

Chemical Analysis Report

WQAP-2017-07-18-02

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

Event Description: **RUN 15**
Request ID: **RQ-2017-07-17-27**
Customer: **WQAP**
Project ID: **SMP**

Send Reports to:
FL Dept. of Environmental Protection
13051 N. Telecom Parkway
Tampa, FL 33637
Attn: Judy Ashton

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Certified by: Liang Lin, Environmental Administrator

Date Certified: 10-AUG-2017 10:29

A handwritten signature in black ink, appearing to read "Liang Lin", is shown on a light-colored 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: Lil Manatee R

Collection Date/Time: 07/17/2017 09:20

Field ID: G2SW0023

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1914098	EPA 8321B	Sucralose**	0.010	U	ug/L	P328678	
	USGS O-2060-01	2,4-D	0.0023	I	ug/L	P328669	
		Diuron	0.0023	I	ug/L	P328669	
		Fenuron	0.0080	U	ug/L	P328669	
		Imidacloprid	0.031		ug/L	P328669	
		Bentazon	0.0044		ug/L	P328669	
		Linuron	0.0040	U	ug/L	P328669	
		Acetaminophen**	0.0080	U	ug/L	P328669	
		MCP	0.0020	U	ug/L	P328669	
		Carbamazepine**	4.0E-04	U	ug/L	P328669	
		Triclopyr**	0.0040	U	ug/L	P328669	
		Primidone**	0.0040	U	ug/L	P328669	
		Fluridone**	4.0E-04	U	ug/L	P328669	

Sample Location: Gap Creek

Collection Date/Time: 07/17/2017 10:15

Field ID: G2SW0030

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1914075	EPA 180.1 Rev. 2.0	Turbidity	2.4		NTU	P328710	
	EPA 300.0 Rev. 2.1	Chloride	39		mg Cl/L	P328740	
		Sulfate	69		mg SO4/L	P328741	
		Color (true)	87		PCU	P328700	
	SM 2320 B-97	Total Alkalinity	145		mg CaCO3/L	P328815	
	SM 2540 C-97	TDS	334		mg/L	P329278	
	SM 2540 D-97	TSS	2	I	mg/L	P329294	
	SM 4500 F-C-97	Fluoride	0.48		mg F/L	P328817	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.066		mg N/L	P328723	
		Kjeldahl Nitrogen	0.99		mg N/L	P328825	
1914078	EPA 351.2 Rev. 2.0	NO2NO3-N	0.18		mg N/L	P328769	
	EPA 353.2 Rev. 2.0	Total-P	0.39		mg P/L	P328832	
	EPA 365.1 Rev. 2.0	Organic Carbon	15		mg C/L	P328976	
	SM 5310 B-00						
1914081	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.33		mg P/L	P328691	

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: Gap Creek

Collection Date/Time: 07/17/2017 10:15

Field ID: G2SW0030

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1914099	EPA 8321B	Sucralose**	0.27		ug/L	P328678	
	USGS O-2060-01	2,4-D	0.037		ug/L	P328669	
		Diuron	0.064		ug/L	P328669	
		Fenuron	0.0080	U	ug/L	P328669	
		Imidacloprid	0.19		ug/L	P328669	

Field ID: G2SW0030

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1914099	USGS O-2060-01	Bentazon	0.024		ug/L	P328669	
		Linuron	0.0040	U	ug/L	P328669	
		Acetaminophen**	0.0080	U	ug/L	P328669	
		MCP	0.012		ug/L	P328669	
		Carbamazepine**	0.013		ug/L	P328669	
		Triclopyr**	0.0040	U	ug/L	P328669	
		Primidone**	0.0040	U	ug/L	P328669	
		Fluridone**	0.17		ug/L	P328669	

Sample Location: Wares Fresh

Collection Date/Time: 07/17/2017 11:05

Field ID: G2SW0031

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1914076	EPA 180.1 Rev. 2.0	Turbidity	1.0		NTU	P328710	
	EPA 300.0 Rev. 2.1	Chloride	34		mg Cl/L	P328740	
		Sulfate	66		mg SO4/L	P328741	
	SM 2120 B	Color (true)	32		PCU	P328700	
	SM 2320 B-97	Total Alkalinity	160		mg CaCO3/L	P328815	
	SM 2540 C-97	TDS	321		mg/L	P329278	
	SM 2540 D-97	TSS	2	I	mg/L	P329294	
	SM 4500 F-C-97	Fluoride	0.45		mg F/L	P328817	
1914079	EPA 350.1 Rev. 2.0	Ammonia-N	0.017		mg N/L	P328723	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.81		mg N/L	P328825	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.16		mg N/L	P328769	
	EPA 365.1 Rev. 2.0	Total-P	0.24		mg P/L	P328832	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P328976	
1914082	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.10		mg P/L	P328691	

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: Wares Fresh

Collection Date/Time: 07/17/2017 11:05

Field ID: G2SW0031

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1914100	EPA 8321B	Sucralose**	0.083		ug/L	P328678	
	USGS O-2060-01	2,4-D	0.034		ug/L	P328669	
		Diuron	0.0066		ug/L	P328669	
		Fenuron	0.0080	U	ug/L	P328669	
		Imidacloprid	0.092		ug/L	P328669	
		Bentazon	0.017		ug/L	P328669	
		Linuron	0.0040	U	ug/L	P328669	
		Acetaminophen**	0.016	I	ug/L	P328669	
		MCP	0.0046	I	ug/L	P328669	
		Carbamazepine**	0.0011	I	ug/L	P328669	
		Triclopyr**	0.0040	U	ug/L	P328669	
		Primidone**	0.0040	U	ug/L	P328669	

Field ID: G2SW0031

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1914100	USGS O-2060-01	Fluridone**	0.57		ug/L	P328669	

Sample Location: Rice Creek

Collection Date/Time: 07/17/2017 13:05

Field ID: G2SW0033

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1914077	EPA 180.1 Rev. 2.0	Turbidity	3.9		NTU	P328710	
	EPA 300.0 Rev. 2.1	Chloride	29		mg Cl/L	P328740	
		Sulfate	27		mg SO4/L	P328741	
	SM 2120 B	Color (true)	100	A	PCU	P328699	
	SM 2320 B-97	Total Alkalinity	45	A	mg CaCO3/L	P328941	
	SM 2540 C-97	TDS	180	A	mg/L	P329278	
	SM 2540 D-97	TSS	4	IA	mg/L	P329294	
	SM 4500 F-C-97	Fluoride	0.18		mg F/L	P328943	
	EPA 350.1 Rev. 2.0	Ammonia-N	0.034		mg N/L	P328723	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.71		mg N/L	P328825	
1914080	EPA 353.2 Rev. 2.0	NO2NO3-N	0.34		mg N/L	P328770	
	EPA 365.1 Rev. 2.0	Total-P	0.19		mg P/L	P328832	
	SM 5310 B-00	Organic Carbon	15		mg C/L	P328976	
	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.14		mg P/L	P328691	

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: Rice Creek

Collection Date/Time: 07/17/2017 13:05

Field ID: G2SW0033

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1914101	EPA 8321B	Sucralose**	1.1		ug/L	P328678	
	USGS O-2060-01	2,4-D	0.0056	I	ug/L	P328669	
		Diuron	0.46		ug/L	P328669	
		Fenuron	0.051		ug/L	P328669	
		Imidacloprid	0.046		ug/L	P328669	
		Bentazon	0.080		ug/L	P328669	
		Linuron	0.0040	U	ug/L	P328669	
		Acetaminophen**	0.0080	U	ug/L	P328669	
		MCP	0.0021	I	ug/L	P328669	
		Carbamazepine**	0.0078		ug/L	P328669	
		Triclopyr**	0.0040	U	ug/L	P328669	
		Primidone**	0.017		ug/L	P328669	
		Fluridone**	0.0010	I	ug/L	P328669	

Quality Assurance Report

Method Blank Results

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P328710

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328740

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328741

Component	Result	Code	Units
Sulfate	0.20	U	mg SO ₄ /L

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328723

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328825

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

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328769

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328770

Component	Result	Code	Units
NO ₂ NO ₃ -N	0.004	U	mg N/L

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328832

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328691

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 8321B
Batch ID: P328678

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P328699

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2120 B
Batch ID: P328700

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 2320 B-97
Batch ID: P328941

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

Reference Method: SM 2540 C-97
Batch ID: P329278

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P329294

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 4500 F-C-97
Batch ID: P328943

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Quality Assurance Report Method Blank Results

Reference Method: SM 5310 B-00
Batch ID: P328976

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

Reference Method: USGS O-2060-01
Batch ID: P328669

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: P328740

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328741

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328723

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328825

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	96.5		P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328769

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

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328770

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

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328832

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328691

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

Reference Method: EPA 8321B
Batch ID: P328678

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	90.0		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

Reference Method: SM 2320 B-97
Batch ID: P328941

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

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 4500 F-C-97
Batch ID: P328943

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	95.8		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P328976

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	97.5		P	85 - 115

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
Batch ID: P328669

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	91.9		P	40 - 150
Acetaminophen	78.9		P	30 - 150
Bentazon	85.8		P	40 - 150
Carbamazepine	96.7		P	40 - 150
Diuron	102		P	40 - 150
Fenuron	90.5		P	40 - 150
Fluridone	91.9		P	40 - 150
Imidacloprid	92.6		P	40 - 160
Linuron	92.4		P	40 - 150
MCP	76.9		P	40 - 150
Primidone	99.6		P	40 - 150
Triclopyr	67.3		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328740

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914149	Chloride	94.3		P	90 - 110
1914152	Chloride	94.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328741

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914149	Sulfate	93.8		P	90 - 110
1914152	Sulfate	94.1		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328723

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1913869	Ammonia-N	97.2	97.3	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328825

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914154	Kjeldahl Nitrogen	96.9	99.7	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328769

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914007	NO ₂ NO ₃ -N	97.2	97.7	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328770

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914080	NO2NO3-N	96.2		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328832

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1913124	Total-P	99.8	99.3	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328691

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1913870	O-Phosphate-P	97.2	99.1	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P328678

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1913980	Sucralose	103	105	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 4500 F-C-97
Batch ID: P328943

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914077	Fluoride	98.6	101	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P328976

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1914008	Organic Carbon	94.7	96.0	P/P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P328669

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1913836	2,4-D	116	107	P/P	40 - 150
1913836	Acetaminophen	116	128	P/P	30 - 150
1913836	Bentazon	74.7	77.1	P/P	40 - 150
1913836	Carbamazepine	120	120	P/P	40 - 150
1913836	Diuron	100	108	P/P	40 - 150
1913836	Fenuron	81.1	91.9	P/P	40 - 150
1913836	Fluridone	92.4	100	P/P	40 - 150
1913836	Imidacloprid	130	143	P/P	40 - 160
1913836	Linuron	102	96.4	P/P	40 - 150
1913836	MCP	98.9	116	P/P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: USGS O-2060-01
Batch ID: P328669

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1913836	Primidone	100	118	P/P	40 - 150
1913836	Triclopyr	88.5	76.4	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P328710

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914048	Turbidity	0.941	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328740

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914149	Chloride	5.32	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P328741

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914149	Sulfate	3.42	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P328723

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913869	Ammonia-N	0.144	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P328825

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914154	Kjeldahl Nitrogen	2.33	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328769

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914007	NO2NO3-N	0.489	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P328770

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914080	NO2NO3-N	0.562	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P328832

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913124	Total-P	0.339	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P328691

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913870	O-Phosphate-P	1.94	Spike	P	0 - 20

Reference Method: EPA 8321B
Batch ID: P328678

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913980	Sucralose	1.94	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P328699

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914077	Color (true)	1.60	Sample	P	0 - 20

Reference Method: SM 2120 B
Batch ID: P328700

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914150	Color (true)	0.390	Sample	P	0 - 20

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 2320 B-97
Batch ID: P328941

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914077	Total Alkalinity	0.199	Sample	P	0 - 4.8

Quality Assurance Report Precision

Reference Method: SM 2540 C-97
 Batch ID: P329278

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914077	TDS	6.09	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 4500 F-C-97
 Batch ID: P328943

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914077	Fluoride	1.44	Spike	P	0 - 3.0

Reference Method: SM 5310 B-00
 Batch ID: P328976

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1914008	Organic Carbon	0.681	Spike	P	0 - 20

Reference Method: USGS O-2060-01
 Batch ID: P328669

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1913836	2,4-D	7.78	Spike	P	0 - 30
1913836	Acetaminophen	10.4	Spike	P	0 - 30
1913836	Bentazon	3.14	Spike	P	0 - 30
1913836	Carbamazepine	0.384	Spike	P	0 - 30
1913836	Diuron	7.44	Spike	P	0 - 30
1913836	Fenuron	12.5	Spike	P	0 - 30
1913836	Fluridone	8.44	Spike	P	0 - 30
1913836	Imidacloprid	9.09	Spike	P	0 - 30
1913836	Linuron	6.04	Spike	P	0 - 30
1913836	MCPP	15.6	Spike	P	0 - 30
1913836	Primidone	16.2	Spike	P	0 - 30
1913836	Triclopyr	14.7	Spike	P	0 - 30

* Sample, spike and/or laboratory control sample precision (LCS) is reported.
 Replicate spike precision may be reported when sample results are below quantifiable levels.

Quality Assurance Report Surrogates

Quality Assurance Report Surrogates

Lab Sample ID: 1914098
 Field Sample ID: G2SW0023

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	93.6	P	40 - 160
USGS O-2060-01	2,4-D-d3	121	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	148	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	90.7	P	30 - 160
USGS O-2060-01	Diuron-d6	74.8	P	30 - 160
USGS O-2060-01	Primidone-d5	77.8	P	30 - 160

Lab Sample ID: 1914099
 Field Sample ID: G2SW0030

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	109	P	40 - 160
USGS O-2060-01	2,4-D-d3	128	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	118	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	98.2	P	30 - 160
USGS O-2060-01	Diuron-d6	81.3	P	30 - 160
USGS O-2060-01	Primidone-d5	87.3	P	30 - 160

Lab Sample ID: 1914100
 Field Sample ID: G2SW0031

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	113	P	40 - 160
USGS O-2060-01	2,4-D-d3	128	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	125	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	111	P	30 - 160
USGS O-2060-01	Diuron-d6	85.4	P	30 - 160
USGS O-2060-01	Primidone-d5	83.3	P	30 - 160

Lab Sample ID: 1914101
 Field Sample ID: G2SW0033

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Sucralose-d6	96.4	P	40 - 160
USGS O-2060-01	2,4-D-d3	109	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	111	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	82.9	P	30 - 160
USGS O-2060-01	Diuron-d6	70.6	P	30 - 160
USGS O-2060-01	Primidone-d5	86.4	P	30 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Run ID: A77784
 Included Lab Sample IDs: 1914081, 1914082, 1914083

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	101	P/P	90 - 110
O-Phosphate-P	98.6	101	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 2120 B

Run ID: A77788

Included Lab Sample IDs: 1914075, 1914076, 1914077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	102	101	P/P	85 - 115
Color (true)	99.8	102	P/P	85 - 115

Reference Method: EPA 180.1 Rev. 2.0

Run ID: A77790

Included Lab Sample IDs: 1914075, 1914076, 1914077

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

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A77794

Included Lab Sample IDs: 1914078, 1914079, 1914080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	98.3	98.9	P/P	90 - 110
Ammonia-N	98.9	99.0	P/P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A77800

Included Lab Sample IDs: 1914075, 1914076, 1914077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	101	103	P/P	90 - 110
Sulfate	100	98.5	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A77806

Included Lab Sample IDs: 1914078, 1914079, 1914080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
NO2NO3-N	96.0	96.5	P/P	90 - 110
NO2NO3-N	96.5	95.5	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A77832

Included Lab Sample IDs: 1914075, 1914076

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	100	102	P/P	90 - 110
Total Alkalinity	103	100	P/P	90 - 110

Reference Method: SM 4500 F-C-97

Run ID: A77832

Included Lab Sample IDs: 1914075, 1914076

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

Quality Assurance Report Calibration Verification

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A77862

Included Lab Sample IDs: 1914078, 1914079, 1914080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	101	94.9	P/P	90 - 110
Kjeldahl Nitrogen	99.2	101	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A77863

Included Lab Sample IDs: 1914078, 1914079, 1914080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.6	99.0	P/P	90 - 110

Reference Method: SM 2320 B-97

Run ID: A77869

Included Lab Sample IDs: 1914077

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

Reference Method: SM 4500 F-C-97

Run ID: A77869

Included Lab Sample IDs: 1914077

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Fluoride	99.0	99.5	P/P	90 - 110

Reference Method: SM 5310 B-00

Run ID: A77885

Included Lab Sample IDs: 1914078, 1914079, 1914080

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Organic Carbon	97.8	97.0	P/P	90 - 110

Reference Method: EPA 8321B

Run ID: A78008

Included Lab Sample IDs: 1914098, 1914099, 1914100, 1914101

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	91.5	103	P/P	60 - 160

Reference Method: USGS O-2060-01

Run ID: A781083

Included Lab Sample IDs: 1914100, 1914101

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Diuron	126	115	P/P	60 - 150
Fluridone	92.5	121	P/P	60 - 160

Reference Method: USGS O-2060-01

Run ID: A78113

Included Lab Sample IDs: 1914098, 1914099, 1914100, 1914101

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: A78113

Included Lab Sample IDs: 1914098, 1914099, 1914100, 1914101

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	117	97.0	P/P	50 - 150
2,4-D	97.0	109	P/P	50 - 150
Acetaminophen	110	113	P/P	60 - 150
Acetaminophen	113	110	P/P	60 - 150
Bentazon	103	130	P/P	50 - 150
Bentazon	130	109	P/P	50 - 150
Carbamazepine	106	122	P/P	60 - 150
Carbamazepine	121	106	P/P	60 - 150
Diuron	112	138	P/P	60 - 150
Diuron	114	112	P/P	60 - 150
Fenuron	109	117	P/P	60 - 150
Fenuron	98.9	109	P/P	60 - 150
Fluridone	130	119	P/P	60 - 160
Fluridone	92.4	130	P/P	60 - 160
Imidacloprid	112	110	P/P	60 - 150
Imidacloprid	98.2	112	P/P	60 - 150
Linuron	116	118	P/P	60 - 150
Linuron	118	134	P/P	60 - 150
MCPP	101	104	P/P	50 - 150
MCPP	99.8	101	P/P	50 - 150
Primidone	122	86.6	P/P	60 - 150
Primidone	88.2	122	P/P	60 - 150
Triclopyr	73.1	87.1	P/P	50 - 150
Triclopyr	87.1	102	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	MS
						SMP	
EPA 180.1 Rev. 2.0	Turbidity					0.941	
EPA 300.0 Rev. 2.1	Chloride	99.1	94.3	94.2		5.32	
	Sulfate	98.1	93.8	94.1		3.42	
EPA 350.1 Rev. 2.0	Ammonia-N	98.8	97.2	97.3			0.144
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	96.5	96.9	99.7			2.33
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	99.0	97.2	97.7			0.489
	NO ₂ NO ₃ -N	99.0	96.2				0.562
EPA 365.1 Rev. 2.0	Total-P	95.6	99.8	99.3			0.339
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.9	97.2	99.1			1.94
EPA 8321B	Sucralose	90.0	103	105			1.94
SM 2120 B	Color (true)					1.60	
	Color (true)					0.390	
SM 2320 B-97	Total Alkalinity	102				0.118	
	Total Alkalinity	103				0.199	
SM 2540 C-97	TDS					6.09	
SM 4500 F-C-97	Fluoride	95.9	96.9	98.2			1.04

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
SM 4500 F-C-97	Fluoride	95.8	98.6	101		1.44
SM 5310 B-00	Organic Carbon	97.5	94.7	96.0		0.681
USGS O-2060-01	2,4-D	91.9	116	107		7.78
	Acetaminophen	78.9	116	128		10.4
	Bentazon	85.8	74.7	77.1		3.14
	Carbamazepine	96.7	120	120		0.384
	Diuron	102	100	108		7.44
	Fenuron	90.5	81.1	91.9		12.5
	Fluridone	91.9	92.4	100		8.44
	Imidacloprid	92.6	130	143		9.09
	Linuron	92.4	102	96.4		6.04
	MCP	76.9	98.9	116		15.6
	Primidone	99.6	100	118		16.2
	Triclopyr	67.3	88.5	76.4		14.7

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1914075, 1914076, 1914077
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1914075, 1914076, 1914077
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1914075, 1914076, 1914077
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1914078, 1914079, 1914080
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1914078, 1914079, 1914080
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1914078, 1914079, 1914080
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1914078, 1914079, 1914080
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1914081, 1914082, 1914083
EPA 8321B / E31780	Water soluble organic compounds by HPLC/MS/MS	1914098, 1914099, 1914100, 1914101
SM 2120 B / E31780	True Color measured at 450 nm	1914075, 1914076, 1914077
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1914075, 1914076, 1914077
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1914075, 1914076, 1914077
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1914075, 1914076, 1914077
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1914075, 1914076, 1914077
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1914078, 1914079, 1914080
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1914098, 1914099, 1914100, 1914101
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1914098, 1914099, 1914100, 1914101

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	07/18/2017			07/18/2017 15:12	DeAsia Armster	1914075, 1914076, 1914077
EPA 300.0 Rev. 2.1	07/18/2017			07/18/2017	Julia Storbeck	1914075, 1914076, 1914077
EPA 350.1 Rev. 2.0	07/18/2017			07/18/2017	Sofia Elnemr	1914078, 1914079, 1914080
EPA 351.2 Rev. 2.0	07/18/2017	07/20/2017	Adrian Shelby	07/21/2017	Joseph Suarez	1914078, 1914079, 1914080
EPA 353.2 Rev. 2.0	07/18/2017			07/19/2017	Beverly Y. Sanders	1914078, 1914079, 1914080
EPA 365.1 Rev. 2.0	07/18/2017	07/20/2017	Adrian Shelby	07/21/2017	Lipi Saha	1914078, 1914079, 1914080
EPA 365.1 Rev. 2.0 dissolved	07/18/2017			07/18/2017 14:22	Ping Hua	1914081
	07/18/2017			07/18/2017 14:48	Ping Hua	1914082
	07/18/2017			07/18/2017 14:49	Ping Hua	1914083
EPA 8321B	07/18/2017	07/26/2017	Julie Michelle Frank	07/27/2017	Mohammad Ghaffari	1914098, 1914099, 1914100, 1914101
SM 2120 B	07/18/2017			07/18/2017 15:21	Tanya Welborn	1914077
	07/18/2017			07/18/2017 15:24	Tanya Welborn	1914075
	07/18/2017			07/18/2017 15:25	Tanya Welborn	1914076
SM 2320 B-97	07/18/2017			07/20/2017	Dale L. Simmons	1914075, 1914076
	07/18/2017			07/21/2017	Dale L. Simmons	1914077
SM 2540 C-97	07/18/2017			07/21/2017	Yijie Li	1914075, 1914076, 1914077
SM 2540 D-97	07/18/2017			07/21/2017	Yijie Li	1914075, 1914076, 1914077
SM 4500 F-C-97	07/18/2017			07/20/2017	Dale L. Simmons	1914075, 1914076
	07/18/2017			07/21/2017	Dale L. Simmons	1914077
SM 5310 B-00	07/18/2017			07/21/2017	Ping Hua	1914078, 1914079, 1914080
USGS O-2060-01	07/18/2017	07/20/2017	Hoor Shaik	07/29/2017	Juyoung Kim	1914098, 1914099, 1914100, 1914101
	07/18/2017	07/20/2017	Hoor Shaik	08/03/2017	Juyoung Kim	1914100
	07/18/2017	07/20/2017	Hoor Shaik	08/04/2017	Juyoung Kim	1914101