Run ID: A77695
 Included Lab Sample IDs: 1913476, 1913477

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	109	108	P/P	90 - 110
Sulfate	108	108	P/P	90 - 110

Reference Method: SM 2120 B
 Run ID: A77727
 Included Lab Sample IDs: 1913476, 1913477

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	103	P/P	85 - 115
Color (true)	99.3	103	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0
 Run ID: A77728
 Included Lab Sample IDs: 1913476, 1913477

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	98.5	99.0	P/P	95 - 105

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Run ID: A77730
 Included Lab Sample IDs: 1913480, 1913481

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	101	P/P	90 - 110
O-Phosphate-P	98.8	101	P/P	90 - 110

Reference Method: EPA 8321B
 Run ID: A77777
 Included Lab Sample IDs: 1913523, 1913524, 1913525, 1913526

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	102	92.4	P/P	60 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A77794

Included Lab Sample IDs: 1913478, 1913479

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.0	98.4	P/P	90 - 110
Ammonia-N	98.4	98.6	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A77806

Included Lab Sample IDs: 1913478, 1913479

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	96.5	95.5	P/P	90 - 110
NO2NO3-N	98.0	98.0	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77828

Included Lab Sample IDs: 1913478, 1913479

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	101	99.4	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A77832

Included Lab Sample IDs: 1913476, 1913477

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: A77832

Included Lab Sample IDs: 1913476, 1913477

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	98.0	99.5	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77857

Included Lab Sample IDs: 1913478, 1913479

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	93.8	96.0	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A77885

Included Lab Sample IDs: 1913478, 1913479

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.4	98.2	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A78009

Included Lab Sample IDs: 1913523, 1913524, 1913525, 1913526

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

Reference Method: USGS O-2060-01

Run ID: A78009

Included Lab Sample IDs: 1913523, 1913524, 1913525, 1913526

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	109	79.4	P/P	50 - 150
2,4-D	73.0	68.6	P/P	50 - 150
2,4-D	75.2	73.0	P/P	50 - 150
Acetaminophen	102	108	P/P	60 - 150
Acetaminophen	106	102	P/P	60 - 150
Bentazon	103	115	P/P	50 - 150
Bentazon	98.0	103	P/P	50 - 150
Carbamazepine	102	108	P/P	60 - 150
Carbamazepine	108	109	P/P	60 - 150
Diuron	97.1	98.2	P/P	60 - 150
Diuron	98.2	102	P/P	60 - 150
Fenuron	112	95.3	P/P	60 - 150
Fenuron	95.3	104	P/P	60 - 150
Fluridone	114	116	P/P	60 - 160
Fluridone	116	132	P/P	60 - 160
Imidacloprid	103	80.6	P/P	60 - 150
Imidacloprid	80.6	94.2	P/P	60 - 150
Linuron	107	114	P/P	60 - 150
Linuron	93.5	107	P/P	60 - 150
MCPP	76.3	80.5	P/P	50 - 150
MCPP	86.1	76.3	P/P	50 - 150
Primidone	105	120	P/P	60 - 150
Primidone	120	110	P/P	60 - 150
Triclopyr	84.9	92.2	P/P	50 - 150
Triclopyr	92.5	84.9	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				2.73	
EPA 300.0 Rev. 2.1	Chloride	106	98.0		0.807	
	Sulfate	104	98.8		0.694	
EPA 350.1 Rev. 2.0	Ammonia-N	99.1	97.3 97.0			0.196
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	99.0	99.4 111			6.09
EPA 353.2 Rev. 2.0	NO2NO3-N	100	98.4 99.0			0.475
EPA 365.1 Rev. 2.0	Total-P	99.0	97.9 102			3.26
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	103	96.7 98.6			1.26
EPA 8321B	Sucralose	88.9	100 86.0			15.1
SM 2120 B	Color (true)				1.30	
SM 2320 B-97	Total Alkalinity	102			0.118	
SM 2540 C-97	TDS				1.32	
SM 4500 F-C-97	Fluoride	95.9	96.9 98.2			1.04
SM 5310 B-00	Organic Carbon	96.9	99.2			0.125
USGS O-2060-01	2,4-D	91.1	120 122			1.82

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	SMP
USGS O-2060-01	2,4-D	73.7				3.38
	Acetaminophen	148	105	112		6.81
	Acetaminophen	40.5	91.5	96.1		4.92
	Bentazon	87.1	92.8	85.9		7.66
	Bentazon	57.8	51.7	44.9		5.53
	Carbamazepine	123	128	128		0.298
	Carbamazepine	108	77.0	88.9		14.1
	Diuron	106	101	98.9		1.88
	Diuron	98.5	61.8	68.4		6.88
	Fenuron	109	71.9	98.7		31.4
	Fenuron	104	58.3	60.8		3.04
	Fluridone	123	79.8	71.2		11.4
	Fluridone	120	36.3	43.4		10.1
	Imidacloprid	76.0	158	202		24.4
	Imidacloprid	85.6	169	169		0.158
	Linuron	111	109	106		2.67
	Linuron	99.7	67.0	67.2		0.179
	MCPP	95.6	111	104		6.43
	MCPP	79.6	74.9	83.2		9.58
	Primidone	107	104	115		10.3
	Primidone	129	93.3	103		9.90
	Triclopyr	96.1	109	102		6.65
	Triclopyr	76.5	71.0	79.2		10.9

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1913476, 1913477
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1913476, 1913477
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1913476, 1913477
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1913478, 1913479
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1913478, 1913479
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1913478, 1913479
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1913478, 1913479
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1913480, 1913481
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1913523, 1913524, 1913525, 1913526
SM 2120 B / E31780	True Color measured at 450 nm	1913476, 1913477
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1913476, 1913477
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1913476, 1913477
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1913476, 1913477
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1913476, 1913477
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1913478, 1913479
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1913523, 1913524, 1913525, 1913526
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1913523, 1913524, 1913525, 1913526

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	07/14/2017			07/14/2017 13:27	DeAsia Armster	1913476, 1913477
EPA 300.0 Rev. 2.1	07/14/2017			07/15/2017	Julia Storbeck	1913476, 1913477
EPA 350.1 Rev. 2.0	07/14/2017			07/18/2017	Sofia Elnemr	1913478, 1913479
EPA 351.2 Rev. 2.0	07/14/2017	07/19/2017	Adrian Shelby	07/21/2017	Joseph Suarez	1913478, 1913479
EPA 353.2 Rev. 2.0	07/14/2017			07/19/2017	Beverly Y. Sanders	1913478, 1913479
EPA 365.1 Rev. 2.0	07/14/2017	07/19/2017	Adrian Shelby	07/20/2017	Lipi Saha	1913478, 1913479
EPA 365.1 Rev. 2.0 dissolved	07/14/2017			07/14/2017 14:53	Anthony C. Onicha	1913481
	07/14/2017			07/14/2017 15:05	Anthony C. Onicha	1913480
EPA 8321B	07/14/2017	07/14/2017	Mohammad Ghaffari	07/14/2017	Mohammad Ghaffari	1913523
	07/14/2017	07/14/2017	Mohammad Ghaffari	07/15/2017	Mohammad Ghaffari	1913524, 1913525, 1913526
SM 2120 B	07/14/2017			07/14/2017 13:48	Tanya Welborn	1913477
	07/14/2017			07/14/2017 13:55	Tanya Welborn	1913476
SM 2320 B-97	07/14/2017			07/20/2017	Dale L. Simmons	1913476, 1913477
SM 2540 C-97	07/14/2017			07/18/2017	Yijie Li	1913476, 1913477
SM 2540 D-97	07/14/2017			07/18/2017	Yijie Li	1913476, 1913477
SM 4500 F-C-97	07/14/2017			07/20/2017	Dale L. Simmons	1913476, 1913477
SM 5310 B-00	07/14/2017			07/21/2017	Ping Hua	1913478, 1913479
USGS O-2060-01	07/14/2017	07/17/2017	Hoor Shaik	07/26/2017	Juyoung Kim	1913523, 1913524
	07/14/2017	07/17/2017	Hoor Shaik	07/28/2017	Juyoung Kim	1913524
	07/14/2017	07/18/2017	Hoor Shaik	07/26/2017	Juyoung Kim	1913525, 1913526
	07/14/2017	07/18/2017	Hoor Shaik	07/28/2017	Juyoung Kim	1913525, 1913526