

Chemical Analysis Report

WQAP-2017-09-27-02

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

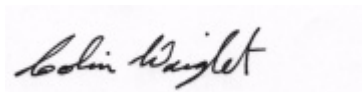
Event Description: **RUN 7**
Request ID: **RQ-2017-09-25-14**
Customer: **WQAP**
Project ID: **SMP**

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

For additional information please contact
Colin Wright, Ph.D.
Liang-Tsair Lin, Ph.D.
Thekkekalathil Chandrasekhar, Ph.D, QA Officer
Phone (850) 245-8085

Certified by: Colin Wright, Program Administrator

Date Certified: 13-OCT-2017 08:58

A handwritten signature in black ink, appearing to read "Colin Wright", is written on a light-colored rectangular background.

Case Narrative

Unless otherwise noted, all samples included in this report were received in accordance with protocols referenced in Chapter 62-160, Florida Administrative Code (F.A.C.). Results published in this report pertain only to the samples as submitted to, and received by the laboratory. All times in this report are adjusted to the applicable Eastern Time Zone (EST or EDT).

Results for the following analytical groups are included in this report: Nutrients and Pesticides.

Scientific notation may be used in reporting very large or small values. Values reported using scientific notation will take the form of the following example: 1.3E+03, which is equivalent to 1.3×10^3 or 1300.

Unless otherwise noted, analytical values for soil and sediment samples are reported on a dry weight basis, and analytical values for waste and tissue samples are reported on a wet weight basis.

Results for TNI accredited tests met requirements established by The NELAC Institute. A double asterisk (**) is used to indicate an analyte/matrix/method for which the laboratory is not TNI accredited or where accreditation for that field of testing is not applicable.

Any significant anomalies or deviations from established protocols are documented in Non-Conformance Reports, which, where appropriate, are included within this analytical report. Additional comments related to specific analytical tests may be included as remarks following the analytical results for each sample. Such comments and remarks are for informational purposes only and are not intended to convey judgement about the usability of the reported data.

A quality control report on the performance of the test method for the submitted samples is included. Uncertainty associated with the analytical results contained in this report can be estimated from the reported quality assurance results and from published quality control acceptance limits for each analytical test. Matrix quality control results (matrix spike recoveries and matrix sample precision) pertain only to the matrix sample tested and do not necessarily reflect test method performance for other samples.

Typical matrix quality control (QC) measurements may include matrix spike recovery, matrix spike duplicate recovery, matrix spike precision and matrix sample precision. Not all matrix QC results may be available or reportable; where they are not an explanation is provided. Typical reasons for unavailable QC results include, but are not limited to, a) insufficient matrix sample to perform some or all QC measurements; b) analyte concentration in the sample replicated was too low for a meaningful measurement of precision and c) analyte concentration in the matrix sample spiked was too high (relative to the amount of analyte spiked) for a meaningful measurement of recovery. Where matrix QC results are unavailable, other method performance metrics (e.g., LCS recovery, LCS precision, surrogate recovery) may be used to assess performance of the method. Comments explaining any missing QC measurements are not intended to convey any adverse conclusions about the quality of the reported data.

Precision is reported as relative percent difference unless otherwise noted.

Quality Control codes as defined below may be used in this report to indicate results that are associated with one or more quality control elements which did not fall within established test method criteria. Such results may be qualified as estimates using a J qualifier as required by 62-160 F.A.C. Explanations are included in the report for any results that were reported as estimates for other reasons.

QC Codes used in this report may include:

- LCS – Recovery for the batch Laboratory Control Sample (LCS) was outside existing control limits;
- MS – Recovery for the batch matrix spike (MS) was outside existing control limits;
- CCV – Recovery for a continuing calibration verification (CCV) standard was outside existing control limits;
- SUR – Recovery of a surrogate (SUR) for associated analytes was outside existing control limits;
- RPD – The precision, measured as relative percent difference (RPD), of batch replicate measurements was outside existing control limits;
- RSD – The precision, measured as relative standard deviation (RSD), of batch replicate measurements was outside existing control limits;
- SMP – Sample - used precision derived from replicate analyses of a sample;

The following data qualifiers are used, where applicable, in this report as specified in 62-160 F.A.C.

- A - Value reported is the mean of two or more determinations.
- B - Results based on colony counts outside the acceptable range.
- I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
- J - Estimated value and/or the analysis did not meet established quality control criteria.
- K - Actual value is known to be less than value given.
- L - Actual value is known to be greater than value given.
- N - Presumptive evidence of presence of material.
- O - Sampled, but analysis lost or not performed.
- Q - Sample held beyond normal holding time.
- T - Value reported is less than the criterion of detection.
- U - Material was analyzed for but not detected. The reported value is the method detection limit for the sample analyzed.
- V - Analyte was detected in both sample and method blank.
- X - Too few individuals to calculate SCI value.
- Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate.
- Z - Colonies were too numerous to count (TNTC).

Quality control information from overflow laboratories may not be included in this report. Please refer to the associated report from the overflow laboratory for additional information.

Sample Location: ANN PARKER

Collection Date/Time: 09/26/2017 09:45

Field ID: G1SW0018

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1931769	EPA 180.1 Rev. 2.0	Turbidity	3.2		NTU	P332342	
	EPA 300.0 Rev. 2.1	Chloride	30		mg Cl/L	P332363	
		Sulfate	5.3		mg SO4/L	P332366	
	SM 2120 B	Color (true)	38	A	PCU	P332371	
	SM 2320 B-97	Total Alkalinity	12		mg CaCO3/L	P332632	
	SM 2540 C-97	TDS	91		mg/L	P332920	
	SM 2540 D-97	TSS	4	I	mg/L	P332913	
	SM 4500 F-C-97	Fluoride	0.081	I	mg F/L	P332636	RPD
1931773	EPA 350.1 Rev. 2.0	Ammonia-N	0.004	I	mg N/L	P332756	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.76		mg N/L	P332504	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P332611	
	EPA 365.1 Rev. 2.0	Total-P	0.023		mg P/L	P332460	
	SM 5310 B-00	Organic Carbon	9.3		mg C/L	P332516	
1931777	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P332328	

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: WASTENA

Collection Date/Time: 09/26/2017 10:25

Field ID: G1SW0020

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1931770	EPA 180.1 Rev. 2.0	Turbidity	11		NTU	P332342	
	EPA 300.0 Rev. 2.1	Chloride	18		mg Cl/L	P332363	
		Sulfate	5.1		mg SO4/L	P332366	
	SM 2120 B	Color (true)	73		PCU	P332371	
	SM 2320 B-97	Total Alkalinity	22		mg CaCO3/L	P332632	
	SM 2540 C-97	TDS	82		mg/L	P332920	
	SM 2540 D-97	TSS	6	I	mg/L	P332913	
	SM 4500 F-C-97	Fluoride	0.064	I	mg F/L	P332636	RPD
1931774	EPA 350.1 Rev. 2.0	Ammonia-N	0.008		mg N/L	P332756	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	1.5		mg N/L	P332504	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P332611	
	EPA 365.1 Rev. 2.0	Total-P	0.050		mg P/L	P332460	
	SM 5310 B-00	Organic Carbon	13		mg C/L	P332516	
1931778	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.004	U	mg P/L	P332329	

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: LITTLE LAKE WILSON

Collection Date/Time: 09/26/2017 11:00

Field ID: G1SW0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1931771	EPA 180.1 Rev. 2.0	Turbidity	3.3		NTU	P332342	
	EPA 300.0 Rev. 2.1	Chloride	39		mg Cl/L	P332363	
		Sulfate	2.9		mg SO4/L	P332366	

Field ID: G1SW0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1931771	SM 2120 B	Color (true)	87		PCU	P332371	
	SM 2320 B-97	Total Alkalinity	57		mg CaCO3/L	P332632	
	SM 2540 C-97	TDS	150		mg/L	P332921	
	SM 2540 D-97	TSS	5	I	mg/L	P332914	
	SM 4500 F-C-97	Fluoride	0.065	I	mg F/L	P332636	RPD
1931775	EPA 350.1 Rev. 2.0	Ammonia-N	0.006		mg N/L	P332756	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.96		mg N/L	P332504	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004	U	mg N/L	P332611	
	EPA 365.1 Rev. 2.0	Total-P	0.069		mg P/L	P332460	
	SM 5310 B-00	Organic Carbon	14		mg C/L	P332516	
1931779	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.008	I	mg P/L	P332329	

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: LITTLE LAKE WILSON

Collection Date/Time: 09/26/2017 11:00

Field ID: G1SW0006

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1931788	EPA 8321B	Sucralose**	0.58		ug/L	P332314	
	USGS O-2060-01	2,4-D	0.0075	I	ug/L	P332316	
		Diuron	0.0083		ug/L	P332316	
		Fenuron	0.0080	U	ug/L	P332316	
		Imidacloprid	0.16		ug/L	P332316	
		Bentazon	0.016	J	ug/L	P332316	MS
		Linuron	0.0040	U	ug/L	P332316	
		Acetaminophen**	0.0080	U	ug/L	P332316	
		MCP	0.0033	I	ug/L	P332316	
		Carbamazepine**	0.0022		ug/L	P332316	
		Triclopyr**	0.0040	U	ug/L	P332316	
		Primidone**	0.018		ug/L	P332316	
		Fluridone**	0.0017		ug/L	P332316	

Ref. Method and Comment:

USGS O-2060-01: Refer to the narrative for an explanation of QC Codes.

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

Sample Location: LAKE HARVEY

Collection Date/Time: 09/26/2017 11:30

Field ID: G1SW0001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1931772	EPA 180.1 Rev. 2.0	Turbidity	4.1		NTU	P332342	
	EPA 300.0 Rev. 2.1	Chloride	14		mg Cl/L	P332363	
		Sulfate	3.3		mg SO4/L	P332366	
	SM 2120 B	Color (true)	140		PCU	P332371	
	SM 2320 B-97	Total Alkalinity	33		mg CaCO3/L	P332632	
	SM 2540 C-97	TDS	91		mg/L	P332921	
	SM 2540 D-97	TSS	8	I	mg/L	P332914	
	SM 4500 F-C-97	Fluoride	0.067	I	mg F/L	P332636	RPD

Field ID: G1SW0001

Matrix: W-SURF-FRH

Sample ID	Ref. Method	Component	Result	Code	Units	Batch ID	QC Codes
1931776	EPA 350.1 Rev. 2.0	Ammonia-N	0.006	U	mg N/L	P332756	
	EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	0.80		mg N/L	P332504	
	EPA 353.2 Rev. 2.0	NO2NO3-N	0.004		mg N/L	P332611	
	EPA 365.1 Rev. 2.0	Total-P	0.10		mg P/L	P332460	
	SM 5310 B-00	Organic Carbon	18		mg C/L	P332516	
1931780	EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	0.031		mg P/L	P332329	

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 180.1 Rev. 2.0
 Batch ID: P332342

Component	Result	Code	Units
Turbidity	0.10	U	NTU

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P332363

Component	Result	Code	Units
Chloride	0.20	U	mg Cl/L

Reference Method: EPA 300.0 Rev. 2.1
 Batch ID: P332366

Component	Result	Code	Units
Sulfate	0.20	U	mg SO4/L

Reference Method: EPA 350.1 Rev. 2.0
 Batch ID: P332756

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

Reference Method: EPA 351.2 Rev. 2.0
 Batch ID: P332504

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

Reference Method: EPA 353.2 Rev. 2.0
 Batch ID: P332611

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

Reference Method: EPA 365.1 Rev. 2.0
 Batch ID: P332460

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

Quality Assurance Report Method Blank Results

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332328

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332329

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

Reference Method: EPA 8321B
Batch ID: P332314

Component	Result	Code	Units
Sucralose	0.010	U	ug/L

Reference Method: SM 2120 B
Batch ID: P332371

Component	Result	Code	Units
Color (true)	2.5	U	PCU

Reference Method: SM 2320 B-97
Batch ID: P332632

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

Reference Method: SM 2540 C-97
Batch ID: P332920

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 C-97
Batch ID: P332921

Component	Result	Code	Units
TDS	15	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P332913

Component	Result	Code	Units
TSS	2	U	mg/L

Reference Method: SM 2540 D-97
Batch ID: P332914

Component	Result	Code	Units
TSS	2	U	mg/L

Quality Assurance Report Method Blank Results

Reference Method: SM 4500 F-C-97
Batch ID: P332636

Component	Result	Code	Units
Fluoride	0.035	U	mg F/L

Reference Method: SM 5310 B-00
Batch ID: P332516

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

Reference Method: USGS O-2060-01
Batch ID: P332316

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
MCPP	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: P332363

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

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332366

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

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P332756

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

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332504

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Kjeldahl Nitrogen	98.0		P	90 - 110

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332611

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
NO2NO3-N	107		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332460

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: P332328

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

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332329

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

Reference Method: EPA 8321B
Batch ID: P332314

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Sucralose	92.6		P	40 - 150

Reference Method: SM 2320 B-97
Batch ID: P332632

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

Reference Method: SM 4500 F-C-97
Batch ID: P332636

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Fluoride	98.2		P	92 - 103

Reference Method: SM 5310 B-00
Batch ID: P332516

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Organic Carbon	101		P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P332316

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
2,4-D	74.3		P	40 - 150
Acetaminophen	145		P	30 - 150
Bentazon	40.2		P	40 - 150
Carbamazepine	117		P	40 - 150

Quality Assurance Report Laboratory Control Sample Accuracy

Reference Method: USGS O-2060-01
Batch ID: P332316

Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
Diuron	103		P	40 - 150
Fenuron	112		P	40 - 150
Fluridone	110		P	40 - 150
Imidacloprid	102		P	40 - 160
Linuron	107		P	40 - 150
MCPP	75.7		P	40 - 150
Primidone	109		P	40 - 150
Triclopyr	72.5		P	40 - 150

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332363

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1931610	Chloride	93.3		P	90 - 110
1931643	Chloride	94.2		P	90 - 110

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332366

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1931610	Sulfate	94.7		P	90 - 110
1931643	Sulfate	93.7		P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P332756

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1931773	Ammonia-N	101	103	P/P	90 - 110

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332504

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1931818	Kjeldahl Nitrogen	98.6	95.3	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332611

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1931755	NO2NO3-N	104		P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332460

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1931818	Total-P	99.3	97.9	P/P	90 - 110

Quality Assurance Report Matrix Spike Accuracy

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332328

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1931749	O-Phosphate-P	94.9	96.7	P/P	90 - 110

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332329

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1931880	O-Phosphate-P	96.1	97.3	P/P	90 - 110

Reference Method: EPA 8321B
Batch ID: P332314

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1932057	Sucralose	42.3	42.5	P/P	40 - 150

Reference Method: SM 4500 F-C-97
Batch ID: P332636

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1931805	Fluoride	96.0	100	P/P	91 - 105

Reference Method: SM 5310 B-00
Batch ID: P332516

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1931655	Organic Carbon	96.8	102	P/P	85 - 115

Reference Method: USGS O-2060-01
Batch ID: P332316

Spiked Sample	Component	% Rec.1	% Rec.2	Pass/Fail	Control Limits
1931788	2,4-D	64.1	66.9	P/P	40 - 150
1931788	Acetaminophen	82.5	90.5	P/P	30 - 150
1931788	Bentazon	22.3	29.7	F/F	40 - 150
1931788	Carbamazepine	82.1	84.7	P/P	40 - 150
1931788	Diuron	57.4	62.9	P/P	40 - 150
1931788	Fenuron	82.6	83.1	P/P	40 - 150
1931788	Fluridone	66.1	58.8	P/P	40 - 150
1931788	Linuron	80.7	85.4	P/P	40 - 150
1931788	MCP	50.0	51.8	P/P	40 - 150
1931788	Primidone	91.9	91.9	P/P	40 - 150
1931788	Triclopyr	50.6	52.6	P/P	40 - 150

Quality Assurance Report Precision

Reference Method: EPA 180.1 Rev. 2.0
Batch ID: P332342

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1931742	Turbidity	1.29	Sample	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332363

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1931610	Chloride	2.38	Sample	P	0 - 20

Reference Method: EPA 300.0 Rev. 2.1
Batch ID: P332366

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1931610	Sulfate	3.55	Sample	P	0 - 20

Reference Method: EPA 350.1 Rev. 2.0
Batch ID: P332756

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1931773	Ammonia-N	1.86	Spike	P	0 - 20

Reference Method: EPA 351.2 Rev. 2.0
Batch ID: P332504

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1931818	Kjeldahl Nitrogen	2.26	Spike	P	0 - 20

Reference Method: EPA 353.2 Rev. 2.0
Batch ID: P332611

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1931755	NO2NO3-N	0.0	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0
Batch ID: P332460

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1931818	Total-P	1.37	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332328

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1931749	O-Phosphate-P	1.38	Spike	P	0 - 20

Reference Method: EPA 365.1 Rev. 2.0 dissolved
Batch ID: P332329

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1931880	O-Phosphate-P	0.790	Spike	P	0 - 20

Quality Assurance Report Precision

Reference Method: EPA 8321B
Batch ID: P332314

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1932057	Sucralose	0.283	Spike	P	0 - 30

Reference Method: SM 2120 B
Batch ID: P332371

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1931769	Color (true)	4.14	Sample	P	0 - 20

Reference Method: SM 2320 B-97
Batch ID: P332632

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1931805	Total Alkalinity	0.258	Sample	P	0 - 4.8

Reference Method: SM 2540 C-97
Batch ID: P332920

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1931743	TDS	0.615	Sample	P	0 - 10

Reference Method: SM 2540 C-97
Batch ID: P332921

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1931805	TDS	5.00	Sample	P	0 - 10

Reference Method: SM 4500 F-C-97
Batch ID: P332636

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1931805	Fluoride	4.04	Spike	F	0 - 3.0

Reference Method: SM 5310 B-00
Batch ID: P332516

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1931655	Organic Carbon	3.24	Spike	P	0 - 20

Reference Method: USGS O-2060-01
Batch ID: P332316

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1931788	2,4-D	3.28	Spike	P	0 - 30
1931788	Acetaminophen	9.20	Spike	P	0 - 30

Quality Assurance Report Precision

Reference Method: USGS O-2060-01
 Batch ID: P332316

Replicated Lab Sample	Component	% RSD/RPD	Sample/Spike/LCS*	Pass/Fail	Control Limits
1931788	Bentazon	11.2	Spike	P	0 - 30
1931788	Carbamazepine	2.99	Spike	P	0 - 30
1931788	Diuron	6.74	Spike	P	0 - 30
1931788	Fenuron	0.652	Spike	P	0 - 30
1931788	Fluridone	11.1	Spike	P	0 - 30
1931788	Imidacloprid	0.905	Spike	P	0 - 30
1931788	Linuron	5.66	Spike	P	0 - 30
1931788	MCP	3.10	Spike	P	0 - 30
1931788	Primidone	0.0440	Spike	P	0 - 30
1931788	Triclopyr	3.91	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: 1931788
 Field Sample ID: G1SW0006

Reference Method	Surrogate	% Rec.	Pass/Fail	Control Limits
EPA 8321B	Acetaminophen-d4	89.1	P	30 - 160
EPA 8321B	Carbamazepine-d10	82.3	P	30 - 160
EPA 8321B	Diuron-d6	64.5	P	30 - 160
EPA 8321B	Primidone-d5	87.5	P	30 - 160
EPA 8321B	Sucralose-d6	86.3	P	40 - 160
USGS O-2060-01	2,4-D-d3	65.9	P	40 - 160
USGS O-2060-01	Acetaminophen-d4	89.1	P	30 - 160
USGS O-2060-01	Carbamazepine-d10	82.3	P	30 - 160
USGS O-2060-01	Diuron-d6	64.5	P	30 - 160
USGS O-2060-01	Primidone-d5	87.5	P	30 - 160
USGS O-2060-01	Sucralose-d6	86.3	P	40 - 160

Quality Assurance Report Calibration Verification

Reference Method: EPA 365.1 Rev. 2.0 dissolved
 Run ID: A79194
 Included Lab Sample IDs: 1931777, 1931778, 1931779, 1931780

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
O-Phosphate-P	101	96.5	P/P	90 - 110
O-Phosphate-P	101	101	P/P	90 - 110

Reference Method: EPA 180.1 Rev. 2.0
 Run ID: A79197
 Included Lab Sample IDs: 1931769, 1931770, 1931771, 1931772

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Turbidity	100	100	P/P	95 - 105

Quality Assurance Report Calibration Verification

Reference Method: EPA 300.0 Rev. 2.1

Run ID: A79203

Included Lab Sample IDs: 1931769, 1931770, 1931771, 1931772

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Chloride	96.7	99.1	P/P	90 - 110
Chloride	99.1	97.3	P/P	90 - 110
Sulfate	101	95.8	P/P	90 - 110
Sulfate	95.1	101	P/P	90 - 110

Reference Method: SM 2120 B

Run ID: A79205

Included Lab Sample IDs: 1931769, 1931770, 1931771, 1931772

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Color (true)	103	103	P/P	90 - 115

Reference Method: SM 5310 B-00

Run ID: A79261

Included Lab Sample IDs: 1931773, 1931774, 1931775, 1931776

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A79263

Included Lab Sample IDs: 1931775, 1931776

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

Reference Method: EPA 365.1 Rev. 2.0

Run ID: A79280

Included Lab Sample IDs: 1931773, 1931774

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total-P	99.5	98.2	P/P	90 - 110

Reference Method: EPA 353.2 Rev. 2.0

Run ID: A79298

Included Lab Sample IDs: 1931773, 1931774, 1931775, 1931776

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

Reference Method: SM 2320 B-97

Run ID: A79305

Included Lab Sample IDs: 1931769, 1931770, 1931771, 1931772

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Total Alkalinity	98.8	102	P/P	90 - 110

Quality Assurance Report Calibration Verification

Reference Method: SM 4500 F-C-97

Run ID: A79305

Included Lab Sample IDs: 1931769, 1931770, 1931771, 1931772

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

Reference Method: EPA 351.2 Rev. 2.0

Run ID: A79313

Included Lab Sample IDs: 1931773, 1931774, 1931775, 1931776

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Kjeldahl Nitrogen	96.7	98.0	P/P	90 - 110

Reference Method: EPA 350.1 Rev. 2.0

Run ID: A79344

Included Lab Sample IDs: 1931773, 1931774, 1931775, 1931776

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Ammonia-N	104	104	P/P	90 - 110
Ammonia-N	105	104	P/P	90 - 110

Reference Method: USGS O-2060-01

Run ID: A79377

Included Lab Sample IDs: 1931788

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
2,4-D	92.0	96.7	P/P	50 - 150
Acetaminophen	99.2	97.6	P/P	60 - 150
Bentazon	125	118	P/P	50 - 150
Carbamazepine	106	106	P/P	60 - 150
Diuron	104	103	P/P	60 - 150
Fenuron	101	99.4	P/P	60 - 150
Fluridone	102	100	P/P	60 - 160
Imidacloprid	93.2	92.2	P/P	60 - 150
Linuron	108	104	P/P	60 - 150
MCP	99.9	99.8	P/P	50 - 150
Primidone	99.8	99.4	P/P	60 - 150
Triclopyr	100	98.9	P/P	50 - 150

Reference Method: EPA 8321B

Run ID: A79451

Included Lab Sample IDs: 1931788

Component	% Rec.1	% Rec.2	Pass/Fail*	Control Limits
Sucralose	90.6	81.6	P/P	60 - 150

* Pass/Fail determinations are made for each bracketing calibration verification check.

Control limits for initial calibration checks may be different from those for continuing checks, depending on method requirements.

Where they are different, both control limits are provided.

Quality Assurance Report Summary

Ref. Method	Analyte	LCS % Recovery	MS % Recovery		Precision	
					LCS	MS
EPA 180.1 Rev. 2.0	Turbidity				1.29	
EPA 300.0 Rev. 2.1	Chloride	96.6	93.3	94.2	2.38	
	Sulfate	98.9	94.7	93.7	3.55	
EPA 350.1 Rev. 2.0	Ammonia-N	101	101	103		1.86
EPA 351.2 Rev. 2.0	Kjeldahl Nitrogen	98.0	98.6	95.3		2.26
EPA 353.2 Rev. 2.0	NO ₂ NO ₃ -N	107	104			0.0
EPA 365.1 Rev. 2.0	Total-P	98.9	99.3	97.9		1.37
EPA 365.1 Rev. 2.0 dissolved	O-Phosphate-P	98.3	94.9	96.7		1.38
	O-Phosphate-P	104	96.1	97.3		0.790
EPA 8321B	Sucralose	92.6	42.3	42.5		0.283
SM 2120 B	Color (true)				4.14	
SM 2320 B-97	Total Alkalinity	102			0.258	
SM 2540 C-97	TDS				0.615	
	TDS				5.00	
SM 4500 F-C-97	Fluoride	98.2	96.0	100		4.04
SM 5310 B-00	Organic Carbon	101	96.8	102		3.24
USGS O-2060-01	2,4-D	74.3	64.1	66.9		3.28
	Acetaminophen	145	82.5	90.5		9.20
	Bentazon	40.2	22.3	29.7		11.2
	Carbamazepine	117	82.1	84.7		2.99
	Diuron	103	57.4	62.9		6.74
	Fenuron	112	82.6	83.1		0.652
	Fluridone	110	66.1	58.8		11.1
	Imidacloprid	102				0.905
	Linuron	107	80.7	85.4		5.66
	MCPP	75.7	50.0	51.8		3.10
	Primidone	109	91.9	91.9		0.0440
	Triclopyr	72.5	50.6	52.6		3.91

Reference Method Descriptions

Method / DoH Cert #	Description	Associated Samples
EPA 180.1 Rev. 2.0 / E31780	Turbidity in aqueous matrices	1931769, 1931770, 1931771, 1931772
EPA 300.0 Rev. 2.1 / E31780	Chloride in aqueous matrices	1931769, 1931770, 1931771, 1931772
EPA 300.0 Rev. 2.1 / E31780	Sulfate in aqueous matrices	1931769, 1931770, 1931771, 1931772
EPA 350.1 Rev. 2.0 / E31780	Ammonia in aqueous matrices as mg N/L	1931773, 1931774, 1931775, 1931776
EPA 351.2 Rev. 2.0 / E31780	Total Kjeldahl Nitrogen in aqueous matrices	1931773, 1931774, 1931775, 1931776
EPA 353.2 Rev. 2.0 / E31780	Nitrite/Nitrate in aqueous matrices as mg N/L	1931773, 1931774, 1931775, 1931776
EPA 365.1 Rev. 2.0 / E31780	Total Phosphorus in aqueous matrices as mg P/L	1931773, 1931774, 1931775, 1931776
EPA 365.1 Rev. 2.0 dissolved / E31780	Ortho-phosphate, dissolved, in filtered, aqueous matrices as mg P/L	1931777, 1931778, 1931779, 1931780
EPA 8321B / E31780	Analysis of sucralose in water matrices by HPLC/MS/MS	1931788
SM 2120 B / E31780	True Color measured at 450 nm	1931769, 1931770, 1931771, 1931772
SM 2320 B-97 / E31780	Alkalinity in aqueous matrices as mg CaCO ₃ /L	1931769, 1931770, 1931771, 1931772
SM 2540 C-97 / E31780	Total Dissolved Solids in aqueous matrices	1931769, 1931770, 1931771, 1931772
SM 2540 D-97 / E31780	Total Suspended Solids in aqueous matrices	1931769, 1931770, 1931771, 1931772
SM 4500 F-C-97 / E31780	Fluoride in aqueous matrices, without distillation (not valid for NPDES monitoring)	1931769, 1931770, 1931771, 1931772
SM 5310 B-00 / E31780	Nonpurgeable Organic Carbon in aqueous matrices	1931773, 1931774, 1931775, 1931776

Reference Method Descriptions

Method / DoH Cert #	Description	<u>Associated Samples</u>
USGS O-2060-01 / E31780	Chlorinated (phenoxy acid) herbicides in water matrices by HPLC/MS/MS	1931788
USGS O-2060-01 / E31780	Urea herbicides and other chemicals in water matrices by HPLC/MS/MS	1931788

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	09/27/2017			09/27/2017 17:33	Tanya Welborn	1931769, 1931770, 1931771, 1931772
EPA 300.0 Rev. 2.1	09/27/2017			09/28/2017	Julia Storbeck	1931769, 1931770, 1931771, 1931772
EPA 350.1 Rev. 2.0	09/27/2017			10/04/2017	Sofia Elnemr	1931773, 1931774, 1931775, 1931776
EPA 351.2 Rev. 2.0	09/27/2017	09/29/2017	Adrian Shelby	10/02/2017	Tanya Welborn	1931773, 1931774, 1931775, 1931776
EPA 353.2 Rev. 2.0	09/27/2017			10/03/2017	Beverly Y. Sanders	1931773, 1931774, 1931775, 1931776
EPA 365.1 Rev. 2.0	09/27/2017	09/29/2017	Sima Feizi	10/02/2017	Lipi Saha	1931773, 1931774, 1931775, 1931776
EPA 365.1 Rev. 2.0 dissolved	09/27/2017			09/27/2017 15:01	Megan Treadwell	1931777
	09/27/2017			09/27/2017 15:02	Megan Treadwell	1931778
	09/27/2017			09/27/2017 15:14	Megan Treadwell	1931779
	09/27/2017			09/27/2017 15:15	Megan Treadwell	1931780
EPA 8321B	09/27/2017	10/02/2017	Hoor Shaik	10/09/2017	Juyoung Kim	1931788
SM 2120 B	09/27/2017			09/27/2017 15:38	DeAsia Armster	1931769
	09/27/2017			09/27/2017 15:39	DeAsia Armster	1931770
	09/27/2017			09/27/2017 15:40	DeAsia Armster	1931771
	09/27/2017			09/27/2017 15:41	DeAsia Armster	1931772
SM 2320 B-97	09/27/2017			10/03/2017	Dale L. Simmons	1931769, 1931770, 1931771, 1931772
SM 2540 C-97	09/27/2017			09/29/2017	Yijie Li	1931769, 1931770, 1931771, 1931772
SM 2540 D-97	09/27/2017			09/29/2017	Yijie Li	1931769, 1931770, 1931771, 1931772
SM 4500 F-C-97	09/27/2017			10/03/2017	Dale L. Simmons	1931769, 1931770, 1931771, 1931772
SM 5310 B-00	09/27/2017			09/29/2017	Ping Hua	1931773, 1931774, 1931775, 1931776
USGS O-2060-01	09/27/2017	10/02/2017	Hoor Shaik	10/06/2017	Julie Michelle Frank	1931788